STUDY MATERIAL

EXECUTIVE PROGRAMME

CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT

GROUP 1
PAPER 4

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EXECUTIVE PROGRAMME

CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT

In today's business world accounting is considered as 'the universal language of all business', because it is the medium for reporting financial information about a business entity to users, such as shareholders, banks and managers. A proper accounting system is essential to any business, whether big or small, in order to manage its daily functions and run it successfully. The main obligation of any business is to maximize profits, minimize losses and at the same time maintain its position as a responsible entity within the society.

So, in the current business world, everybody should have the knowledge of accounting discipline irrespective of the job one is doing. Due to the rapid advancement in business activities due to industrialization and globalization, the need for people having knowledge of accounts have increased manifold. It is impossible to survive in today's advanced business environment without adequate knowledge of basic accountancy.

Especially all business students should have some background in accounting to understand, interpret and present the results of business. Keeping this objective in alignment, this study material is prepared to augment the basic as well as advanced understanding of students in the related aspects of Corporate Accounting and Financial Management.

The Study Material which is divided in two parts covers in the details the concepts of Corporate Accounting in Part – I and discusses Financial Management in detail under Part-II.

The legislative changes made upto November 30, 2023 have been incorporated in the study material. The students are advised to refer to the updations at the Regulator's website, Supplements relevant for the subject issued by ICSI and ICSI Journal Chartered Secretary and Other publications. Specifically, students are advised to read **"Student Company Secretary" e-Journal** which covers regulatory and other relevant developments relating to the subject. In the event of any doubt, students may contact the Directorate of Academics at **academics@icsi.edu.**

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EXECUTIVE PROGRAMME

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Paper 4

CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT

SYLLABUS

OBJECTIVES:

Part I: **To provide knowledge and understanding of the concepts, principles and practices in Company Accounts, Interpretation of Financial Statements.**

Part II: **To provide conceptual clarity and practical aspects of financial management so as to develop skills in taking financial and investment decisions and in business strategies.**

Level of Knowledge: Working Knowledge

PART I – CORPORATE ACCOUNTING (60 MARKS)

1. **Introduction to Accounting**: Book Keeping ● Accounting Cycle ● Single / Double entry system ● Accounting Principles ● Accounting Concept & Convention ● Types of Account ● Journal ● Ledger ● Trial Balance ● Final Accounts

2. **Introduction to Corporate Accounting:** Records of accounts to be maintained by a company ● Preparation and Presentation of Financial Statements ● Schedule III of the Companies Act, 2013 ● Disclosure Requirement ● True and Fair View of Financial Statements ● XBRL

3. **Accounting Standards (AS):** Applicability ● Interpretation ● Scope and Compliance ● International Financial Reporting Standards ● Overview of AS ● AS vs. Ind AS vs. IFRS

4. **Accounting for Share Capital** : Issue of Shares ● Forfeiture and Reissue of Shares ● Accounting Treatment of Premium ● Buy-back of Shares ● Redemption and Conversion ● Capital Redemption Reserve ●Bonus Shares ● Rights Issue ● ESOPs ● ESPS ● Sweat Equity Shares and Underwriting ● Book Building

5. **Accounting for Debentures**: Accounting Treatment ● Debenture Redemption Reserve ● Redemption of Debentures and Conversion of Debentures into Shares

6. **Related Aspects of Company Accounts**: Accounting for ESOP ● Buy-back ● Equity Shares with differential rights ● Underwriting and Debentures

7. **Consolidation of Accounts**: Standalone and Consolidated Financial Statements ● Holding Company ● Subsidiary Company ● Associate Companies and Joint Venture ● Accounting Treatment and disclosures

8. **Financial Statement Analysis**: Introduction ● Characteristics of good financial statements and its relevancy for better reporting ● Requirements of Financial Reporting and Recent trends ● Best Practices

applicable to all companies ● Usage and features of ratios analysis ● liquidity ratios ● turnover ratio ● leverage ratios ● Insolvency ratio and profitability ratio ● DuPont Analysis ● Reading and Interpretation of Financial Statements

9. **Cash Flows:** Understanding the Statement of Cash Flows ● Identify the purpose of the statement of Cash Flows ● structure and interpretation of operating ● investing and financing activities in Cash Flow statement ● Analyze information in the statement of Cash Flows to determine whether the firm is in its life cycle ● Examine additional uses of Cash Flow information

10. **Forecasting Financial Statements**: Build forecasts of future Balance Sheets ● Income Statements and Statements of Cash Flows.

PART II – FINANCIAL MANAGEMENT (40 MARKS)

11. **Introduction :** Nature ● Scope & Objectives of Financial Management ● Profit Maximization vs. Wealth Maximization

12. **Time Value of Money:** Introduction ● Concept of Time Value of Money – The power of compounding ● Significance and application of Time Value of money ● Concept of Annuity ● Understanding and application of Table used in Time value of money

13. **Capital Budgeting:** Compounding and Discounting techniques - Capital Budgeting Process ● Techniques of Capital Budgeting - Discounted and Non- Discounted Cash Flow Methods ● NPV ● Payback ● Profitability Index ● IRR ● Economic Value Added (EVA) ● Capital Rationing ● Risk Evaluation and Sensitivity Analysis

14. **Cost of Capital:** Sources ● Meaning ● Factors Affecting Cost of Capital ● Methods for Calculating Cost of Capital ● Weighted Average Cost of Capital (WACC) ● Marginal Cost of Capital

15. **Capital Structure:** Introduction ● Significance of Capital Structure ● Determinants of Capital Structure ● Capital structure planning and designing of optimum capital structure ● Capital Structure Theories ● EBIT- EPS Analysis ● Breakeven - EBIT Analysis ● Under / Over Capitalisation

16. **Dividend Decisions:** Factors determining dividend policy ● Dividend Models- Relevant/ Irrelevant Theories - Walter's Model, Gordon's Model, M-M Model ● Forms of Dividend – Cash Dividend, Stock Dividend, Stock Splits, Share repurchase

17. **Working Capital Management:** Meaning ● Types ● Determinants and Assessment of Working Capital Requirements ● Negative Working Capital ● Operating Cycle Concept and Applications of Quantitative Techniques ● Management of Working Capital – Cash Receivables Inventories ● Financing of Working Capital ● Banking Norms and Macro Aspects ● Factoring and Forfaiting

18. **Security Analysis:** Measuring of Systematic and Unsystematic Risk ● Fundamental Analysis (Economic, Industry and Company) ● Technical Analysis and Efficient Market Hypothesis

19. **Operational Approach to Financial Decision:** An Overview of Costing ● Key Concepts ● Basics Principles of Costing ● Marginal Costing – Breakeven Point, Margin of Safety

ARRANGEMENT OF STUDY LESSONS
CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT
GROUP 1 • PAPER 4

PART I : CORPORATE ACCOUNTING (60 MARKS)

Sl. No.	Lesson Title
1.	Introduction to Accounting
2.	Introduction to Corporate Accounting
3.	Accounting Standards (AS)
4.	Accounting for Share Capital
5.	Accounting for Debentures
6.	Related Aspects of Company Accounts
7.	Consolidation of Accounts
8.	Financial Statement Analysis
9.	Cash Flows
10.	Forecasting Financial Statements

PART II : FINANCIAL MANAGEMENT (40 MARKS)

11.	Introduction
12.	Time Value of Money
13.	Capital Budgeting
14.	Cost of Capital
15.	Capital Structure
16.	Dividend Decisions
17.	Working Capital Management
18.	Security Analysis
19.	Operational Approach to Financial Decision

LESSON WISE SUMMARY
CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT

PART I : CORPORATE ACCOUNTING (60 MARKS)

Lesson 1 – Introduction to Accounting

Accounting is a very old concept – as old as money. A description of proper keeping of accounts is also found in 'Arthashastra" written by Kautilya. However, it has developed with the passage of time to meet the requirements and challenges of ever – growing society. The modern-day accounting concept based on double entry system was originated by Luco Pacioli in Italy. Though the act of accounting is very old, in recent times it has acquired special significance because of rapidly growing economy, cut-throat competition, expanding markets and increasing production and changes in technology.

In this lesson, we will throw light on the basic concepts of accounting, types of accounts, accounting principles, conventions, accounting concepts, meaning of double entry system and the rules of debit & credit on which the entire concept of accounting is based.

Accounting process involves identification and analysis of financial transactions. These transactions are recorded, classified and summarised in a systematic manner to give useful information. Thus, accounting process starts with the recording of business transactions in monetary terms, in the primary books of accounts. For recording business transactions, it is necessary that these transactions are evidenced by proper source documents like cash memoes, purchase bills, sales bills, counterfoils of cheques issued, salary slips etc. From these source documents, transactions are recorded in the books of accounts which are the first and major step in accounting. It is the basis of accounting as entire future process would depend upon this recording of transactions. In this lesson, we will know about recording transactions in primary books like Journal and other subsidiary books, posting in ledger and then preparation of trial balance.

Lesson 2 – Introduction to Corporate Accounting

There is no legal obligation for sole proprietorship and partnership firm to prepare final accounts, but companies have statutory obligations to keep proper books of account and to prepare its final accounts every year in the manner as prescribed in the Companies Act. Chapter IX, Sections 128 to 138 of the Companies Act, 2013 deals with the legal provisions relating to the Accounts of Companies. Final accounts of a company consist of balance sheet as at the end of the accounting period and profit and loss account for that period. Section 129 of the Companies Act, 2013 prescribes the form and contents of balance sheet and profit and loss account of a company. Balance sheet of a company shall be prepared according to Schedule III of the Companies Act, 2013. The Schedule III sets out the minimum requirements for disclosure on the face of the Balance Sheet, and the Statement of Profit and Loss (hereinafter referred to as "Financial Statements") and Notes. Statement of Profit & Loss of a company shall be prepared according to Part II of Schedule III of the Companies Act, 2013. Section 129(1) of the Companies Act 2013, states that the financial statements shall give a true and fair view of the state of affairs of the company or companies, comply with the accounting standards notified under section 133 and shall be in the form provided for different class or classes of companies in Schedule III.

Lesson 3 – Accounting Standards (AS)

Accounting Standards (AS) are written policy documents by expert accounting body or by government or other regulatory body covering the aspects of recognition, measurement, presentation and disclosure of accounting

transactions in the financial statements. The ostensible purpose of the standard setting bodies is to promote the dissemination of timely and useful financial information to investors and certain other parties having an interest in the company's economic performance. Accounting standards reduce the accounting alternatives in the presentation of financial statements within the bounds of rationality, thereby ensuing comparability of financial statements of different enterprises. This lesson covers the brief about the Accounting Standard, the International Financial Reporting Standard and also list out the difference between Accounting Standard and IFRS.

Lesson 4 – Accounting for Share Capital

The most striking feature of a company is its ownership structure. The capital in a company is divided into small shares of fixed value. The shares of a company may be equity shares or preference shares. The objective of this lesson is to make students aware about accounting of different aspects of share capital. After studying this lesson, students will be able to:

- Understand the share capital structure in the balance sheet of a company.
- Understand the methods and accounting procedure of issue of shares.
- Specify the accounting treatment when shares are issued at par, premium and at discount.
- Explain the meaning and accounting treatment of forfeiture of shares and reissue thereof.
- Understand the accounting procedure of buy-back of shares.
- Enumerate the steps for redemption of preference shares.
- Appreciate the purpose of issuing Right shares & Bonus shares.
- Understand the accounting treatment for ESOPs, ESPS, Sweat Equity Shares.
- Understand the meaning of underwriting.
- Familiarize with various types of underwriting.
- Distinguish between marked application and unmarked applications.
- Determine the liability of underwriters.

Lesson 5 – Accounting for Debentures

Equity sources of financing are however not always sufficient to meet the ever growing needs of the corporate expansion and growth. Hence, corporates turn to debt financing through financial institutions, commercial banks or by issuing debt instruments either through the route of private placement or by offering the same for public subscription. Owing tax shield provided by debt instruments, the debt financing not only helps in reducing the cost of capital but also helps in designing appropriate capital structure of the company. This lesson deals with the accounting treatment of different aspects of debenture and bond especially with issue, redemption including conversion of debenture.

Lesson 6 – Related Aspects of Company Accounts

The objective of this lesson is to make students aware about accounting of different aspects of share capital and deals with the accounting treatment of different aspects of debenture and bond especially with issue, redemption including conversion of debenture. Understand the share capital structure in the balance sheet of a company. Discuss the methods and accounting procedure of issue of shares. Understand the accounting procedure of buy- back of shares. Understand the accounting treatment for ESOPs and ESPS. Understand the meaning of underwriting Familiarize with various types of underwriting. Distinguish between marked application

and unmarked applications. Determine the liability of underwriters. State the meaning of debenture and bonds; Describe the methods for the issue of debenture for cash and for consideration other than cash; Explain the issue of debenture as a collateral security; Explain the sources and record transaction relating to redemption of debenture; Discuss the methods of redemption of debenture; Record the Sinking Fund Investment transactions; Deal with cum-interest and ex-interest, open market operations.

Lesson 7 – Consolidation of Accounts

A holding company is one which acquires all or a majority of the equity shares of any other company called subsidiary company in order to have control over the subsidiary company. In order to understand the financial position of holding company, consolidations of accounts become very vital. After studying this lesson, students will be able to:

- Understand the concept of holding company and subsidiary company.
- Familiarize the legal requirements for preparation of final accounts of holding company.
- Prepare consolidated balance sheet and statement of profit and loss.
- Make appropriate accounting adjustments required for the preparation of consolidated balance sheet.
- Understand the concept of minority interest in consolidation of accounts.
- Appreciate the treatment of pre-acquisition profits and losses of the subsidiary company. Make adjustment regarding profit and loss on revaluation of assets of subsidiary company.
- Understand the calculation of goodwill or cost of control.
- Make adjustment for inter-company unrealized profits and inter-company transactions.
- Understand the treatment of bonus issue on consolidation of accounts.
- Make adjustment on dividend received from subsidiary company.

Lesson 8 – Financial Statement Analysis

Financial statements are compilation of financial data, collected and classified in a systematic manner according to the accounting principles, to assess the financial position of an enterprise as regards to its profitability, operational efficiency, long and short – term solvency and growth potential.

Financial statements are basic and formal means through which management of an enterprise make public communication of financial information along with select quantitative details. They are structured financial representation of the financial position, performance and cash flows of an enterprise. Many users rely on the general purpose financial statements as the major source of financial information and therefore, financial statements should be prepared and presented in accordance with their requirement. That does not undermine the dependence of the general users on the information contents of the financial statements.

Lesson 9 – Cash Flows

Cash flow statement is additional information to user of financial statement. This statement exhibits the flow of incoming and outgoing cash and cash equivalent. It assesses the ability of the enterprise to generate cash and utilize cash. Cash Flow Statement is one of the tools for assessing the liquidity and solvency of the enterprise.

Cash Flow Statement is considered to be a summarized statement showing sources of Cash Inflows and application of cash outflows of an enterprise during a particular period of time. It is prepared on the basis of the published data as disclosed by the Financial Statement of two different financial periods. It is an essential tool for managerial decision-making. Cash Flow reports the management Net Cash Flow (i.e. cash inflow less cash

outflow or vice versa) from each activity of the enterprise as well as of the overall business of the enterprise. The management of the enterprise gets a picture of movement of cash resources from the Cash Flow Statement and can assess the stronger and weaker area of movement of cash for different activities of the business for drawing up the future planning.

Lesson 10 – Forecasting Financial Statements

According to section 2(40) of Companies Act, 2013 defines "financial statement" in relation to a company, includes

- Balance Sheet as at the end of the financial year,
- Profit and Loss account, or (In the case of a company carrying on any activity not for profit, an income and expenditure account for the financial year),
- Cash Flow Statement for the financial year,
- Statement of Changes in Equity, if applicable, and
- Any explanatory note annexed to, or forming part of, any document.

Financial Statements shall be considered as horoscope if one knows how to read and analyze it then probably by addressing the various early warning signal available in statements would have helped to great extent.

Financial Forecasting is a process of estimating or predicting a company's financial future by examining historical performance of data like revenue, cash flow, expenses, or sales. It is at the heart of driving business performance and stakeholder's confidence. This lesson covers the Forecasting of Balance Sheet, Profit and Loss A/c , Cash Flows.

PART II : FINANCIAL MANAGEMENT (40 MARKS)

Lesson 11 – Introduction

This lesson covers the nature, scope and objectives of financial management, risk-return and value of the firm, objective of the firm: profit maximisation vs. wealth maximisation and emerging role of finance managers. Financial Management deals with procurement of funds and its effective utilizations in the business. It is concerned with investment, financing and dividend decisions in relation to objectives of the company. Financial management is very important for an organisation as it brings economic growth and development through investment, financing, dividend and risk management decision which help companies to undertake better projects. Lack of financial management in business will lead to losses and closure of business.

Lesson 12 – Time Value of Money

Time value of money is the quintessence in the formulation of financial decisions, especially in case of capital expenditure and long-term investments related decisions. Compounding and discounting are two pillars of time value of money. Now, depending upon the scenarios, cash inflows and outflows may take different forms, such as cash outflow in lump-sum at present and inflow in lump-sum in future, cash outflow and inflow in the form of annuities in the future etc.

In view of the mentioned facts, this lesson elucidated the concepts of time value of money, the power of compounding, concept of annuity, application of the various tables, i.e., Present Value Interest Factor, Future Value Interest Factor, Present Value Interest Factor of Annuity, Future Value of an Annuity and other pertinent concepts.

Lesson 13 – Capital Budgeting

This lesson covers capital budgeting process, its need and importance, kinds of capital budgeting decisions, capital expenditure control, capital rationing, various methods of capital budgeting- non discounted and discounted cash flow techniques, risk evaluation and sensitivity analysis, simulation for risk evaluation and some case studies on capital budgeting. Capital budgeting refers to long-term planning for proposed capital outlays and their financing. Thus, it includes both raising of long-term funds as well as their utilisation. It may, thus, be defined as the firm's formal process for acquisition and investment of capital. Capital budgeting requires use of various methods including statistical techniques which have been discussed in the chapter.

Lesson 14 – Cost of Capital

A business requires funds to purchase fixed assets like land and building, plant and machinery, furniture etc. These assets may be regarded as the foundation of a business. The cost of capital is the required rate of return that a firm must achieve in order to cover the cost of generating funds in the marketplace. It is used as a discount rate in determining the present value of future cash flows associated with capital projects. In this lesson we will study Sources of Long Term Finance, cost of capital, factors affecting the cost of capital, calculation of cost of capital of for different sources of finance, calculation of weighted cost of capital and marginal cost of capital.

Lesson 15 – Capital Structure

Capital Structure of a firm is a reflection of the overall investment and financing strategy of the firm. It shows how much reliance is being placed by the firm on external sources of finance and how much internal accruals are being used to finance expansions. Optimal capital structure means arrangement of various components of the structure in tune with both the long-term and short term objectives of the firm. This lesson comprises of nature, scope and significance of capital structure, factors affecting capital structure, capital structure vis a vis financial structure, planning and designing of capital structure, optimal capital structure, capital structure & valuation, theories of capital structure, types of leverage – operating leverage, financial leverage, combined leverage, EBIT-EPS analysis and effect of leverages on return on equity.

Lesson 16 – Dividend Decisions

Dividend policy determines what portion of earnings will be paid out to stock holders and what portion will be retained in the business to finance long-term growth. Dividend decision is one of the crucial parts of the financial manager, as it determines the amount available for financing the organization long term growth and it plays very important part in the financial management. This lesson includes types of dividend policies, determinants and constraints of dividend policy, type/ forms of dividend, different dividend theories – Walter's Model, Gordon's Model, Modigliani-Miller Hypothesis of Dividend Irrelevance Policy etc.

Lesson 17 – Working Capital Management

The capital which is required to finance current assets is called working capital. It is the capital of a business which is used to carry out day-to-day business operations of a firm. Working capital is vital for the proper and smooth functioning of an organisation. Therefore, it is very necessary for a corporate professional to know about management of different constituents of working capital. In this lesson we will study the meaning, types, determinants and assessment of working capital requirements, concept of negative working capital, operating cycle concept and applications of quantitative techniques, financing of working capital etc.

Lesson 18 - Security Analysis

Investment may be defined as a conscious act on the part of a person that involves deployment of money in securities issued by firms with a view to obtain a target rate of return over a specified period of time. Securities

are the instruments issued by seekers of funds in the investment market to the providers of funds in lieu of funds. Security analysis is about valuing the securities using publicly available information. In this lesson we will cover the concept of investment and security analysis, investment vs. speculation, risks and its types, approaches to valuation of a security, fundamental analysis, technical analysis and efficient market theory.

Lesson 19 – Operational Approach to Financial Decision

Financial decisions are largely influenced by the scale of operations of a business organization, which in turn are influenced by various forms of costs incurred on operations, like cost incurred on procurement of raw materials, employment of human capital, manufacturing process, sales and distribution etc., and in this regard different costing techniques plays a pivotal role in formulation of robust financial decisions.

This lesson makes an endeavour to throw light on the pertinent cost dimensions that affects the operations of an enterprise, such as an overview of costing, key concepts, basics principles of costing, marginal costing etc.

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Introduction to Accounting

Lesson 1

KEY CONCEPTS

■ Accounting ■ Book-Keeping ■ Debit ■ Credit ■ Personal Account ■ Real Account ■ Nominal Account ■ Single Entry System ■ Double Entry System ■ Journal ■ Subsidiary Books ■ Ledger ■ Trial Balance ■ Final Accounts

Learning Objectives

To understand:

- Basic Concepts of Accounting
- Attributes and Objectives of Accounting
- Book-Keeping & Accounting Cycle
- Accounting Concept
- Golden Rules of Accounting
- Types of Accounts i.e. Personal , Real , Nominal
- Single and Double Entry System
- Journal, Subsidiary Books, Ledger, Trail Balance
- Final Accounts (Trading , Profit and Loss & Balance Sheet)

Lesson Outline

- Introduction
- Book-Keeping
- Accounting Cycle
- Single Entry System
- Double Entry System
- Accounting Concept
- Types of Accounts
- Journal
- Ledger
- Trial Balance
- Final Accounts
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION

Business is the activity of making one's living or making money by producing or buying and selling products (such as goods and services). It is also "any activity or enterprise entered into with the motive of earning profits and maximization of the wealth for owners. No business can run in isolation. Largely, the business activity is carried out by people coming together with a purpose to serve a common cause. This term is often referred to as an organization, which could be in different forms such as sole proprietorship, partnership, corporate body, etc.

- **Sole proprietorship:** A sole proprietorship, also known as a sole trader, is owned by one person and operates for their benefit. All assets of the business belong to a sole proprietor, including, for example, a computer infrastructure, any inventory, manufacturing equipment, or retail fixtures, as well as any real property owned by the sole proprietor.
- **Partnership:** A partnership is a business owned by two or more people. In most forms of partnerships, each partner has unlimited liability for the debts incurred by the business. The three most prevalent types of for-profit partnerships are general partnerships, limited partnerships, and limited liability partnerships.
- **Corporation:** The owners of a corporation have limited liability and the business has a separate legal personality from its owners. Corporations can be either government-owned or privately owned, and they can organize either for profit or as nonprofit organizations.
- **Co-operative:** Often referred to as a "co-op", a co-operative is a limited-liability business that can organize as for-profit or not-for-profit. A cooperative differs from a corporation in that it has members, not shareholders, and they share decision-making authority.
- **Franchises:** A franchise is a system in which entrepreneurs purchase the rights to open and run a business from a larger corporation. Franchising in the United States is widespread and is a major economic powerhouse.
- **A company limited by guarantee**: Commonly used where companies are formed for non-commercial purposes, such as clubs or charities. The members guarantee the payment of certain (usually nominal) amounts if the company goes into insolvent liquidation, but otherwise, they have no economic rights in relation to the company. A company limited by guarantee may be with or without having share capital.
- **A company limited by shares**: The most common form of the company used for business ventures. Specifically, a limited company is a "company in which the liability of each shareholder is limited to the amount individually invested" with corporations being "the most common example of a limited company."
- **A company limited by guarantee with a share capital**: A hybrid entity, usually used where the company is formed for non-commercial purposes, but the activities of the company are partly funded by investors who expect a return.
- **An unlimited company with or without a share capital:** A hybrid entity, a company where the liability of members or shareholders for the debts (if any) of the company are not limited. In this case, the doctrine of a veil of incorporation does not apply.

The business activities require resources (which are limited and have multiple uses) primarily in terms of material, labour, technology etc. The success of a business depends on how efficiently and effectively these resources are managed. Therefore, there is a need to ensure that the businessman tracks the use of these resources. The resources are not free, and thus one must be careful to keep an eye on the cost of acquiring them as well. As the basic purpose of business is to make profit, one must keep an ongoing track of the activities undertaken in the course of business. Two basic questions would have to be answered:

(a) What is the result of any business operations? i.e. whether it has made profit or loss?

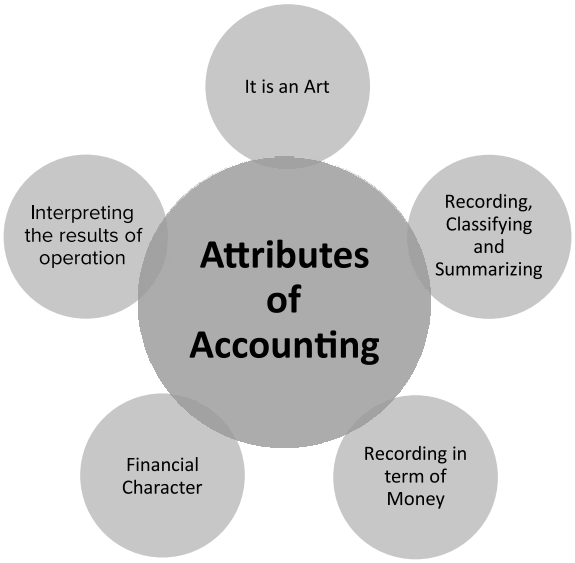
(b) What is the position of the resources acquired and used for business purposes? How are these resources financed and where do the funds come from?

The answers to these questions can be found through recording all the business activities / transaction / event. Recording of business activities has to be done in a scientific manner so that they reveal the correct outcome.

Accounting, also known as accountancy, is the measurement, processing, and communication of financial and non financial information about economic entities such as businesses and corporations. Accounting, which has been called the "language of business", measures the results of an organization's economic activities and conveys this information to a variety of stakeholders, including investors, creditors, management, and regulators. Practitioners of accounting are known as accountants. The terms "accounting" and "financial reporting" are often used as synonyms.

"Accounting is "the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character and interpreting the results thereof". **- American Institute of Certified Public Accountants ('AICPA')**

Attributes of Accounting



(i) Accounting is an Art - Accounting is classified as an art, as it helps us in attaining our aim of ascertaining the financial results, that is, operating profit and financial position through analysis and interpretation of financial data which requires special knowledge, experience and judgment.

(ii) It involves recording, classifying and summarizing - Recording means systematically writing down the transactions and events in account books soon after their occurrence. Classifying is the process of grouping transactions or entries of the same type at one place. This is done by opening accounts in a book called ledger. Summarizing involves the preparation of reports and statements from the classified data (ledger), understandable and useful to management and other interested parties. This involves preparation of final accounts namely profit and loss account and balance sheet.

(iii) It records transactions in terms of money - All transactions are recorded in terms of common measure, i.e., money which increases the understanding of the state of affairs of the business.

(iv) It records only those transactions and events which are of financial character - If an event has no financial character then it will not be capable of being measured in terms of money; it will not be, therefore, recorded.

(v) **It is the art of interpreting the results of operations -** to determine the financial position of the enterprise, the progress it has made and how well it is getting along.

Objectives of Accounting

Providing Information to the Users for Rational Decision making	Accounting provides useful information for decision-making to stakeholders such as owners, management, creditors and investors and other stake holders. Various outcomes of business activities such as costs, prices, sales volume, value under ownership and return on investment are measured in the accounting process. All these accounting measurements areused by stakeholders in decision making process. Hence, accounting is identified as the language of a business.
Systematic Recording of Transactions	To ensure reliabity and precision for the accounting measurements,it is necessary to keep a systematic record of all financial transactions of a business enterprise which is ensured by book-keeping. These financial records are classified, summarized and reposted in the form of accounting measurements to the users of accounting information i.e., stakeholders.
Ascertainment the results of above Transactions	Profit/Loss is a core accounting measurement done and measured by preparing a Profit and Loss Account for a particular period. Difference between these revenue incomes and revenue expenses is known as the result of business transactions identified as profit/loss. As this measure is used very frequently by stake-holders for rational decision making,it has become the objective of accounting. For example, Income TaxAct requires that every business should have an accounting systemthat can measure taxable income of the business and also explain nature and source of every item reported in Income Tax Return.
Ascertain the Financial Position of Business	Financial position is identified by preparing a statement of ownership meaning Assets, and owing meaning Liabilities of the business as on a certain date. This statement is popularly known asBalance Sheet. This statement may be used by various stakeholders for taking financing and investment decisions.
To Know the Solvency Position	Balance Sheet and Profit and Loss Account provide useful information to stockholders regarding potential of the entity to meet their obligations in the short as well as in the long run.

BOOK-KEEPING

As defined by Carter, "Book-Keeping is a science as well as art of correctly recording in books of accounts all those business transactions that result in transfer of money or money's worth".

Book-keeping is an activity concerned with recording and classifying financial data related to business operations in order of occurrence.

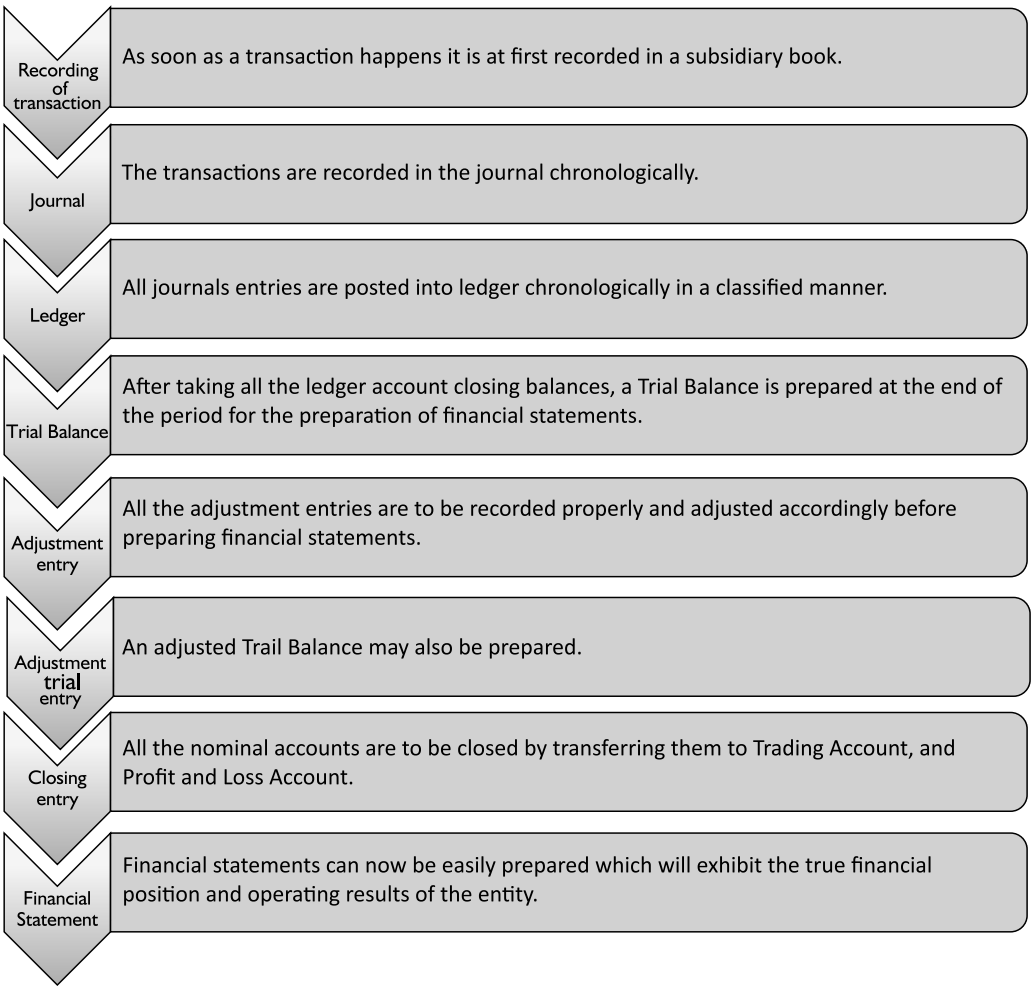
Book-keeping involves:

- Collection of basic financial information
- Identification of events and transactions with financial character, i.e., economic transactions
- Measurement of economic transactions in terms of money
- Recording of financial effects of economic transactions in order of its occurrence
- Classifying effects of economic transactions
- Preparing organized statement known as Trial Balance

Distinction between Book-Keeping and Accounting

Book-Keeping	Accounting
Output of book-keeping is an input for accounting.	Output of accounting permits informed judgments and decisions by the user (stakeholders) of accounting information.
Purpose of book-keeping is to keep systematic record of transactions and events of financial character in order of occurrence.	Purpose of accounting is to find results of operating activity of a business and to report its financial strength.
Book-keeping is the foundation of accounting.	Accounting is considered as a language of business.
Book-keeping is carried out by the junior staff.	Accounting is done by the senior staff who haveskills of analysis and interpretation.
Objective of book-keeping is to summarize the cumulative effect of all economic transactions of business for a given period by maintaining permanent record of each business transaction with its evidence and financial effects on accounting variable.	Object of accounting is not only book-keeping but also analyzing and interpreting reported financial information for informed decisions by the stake-holders or user of financial statement.

ACCOUNTING CYCLE



The accounting cycle is a basic, eight-step process for completing a company's book-keeping tasks. It provides a clear guide for the recording, analysis, and final reporting of a business's financial activities.

The steps or phases of accounting cycle can be developed as under:

Basic Accounting Terms

In order to understand the Accounting clearly, one must grasp the following common expressions used in business accounting. The aim here is to enable the student to understand these often used concepts before we embark on accounting procedures and rules.

- **Transaction:** It means an event or a business activity which involves exchange of money or money's worth between parties. The event can be measured in terms of money and changes the financial position of a entity e.g., purchase of goods would involve receiving material and making payment or creating an obligation to pay to the supplier at a future date. Transaction could be a cash transaction or credit transaction. When the parties settle the transaction immediately by making payment in cash or by cheque, it is called a cash transaction. On the other hand, in credit transactions, the payment is settled at a future date as per agreement between the parties.
- **Event:** An event may be described as any incidence that occurs as a result of something. In an accounting sense, an event can be understood as the final outcome of a business activity that can affect the account balances of the company if it is financial in nature. Whenever there is an increase or decrease in the company's assets or liabilities, an accounting event takes place. Therefore, it can change the fundamental accounting equation and can be expressed monetarily.
- **Goods/Services:** These are tangible article or commodities in which a business deals. These articles or commodities are either bought and sold or produced and sold. At times, what may be classified as goods to one business firm may not be goods to the other firm, e.g., for a machine manufacturing company, the machines are goods as they are frequently made and sold. But for the buying firm, it is not goods as the intention is to use it as a long-term resource and not sell it. The services are intangible in nature and are rendered with or without the object of earning profits.
- **Capital Expenditure:** This represents expenditure incurred for the purpose of acquiring a fixed asset which is intended to be used over long term for earning profits there from, e.g., amount paid to buy a computer for office use is a capital expenditure. At times expenditure may be incurred for enhancing the production capacity of the machine. This will also be a capital expenditure. Capital expenditure forms a part of the Balance Sheet.
- **Revenue Expenditure:** This represents expenditure incurred to earn revenue of the current period. The benefits of revenue expenses get exhausted in the year of the incurrence. For example repairs, insurance, salary and wages to employees, travel, etc. The revenue expenditure results in the reduction in profit or surplus. It becomes part of the Income statement.
- **Profit and Loss Account or Income Statement:** This account shows the revenue earned by the business and the expenses incurred by it to earn that revenue. This is prepared usually for a particular accounting period, which could be a month, quarter, half a year or a year. The net result of the Profit and Loss Account shows profit earned or loss suffered by the business entity.
- **Profit:** The excess of revenue over expenses is called profit.
- **Loss:** The excess of expense over income is called loss.

- **Trade Discount:** It is the discount usually allowed by the wholesaler to the retailer computed on the list price or invoice price. For example, the list price of a TV set could be Rs. 15,000. The wholesaler may allow 20% discount thereof to the retailer. This means the retailer will get it for Rs.12,000 and is expected to sell it finally to a customer at the list price. Thus, the trade discount enables the retailer to make profit by selling at the list price. Trade discount is not recorded in the books of accounts. The transactions are recorded at net values only. In the above example, the transaction will be recorded at Rs. 12,000 only.

- **Cash Discount:** It is allowed to encourage prompt payment by the debtor. It has to be recorded in the books of accounts. It is calculated after deducting the trade discount, like if list price is Rs. 15,000 on which a trade discount of 20% and cash discount of 2% apply, the first trade discount of Rs.3,000 (20% of Rs. 15,000) will be deducted and the cash discount of 2% will be calculated on Rs.12,000 (Rs.15,000 – Rs.3,000). Hence, the cash discount will be Rs.240 (2% of Rs. 12,000) and net payment will be Rs. 11,760 (Rs. 12,000 - Rs. 240)

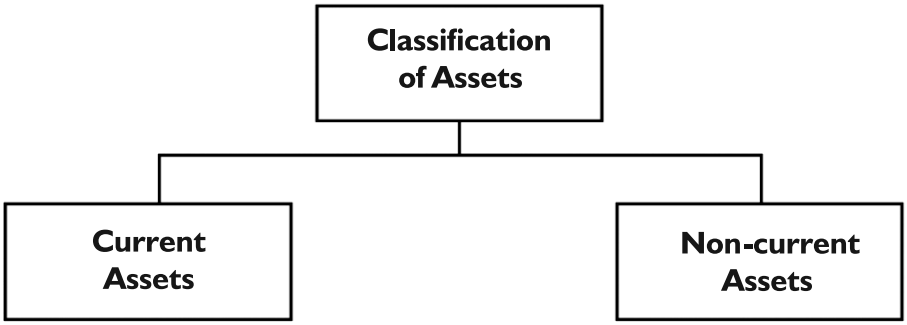
- **Balance Sheet:** It is the statement of the financial position of the business entity on a particular date. It lists all assets, liabilities and capital. It is important to note that this statement exhibits the state of affairs of the business as on a particular date only. It describes what the business owns and what it owes to outsiders (this denotes liabilities), and to the owners (this denotes capital). It is prepared after incorporating the resulting Profit/Loss or Income Statement.

- **Asset:** Asset is a resource owned by a business with the purpose of using it for generating future profits. Assets can be tangible and intangible.

- **Tangible Assets** are the capital assets which have some physical existence. These can, therefore, be seen, touched and felt, e.g., plant and machinery, furniture and fittings, land and buildings, books, computers and vehicles.

- **Intangible Assets**: The capital assets which have no physical existence and whose value is limited by the rights and anticipated benefits that possession confers upon the owner are known as intangible assets. These cannot be seen or felt although these help to generate revenue in future, e.g., goodwill, patents, trade-marks, copyrights, brand equity, designs and intellectual property, etc.

- **Classification of Assets:** Assets can also be classified as Current Assets and Non-Current Assets.



- **Current Assets –** An asset can be classified as Current if it satisfies any of the following:
  i. It is expected to be realized in, or is intended for sale or consumption in the company's normal Operating cycle;
  ii. It is held primarily for the purpose of being traded;

iii. It is due to be realized within 12 months after the Reporting Date; or

iv. It is Cash or Cash Equivalent unless it is restricted from being exchanged or used to settle a liability for at least 12 months after the Reporting Date.

- **Non-Current Assets –** Other than Current Assets, all other assets are classified as Non-Current Assets, e.g., Machinery held for Long-term, etc.
- **Current Investments:** Current investments are investments that are by their nature readily realizable and are intended to be held for not more than one year from the date on which such investment is made. 11-months Commercial Paper is an example of current investment.
- **Non-Current Investments:** Non-Current Investments are investments which are held beyond the current period for sale or disposal, like a Fixed Deposit for 5 years.
- **Debtor:** The sum total or aggregate of the amounts which the customer owes to the business for the purchase of goods on credit or services rendered or in respect of other contractual obligations, is known as Sundry Debtors or Trade Debtors, or Trade Payable, or Book-Debts or Debtors. These debtors may again be classified as under:

  (a) **Good Debts:** The debts which are sure to be realized are called good debts.

  (b) **Doubtful Debts:** The debts which may or may not be realized are called doubtful debts.

  (c) **Bad Debts:** The debts which cannot be realized at all are called bad debts.
- **Fictitious Assets:** Fictitious assets are not assets at all since they are not represented by any tangible possession. They appear on the asset side simply because of a debit balance in a particular account not yet written off, e.g., provision for discount to creditors, discount on issue of shares, etc.
- **Wasting Assets:** Such assets as mines, quarries, etc., that become exhausted or reduce in value by their workings are called wasting assets.
- **Liability:** It is an obligation of financial nature to be settled at a future date. It represents amount of money that the business owes to the other parties. For instance, when goods are bought on credit, the firm will create an obligation to pay to the supplier, the price of goods on an agreed future date, or when a loan is taken from bank, an obligation to pay the interest and principal amount is created. Depending upon the period of holding, these obligations could be further classified into long term or Non-current liabilities, and short term or current liabilities.
- **Current Liabilities –** A liability is classified as current when it satisfies any of the following:

  i. It is expected to be settled in the company's normal Operating Cycle;

  ii. It is held primarily for the purpose of being traded;

  iii. It is due to be settled within 12 months after the Reporting Date; or

  iv. The company does not have an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.
- **Non-Current Liabilities** – Other than Current Liabilities, all other liabilities shall be classified as Non-Current Liabilities. For example loan taken for 5 years, Debentures issued etc.
- **Contingent Liability:** It represents a potential obligation that could be created depending on the outcome of an event. For example, if a supplier of a business files a legal suit, it will not be treated as a

liability because no obligation is created immediately. If the verdict of the case is given in favour of the supplier then only the obligation is created. Till that time it is treated as a contingent liability. Please note that contingent liability is not recorded in books of account, but disclosed through a note in the financial statements.

- **Capital:** Capital is the amount invested in a business by its owners. It may be in the form of cash, goods, or any other asset which the proprietor or partners of business invest in the business.
- **Drawings:** It represents the amount of cash, goods or any other assets which the owner withdraws from business for his or her personal use, e.g., the life insurance premium of the proprietor or a partner of the firm is paid from the business, it is called drawings. Drawings will result in a reduction in the owners' capital. The concept of drawing is not applicable to the corporate bodies like limited companies.
- **Net worth:** It represents the excess of total assets over total liabilities of a business. Technically, this amount is made available to be distributed to the owners in the event of closure of the business after payment of all liabilities.
- **Creditor:** A creditor is a person to whom the business owes money or money's worth. For example, money payable to the supplier of goods or provider of service. Creditors are generally classified as Current Liabilities.

SINGLE ENTRY SYSTEM

Single-entry bookkeeping, also known as, single-entry accounting, is a method of bookkeeping that relies on a one-sided accounting entry to maintain financial information. In case of double entry system of book-keeping both the aspects of every transaction are recorded. In this system, the first entry is made to the debit of an account, and the second entry to the credit of second account. However, in case of single entry system, the business houses for their convenience and more practical approach ignore the strict rules of double entry system. The users of this system maintain only the essential records. In other words, it is a system which may not keep some books of subsidiary records, and some ledger accounts too which otherwise are kept in case of double entry system.

According to a Dictionary of Accountancy by Kohler, "A system of book-keeping in which as a rule only records of cash and of personal accounts are maintained, it is always incomplete double entry varying with the circumstances." Thus, under the so-called single entry system both the aspects of business transactions and events are not recorded. Under the single entry system usually a cash book and personal accounts are maintained.

DOUBLE ENTRY SYSTEM

Double-entry bookkeeping, also known as double-entry accounting, is a method of bookkeeping that relies on a two-sided accounting entry to maintain financial information. Every entry to an account requires a corresponding and opposite entry to a different account. The double-entry system has two equal and corresponding sides known as debit and credit.

It was in 1494 that Luca Pacioli, the Italian mathematician, first published his comprehensive treatise on the principles of Double Entry System. The use of principles of double entry system made it possible to record not only cash but also all sorts of mercantile transactions. It had created a profound impact on auditing too, because it enhanced the duties of an auditor to a considerable extent.

Features of Double Entry System

(a) Every transaction has two-fold aspects, i.e., one party giving the benefit and the other receiving the benefit.

(b) Every transaction is divided into two aspects, debit and credit. One account is to be debited and the other account is to be credited.

(c) Every debit must have its corresponding and equal credit.

Advantages of Double Entry System

(a) Since personal and impersonal accounts are maintained under the double entry system, both the effects of the transactions are recorded.

(b) It ensures arithmetical accuracy of the books of accounts, for every debit, there is a corresponding and equal credit. This is ascertained by preparing a trial balance periodically, or at the end of the financial year.

(c) It prevents and minimizes error. Moreover frauds can be detected early.

(d) Errors can be checked and rectified easily.

(e) The balances of receivables and payables are determined easily, since the personal accounts are maintained.

(f) The businessman can compare the financial position of the current year with that of the past years.

(g) The businessman can justify the standing of his business in comparison with the previous year purchase, sales, and stocks, incomes and expenses with that of the current year figures.

(h) Helps in decision-making.

(i) The net operating results can be calculated by preparing the Trading and Profit and Loss A/c for the year ended and the financial position can be ascertained by the preparation of the Balance Sheet.

(j) It helps the Government to decide sickness of business units and extend help accordingly.

(k) The other stakeholders, like suppliers and banks can take a proper decision regarding grant of credit or loans.

Limitations of Double Entry System

(a) The system does not disclose all the errors committed in the books of accounts.

(b) The Trial Balance prepared under this system does not disclose certain types of errors i.e. compensating error.

(c) It is costly as it involves maintenance of numbers of books of accounts.

ACCOUNTING CONCEPT

Accounting concepts are the generally accepted rules and assumptions that assist accountants in preparing financial statements. In layman's terms, they are the fundamental building blocks of the transactions of the business. The following are the some Accounting Concepts that's need to be kept in mind while recording the transaction in books of accounts.

1. **Accruals Concept:** An accrual is a journal entry that is used to recognize revenues and expenses that have been earned or consumed, respectively, and for which the related cash amounts have not yet been received or paid out. Accruals are needed to ensure that all revenues and expenses are recognized within the correct reporting period, irrespective of the timing of the related cash flows.
2. **Conservatism Concept**: Revenue is only recognized when there is a reasonable certainty that it will be realized, whereas expenses are recognized sooner, when there is a reasonable possibility that they will be incurred. This concept tends to result in more conservative financial statements.
3. **Consistency Concept**: Once a business chooses to use a specific accounting method, it should continue using it on a go-forward basis. By doing so, financial statements prepared in multiple periods can be reliably compared.
4. **Economic Entity Concept:** The transactions of a business are to be kept separate from those of its owners. By doing so, there is no intermingling of personal and business transactions in a company's financial statements.
5. **Going Concern Concept:** Financial statements are prepared on the assumption that the business will remain in operation in future periods. Under this assumption, revenue and expense recognition may be deferred to a future period, when the company is still operating. Otherwise, all expense recognition in particular would be accelerated into the current period.
6. **Matching Concept**: The expenses related to revenue should be recognized in the same period in which the revenue was recognized. By doing this, there is no deferral of expense recognition into later reporting periods, so that someone viewing a company's financial statements can be assured that all aspects of a transaction have been recorded at the same time.
7. **Materiality Concept**: Materiality is an accounting principle which states that all items that are reasonably likely to impact investors' decision-making must be recorded or reported in detail in a business's financial statements using GAAP standards. Materiality is a concept that defines why and how certain issues are important for a company or a business sector. A material issue can have a major impact on the financial, economic, reputational, and legal aspects of a company, as well as on the system of internal and external stakeholders of that company. Items or events which have significant effect in decision based on Financial Statement must be clearly disclosed. Both nature and volume of a transaction is capable to make it material.

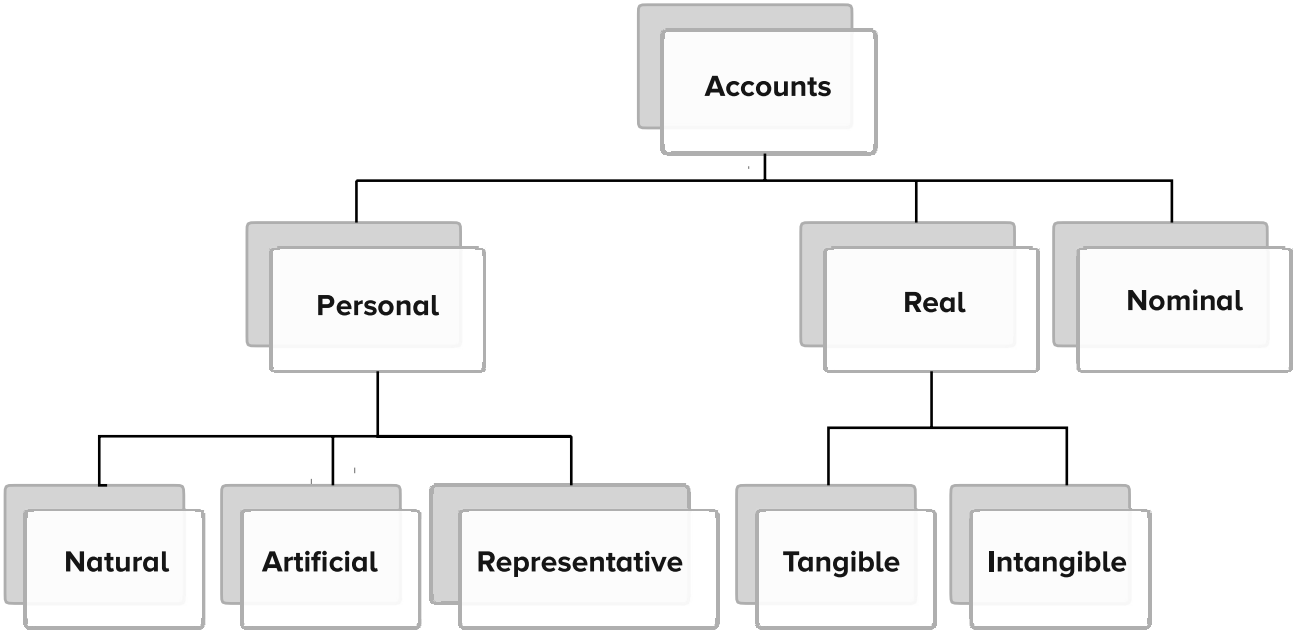
TYPES OF ACCOUNTS

An account is defined as a summarized record of transactions related to a person or a thing, e.g., when the business deals with customers and suppliers, the customer and supplier will each be a separate account.

The account is also related to things – both tangible and intangible, like, land, building, equipment, brand value and trademarks are some of the things. When a business transaction happens, one has to identify the account that will be affected by it and then apply the rules to decide its accounting treatment.

Typically, an account is expressed as a statement in the form of English letter 'T'. It has two sides. The left hand side is called as the Debit side, and the right hand side is called as the Credit side. The debit is denoted as 'Dr'and the credit as 'Cr'. The convention is to write the Dr. and Cr. labels on both sides as shown below.

Debit side (Dr.)		Credit side (Cr.)



1. **Personal Account:** As the name suggests these are accounts related to persons.
   (a) These persons could be natural persons, like Suresh's A/c, Anil's A/c and Rani's A/c.
   (b) The persons could also be artificial persons like companies, bodies corporate or association of persons or partnerships. Accordingly, we could have Videocon Industries A/c, Infosys Technologies A/c, Charitable Trust A/c, Ali and Sons Trading A/c and ABC Bank A/c.
   (c) There could be representative personal accounts as well. Although the individual identity of persons related to these is known, the convention is to reflect them as collective accounts, e.g., when salary is payable to employees, we know how much is payable to each of them, but collectively the account is called as Salary Payable A/c.
2. **Real Accounts:** These are accounts related to assets or properties or possessions Depending on their physical existence or otherwise, they are further classified as follows:
   (a) *Tangible Real Account* – Assets that have physical existence and can be seen and touched, under this as Machinery A/c, Stock A/c, Cash A/c, Vehicle A/c, and the like.
   (b) *Intangible Real Account* – These represent possession of properties that have no physical existence but can be measured in terms of money and have value attached to them like Goodwill A/c, Trade Mark A/c, Patents & Copy Rights A/c and Intellectual Property Rights A/c.
3. **Nominal Account:** These accounts are related to expenses or losses and incomes or gains e.g. Salary and Wages A/c, Rent and Rates A/c, Travelling Expenses A/c, Commission received A/c and Loss by fire A/c.

Golden Rules of Accounting

When one identifies the account that is getting affected by a transaction and type of that account, the next step is to apply the rules to decide whether the accounting treatment is to be debited or credited from that account. The Golden Rules will guide whether the account is to be debited or credited. These rules are shown below:

Personal Account	→	Debit the receiver or who owes business Credit the giver or the business owner
Real Account	→	Debit what comes into business Credit what goes out of business
Normal Account	→	Debit all expenses or losses Credit all income or gains

JOURNAL

A journal is often referred to the Book of Prime Entry or Book of Original Entry. In this book transactions are recorded in their chronological order. The process of recording transaction in a journal is called 'Journalization'. The entry made in this book is called 'journal entry'.

Advantages of Journal

The following are the advantages of a journal:

(a) **Chronological Record:** It records transactions as and when it happens. So it is possible to get detailed day-to- day information.

(b) **Minimizing the possibility of errors:** The nature of transaction and its effect on the financial position of the business is determined by recording and analyzing into both debit and credit aspects.

(c) **Narration:** It means explanation of the recorded transactions.

(d) **Helps to finalize the accounts:** Journal is the basis of ledger posting and the ultimate Trial Balance.

The Trial Balance helps to prepare the final accounts.

Specimen of a Journal Book

Journal Entries in the Books of xxx

Date	Particulars	Voucher Number	Ledger folio	Debit amount (Rs.)	Credit Amount (Rs.)
d d - m m - yy	Name of A/c from which to be debited Name of A/c to be credited (narration describing the transaction)	----------	Reference of page number of the A/c in ledger	----------	----------

(a) **Date Column:** This column contains the date of the transaction.

(b) **Particulars:** This column contains which account is to be debited and which account is to be credited. It is also supported by an explanation called narration.

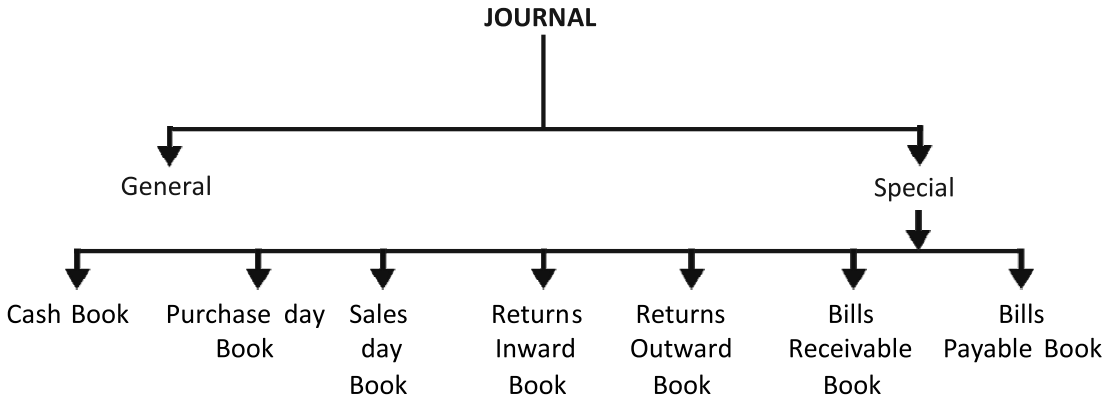
(c) **Voucher Number:** This column contains the number written on the voucher of the respective transaction.

(d) **Ledger Folio (L.F.):** This column contains the folio (i.e., page no.) of the ledger, where the transaction is posted.

(e) **Dr. Amount and Cr. Amount:** This column shows the financial value of each transaction. The amount is recorded in both the columns, since for every debit there is a corresponding and equal credit.

Sub-division of Journals

Journal is divided into two types -(i) General Journal and (ii) Special Journal.



(i) **General Journal**

(a) This book contains chronological record of transactions.

(b) This book records those transactions which occur so infrequently that they do not warrant the setting up of special journals.

Examples of such entries: (i) opening entries (ii) closing entries (iii) rectification of errors. The form of this general journal, is as under:

JOURNAL

Date	*Particulars*	*L.F.*	*Dr. Amount*	*Cr. Amount*

Recording of transactions in this book is called journalizing and the record of transactions is known as journal entry.

(ii) **Special Journal**

It is sub-divided into Cash Book, Purchase Day Book, Sales Day Book, Returns Inward Book, Returns Outward Book, Bills Receivable Book and Bills Payable Book. These books are called subsidiary books.

Subsidiary Books

Subsidiary Books refer to books meant for specific transactions of similar nature. These books are also known as special journals or day books. To overcome shortcoming of the use of the journal only as a book of original entry, the journal is sub-divided into specific journals or subsidiary books.

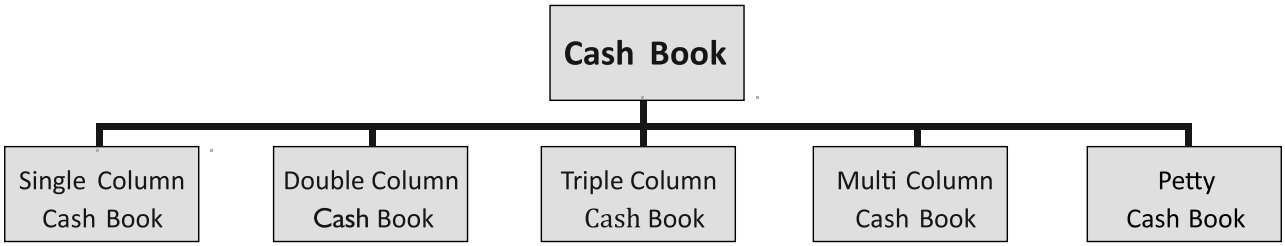
The sub-division of journal is done as follows:

Transaction	Subsidiary Book
All cash and bank transactions	Cash Book has columns for cash, bank and cash discount
All credit purchase of goods – only those goods that arepurchased for resale are covered here	Purchase Day Book or Purchase Register
All credit sale of goods	Sales Day Book or Sales Register
All purchase returns – i.e., return of goods back to suppliers due to defects	Purchase Return Book or Return Outward Book
All sales returns – i.e., return of goods back from Customers	Sales Return Book or Return Inward Book
All bill receivables – these are bills accepted byCustomers to be honored at an agreed date	Bills Receivable Book
All bills payable - these are bills accepted by the businessto be honored by paying to suppliers at an agreed date	Bills Payable Book
For all other transactions not covered in any of the above categories – i.e., purchase or sale of assets, expense accruals, rectification entries, adjusting entries, opening entries and closing entries	Journal Proper

Cash Book

A Cash Book is a special journal which is used for recording all cash receipts and cash payments. Cash Book is a book of original entry since transactions are recorded for the first time from the source documents. The Cash Book is larger in the sense that it is designed in the form of a Cash Account and records cash receipts on the debit side and cash payments on the credit side. Thus, the Cash Book is both a journal and a ledger.

Types of Cash Book



(a) **Single Column Cash Book-** Single Column Cash book has one amount column on each side. All cash receipts are recorded on the debit side and all cash payments on the payment side; this book is nothing but a Cash Account and there is no need to open separate cash account in the ledger.

Dr. **Specimen of Single Column Cash Book** ***Cr.***

Receipts				Payments			
Date	*Particulars*	*L.F.*	*Cash*	*Date*	*Particulars*	*L.F.*	*Cash*

(b) **Double Column Cash Book-** The Double Column Cash Book has two amounts columns on each side as under:

(a) Cash and discount columns

(b) Cash and bank columns

(c) Bank and discount columns

Dr. **Specimen of Double Column Cash Book** ***Cr.***

Receipts					Payments				
Date	*Particulars*	*L.F.*	*Cash*	*Disc. Allowed*	*Date*	*Particulars*	*L.F.*	*Cash*	*Disc. Received*

(c) **Triple Column Cash Book-** Triple Column Cash Book has three amount columns, one for cash, one for bank and one for discount on each side. All cash receipts, deposits into book and discounts allowed are recorded on the debit side and all cash payments, withdrawals from bank and discounts received are recorded on the credit side. In fact, a triple-column cash book serves the purpose of both Cash Account and Bank Account. Thus, there is no need to create these two accounts in the ledger.

Dr. **Specimen of Triple Column Cash Book** ***Cr.***

Receipts						Payments				
Date	*Particulars*	*L.F.*	*Cash*	*Bank*	*Discount Allowed*	*Date*	*Particulars*	*L.F.*	*Bank*	*Discount Received*

(d) **The multi-column cash book** has multiple columns on both the sides of the cash book.

(e) The petty cash book.

Is the Cash Book a Journal or a Ledger?

Cash Book is a book of original entry since transactions are recorded for the first time from the source documents. It is a ledger in the sense that it is designed in the form of a Cash Account and records cash receipts on the debit side and cash payments on the credit side. Thus, the cash book is both a journal and a ledger.

Purchase Day Book

The purchase day book records the transactions related to credit purchase of goods only. Any cash purchase or purchase of things other than goods is not recorded in the purchase day book. Periodically, the totals of purchase day book are posted to purchase account in the ledger. A specimen of purchase day book is given below:

In the Books of _____ Purchase Day Book

Date	*Name of the Suppliers and details ofGoods purchased*	*Invoice reference*	*L. F.*	*Amount (Rs.)*	*Remarks*

The format for Purchase Return Book is exactly the same; hence separate illustration is not given.

Sales Day Book

The sales day book records transactions of credit sale of goods to customers. Sale of other things, even on credit, will not be entered in the sales day book, but is entered in Journal. If goods are sold for cash, it is entered in the cash book. Total of sales day book is periodically posted to the sales account in the ledger. A specimen of a sales day book is given below.

In the Books of ..... Sales Day Book

Date	*Particulars*	*Invoice reference*	*L. F.*	*Amount (Rs.)*	*Remarks*

The format of sales return book is exactly the same; hence a separate illustration is not given.

Other Subsidiary Books – Returns Inward, Return Outward, Bills Receivable, Bills Payable

i) **Return Inward Book**- The transactions relating to goods which are returned by the customers for various reasons (may be for the reason that the goods are not according to sample, or not up to the mark) are recorded in return inward book. It is also known as Sales Return Book. Generally, when a customer returns goods to suppliers, he issues a Debit Note for the value of the goods returned by him. Similarly, the supplier who receives those goods issues a Credit Note.

Returns Inward Day Book

Date	*Particulars*	*Outward Invoice*	*L. F.*	*Details*	*Totals*	*Remarks*

ii) **Return Outward Book-** This book records the transactions relating to goods that are returned by us to our creditors, e.g., goods broken in transit, or not matching with the sample, etc. It is also known as Purchase Return Book.

Return Outward Day Book

Date	*Particulars*	*Debit Note*	*L. F.*	*Details*	*Totals*	*Remarks*

iii) **Bills Receivable Book-** It is a book where all bills received are recorded and therefrom posted directly to the credit of the respective customer‘s account. The total amounts of the bills so received during the period (either at the end of the week or month) is to be posted in one sum to the debit of Bills Receivable A/c.

Bills Receivable Day Book

No. of Bills	*Date of Receipt of Bill*	*From whom*	*Name ofthe Receiver*	*Name of Drawer*	*Name of Acceptor*	*Date of Bill*	*Due Date*	*L.F.*	*Amount of Bill*	*How disposed off*

iv) **Bills Payable Book-** Here all the particulars relating to bills accepted are recorded and therefrom posted directly to the debit of the respective creditor's account. The total amounts of the bills so accepted during the period (either at the end of the week or month) is posted in one sum to the credit of Bills Payable Account.

Bills Payable Day Book

No. of Bills	*Date of Acceptance*	*To whom given*	*Name of Drawer*	*Name of Payee*	*Name of Payable*	*Date of Bill*	*Term*	*Due Date*	*L.F.*	*Amount of Bill How disposed off*

Journal Proper

Credit transactions that cannot be entered in any other subsidiary book are entered in journal proper. It will cover purchase or sale of assets, expense accruals, rectification entries, adjusting entries, opening entries and closing entries. The format of journal proper is same as the Journal.

LEDGER ACCOUNTS

The book which contains accounts is known as the ledger. Since finding information pertaining to the financial position of a business emerges only from the accounts, the ledger is also called the Principal Book. As a result, all the necessary information relating to any account is available from the ledger. This is the most important book of the business and hence is rightly called the "King of All Books".

Dr. **Specimen of Ledger Account** ***Cr.***

Date	Particulars	J. F.	Amount (Rs.)	Date	Particulars	J. F.	Amount (Rs.)

Ledger Posting

As and when the transaction takes place, it is recorded in the journal in the form of journal entry. This entry is posted again in the respective ledger accounts under double entry principle from the journal. This is called ledger posting.

The rules for writing up accounts of various types are as follows:

Assets: Increases on the debit side and decreases on the credit side.

Liabilities: Increases on the credit side and decreases on the debit side.

Capitals: Increases on the credit side and decreases on the debit side.

Expenses: Increases on the debit side and decreases on the credit side.

Incomes or Gain: Increases on the credit side and decreases on the debit side.

To summarize:

Dr.	Assets	Cr.	Dr.	Expenses or Loses	Cr.
Increase		Decrease	Increase		Decrease
Dr.	Liabilities & Capital	Cr.	Dr.	Income or Gains	Cr.
Decrease		Increase	Decrease		Increase

Posting to Ledger Accounts from Subsidiary Books

In the above section, we have explained how posting is done to ledger accounts directly on the basis of journal entries. In practice, however, we know that use of subsidiary books is in vogue. Let us see how the posting to ledger accounts is done based on these records. For each of the subsidiary books, there is a ledger account, e.g., for purchase book, there is Purchase Account, for sales book there is Sales A/c, for cash book there is Cash A/c as well as Bank A/c and so on. In case of balance various ledger accounts, some accounts show debit balance, while the others show credit balance. Is there any relationship between the type of account (whether it is the account of asset, liability, capital, owner‘s equity, income or gain, expenses or losses) and the kind of balance (debit or credit).

The answer is generally ‘Yes‘. You may test to find the following are typical relationships.

Type of Account	**Type of balance**
All asset accounts	Debit balance
All liability accounts	Credit balance
Capital & Owner‘s equity account	Credit balance
Expenses or loss accounts	Debit balance
Income or gain accounts	Credit balance

Let us test these possibilities for confirmation. How does one go about testing this? Consider ‘Cash A/c‘.

Whenever business receives cash we debit it, and whenever it pays we credit it. Is it possible to see a situation where credits to cash are more than debits? In other words could we have negative cash in hand? No. Cash account will therefore always show a debit balance. So is true for all real asset accounts.

After solving problems, if the contrary is observed, there is every chance that an error has been made while passing the accounting entries.

Closing Balance and Opening Balance

The debit or credit balance of an account that we get at the end of the accounting period is known as closing balance of that account.

The “balance of the nominal accounts” is closed by transferring to trading account, and the profit and loss account which shows the net operating results – net profit or net loss.

The "balance of the personal accounts and real accounts" representing assets, liabilities, owner's equity are reflected in the Balance Sheet, which shows the financial position of a business on a particular date. These balances are transported as opening balance in the succeeding accounting period.

Some terms used:

Casting — totaling

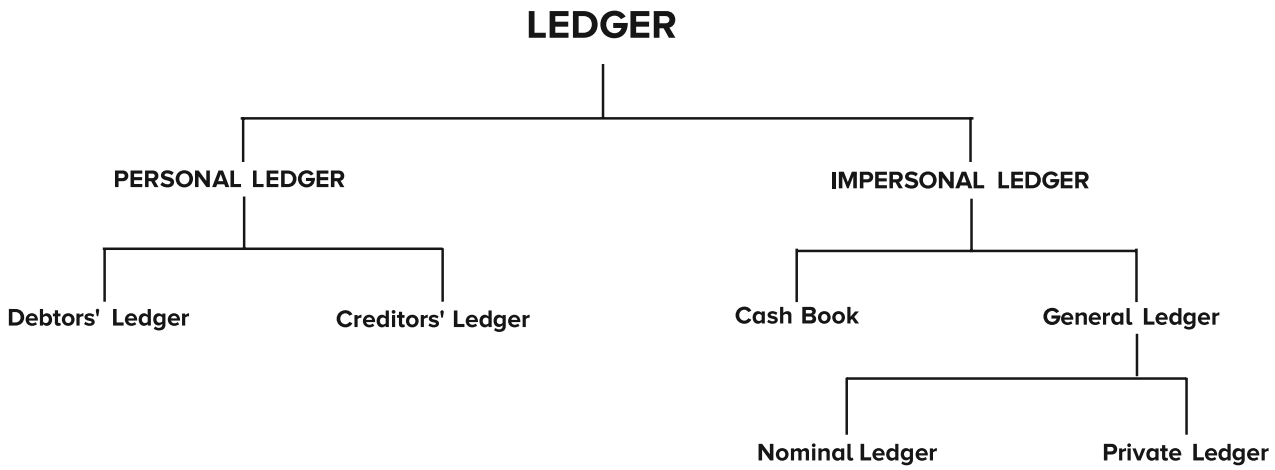
Balancing — to find the difference between debit side total and credit side total of an account.

C/d -Carried down	B/d -Brought down
C/o - Carried over	B/o - Brought over
C/f - Carried forward	B/f - Brought forward

Sub-divisions of Ledger

Practically, the Ledger may be divided into two groups - Personal Ledger and Impersonal Ledger.

They are again sub-divided as:



Personal Ledger: The ledger where the details of all transactions about persons who are related to the accounting unit are recorded is called Personal Ledger.

Again, Personal Ledger may be divided into two groups: viz. (a) Debtors' Ledger, and (b) Creditors' Ledger.

i) **Debtors' Ledger:** The ledger where the details of transactions about the persons to whom goods are sold, cash is received, etc., are recorded is called Debtors' Ledger.

ii) **Creditors' Ledger:** The ledger where the details of transactions about the persons from whom goods are purchased on credit, cash paid to them, etc., are recorded, is called Creditors' Ledger.

Impersonal Ledger: The ledger where details of all transactions about assets, income & expenses, etc., are recorded is called Impersonal Ledger.

Impersonal Ledger may, again be divided into two group, viz., (a) Cash Book; and (b) General Ledger.

i) **Cash Book:** The book wherein all cash & bank transactions are recorded is called Cash Book.

ii) **General Ledger:** The ledger where all transactions relating to real accounts, nominal accounts are recorded is called General Ledger.

General Ledger may again be divided into two groups, viz., Nominal Ledger & Private Ledger.

a) **Nominal Ledger:** The ledger where all transactions relating to income and expenses are recorded is called Nominal Ledger.

b) **Private Ledger:** The Ledger where all transactions relating to assets and liabilities are recorded is called Private Ledger.

TRIAL BALANCE

Trial Balance may be defined as a statement or a list of all ledger account balances taken from various ledger books on a particular date to check the arithmetical accuracy.

Trial Balance is defined as "a list or abstract of the balances or of total debits and total credits of the accounts in a ledger, the purpose being to determine the equality of posted debits and credits and to establish a basic summary for financial statements". According to Rolland, "The final list of balances, totaled and combined, is called Trial Balance". – **By Eric. L. Kohler**

As this is merely a listing of balances, it will always be on a particular date. Further, it must be understood that Trial Balance does not form part of Books of Account, but it is a report prepared by extracting balances of accounts maintained in the books of accounts.

When this list with tallied debit and credit balances is drawn up, the arithmetical accuracy of basic entries, ledger posting and balancing is ensured. However, it does not guarantee that the entries are correct in all respect.

It can be seen that the respective total of debit and credit balances is exactly matching. This is the result of double entry book-keeping wherein every debit has equal corresponding credit.

Features of a Trial Balance

(i) It is a list of debit and credit balances which are extracted from various ledger accounts.

(ii) It is a statement of debit and credit balances.

(iii) The purpose is to establish arithmetical accuracy of the transactions recorded in the Books of Accounts.

(iv) It is not an account. It is only a statement of account.

(v) It is not a part of the financial statements.

(vi) It is usually prepared at the end of the accounting year but it can also be prepared anytime as and when required like weekly, monthly, quarterly or half-yearly.

(vii) It is a link between the Books of Accounts, Profit and Loss Account and Balance sheet.

Preparation of Trial Balance

(i) The ledger accounts are balanced at first. They will have either "debit-balance" or "credit balance" or "nil- balance".

(ii) The accounts containing debit-balance are written on the debit column, and those with credit-balance are written on the credit column.

(iii) The sum total of both the balances must be equal for "Every debit has its corresponding and equal credit".

Purpose of a Trial Balance

It serves the following purposes:

(i) To check the arithmetical accuracy of the recorded transactions.

(ii) To ascertain the balance of any ledger account.

(iii) To serve as an evidence of the fact that the double entry has been completed in respect of every transaction.

(iv) To facilitate the preparation of final accounts promptly.

Is Trial Balance Indispensable?

It is a mere statement prepared by the accountants for their convenience, and if it agrees, it is assumed that at least arithmetical accuracy has been done, although there may be an errors.

Trial Balance is not a process of accounting, but its preparation helps us to finalize the accounts. Since it is prepared on a particular date, as at ..... / as on ..... is stated.

Specimen of Trial Balance as on .....

Sl. No.	*Name of the Account*	*L.F.*	*Debit Balance (Rs.)*	*Credit Balance*

Method of Preparation

(a) Total Method or Gross Trial Balance.

(b) Balance Method or Net Trial Balance.

(c) Compound Method.

These are explained as hereunder:

(a) Total Method or Gross Trial Balance : Under this method, two sides of the accounts are totalled. The total of the debit side is called the "debit total", and the total of the credit side is called the "credit total". Debit totals are entered on the debit side of the trial balance while the credit total is entered on the credit side of the trial balance.

If a particular account has total in one side, it will be entered either in the debit column or the credit column as the case may be.

Advantages:

(a) It facilitates arithmetical accuracy of the accounts.

(b) Extraction of ledger balances is not required at the time of preparation of trial balance.

Disadvantages: Preparation of final accounts is not possible.

(b) Balance Method or Net Trial Balance: Under this method, all the ledger accounts are balanced. The balances may be either "debit-balance" or "credit balance".

Advantages:

(a) It helps in the easy preparation of final accounts.

(b) It saves time and labour in preparing a trial balance.

Disadvantages: Errors may remain undisclosed irrespective of the agreement of trial balance.

(c) **Compound Method:** Under this method, totals of both the sides of the accounts are written in separate columns. Along with this, the balances are also written in the separate columns. Debit balances are written in the debit column and credit balances are written in the credit column of the trial balance.

Advantages: It offers the advantage of both the methods.

Disadvantages: It is a lengthy process and more time is consumed in the preparation of a trial balance.

Summary of Rules

Debit Balance - All Assets, Drawings, Debtors, Expenses and Losses.

Credit Balance - All Liabilities, Capital, Creditors, Gains and Incomes.

FINAL ACCOUNTS

The primary function of accounting includes computing the net result of operations of the business for the current period. To meet out this purpose, Trading Accounts, Income statement and Balance sheet are prepared. These documents are popularly called as Final Accounts. It is the last phase of Accounting Process.

The components of final accounts depend upon the type of entity. In case of non-manufacturing entities, the business operations include purchase and sale of goods. That is why Trading Account is prepared to calculate Gross Profit. But a manufacturing entity is interested in computation of total cost of manufacturing the finished products. For this purpose, separate account is prepared as Manufacturing Account. The following table shows the components of final accounts for manufacturing and non-manufacturing firms:

Manufacturing firm		Non-Manufacturing Firm	
1	Manufacturing A/c	1	Trading A/c
2	Trading A/c	2	Profit and Loss A/c
3	Profit and Loss A/c	3	Balance Sheet
4	Balance Sheet		

The process of final accounts starts after preparation of trial balance. It is mainly divided into following two parts:

1. Income Statement: It is prepared to find out the net result of the operations. It is sub-divided into two parts:
   a) Trading Account
   b) Profit and Loss Account
2. Position Statement: It includes Balance Sheet showing the status of assets and liabilities as at a particular point of time.

Trading Account

A trading account shows the results of the buying and selling of goods. This sheet is prepared to demonstrate the difference between the selling price and the cost price. It show the trading results of the business, example- gross profit earned or gross loss sustained by the business. It records the direct expenses of a business firm.

"The Trading Account shows the result of buying and selling goods. In preparing this account, the general establishment charges are ignored and only the transactions in goods are included." - ***J. R. Batlibboi***

Profit and Loss Account

This account is prepared to ascertain the net profit/loss and expenses of a business during an accounting year. It records the indirect expenses of a business firm, like rent, salaries, and advertising expenses. Profit and loss a/c includes expenses and losses as well as income and gains, which have occurred in business other than the production of goods and services.

Balance Sheet

The balance statement demonstrates the financial position of a business on a specific date. The financial position of a business is found by tabulating its assets and liabilities on a particular date. The excess of assets over liabilities represents the capital sunk into the business and reflects the financial soundness of a company. Now it is known as the statement of financial position of the company.

[Note: The detail discussion with respect to preparation and presentation of Trading and Profit & Loss A/c as well as Balance Sheet is discussed in next chapter.]

LESSON ROUND-UP

- Accounting information should be relevant, reliable, comparable, understandable, timely, neutral, verifiable and complete.
- Accounting can be based on cash or accrual system. In cash system, accounting entries are passed only when cash is received or paid, while in accrual system transactions are recorded on the basis of amounts having become due for payment or receipt.
- **Book-keeping** is different from accounting. Book-keeping is concerned with the permanent recording or maintaining of all transactions in a systematic manner to show their financial effects on the business.
- **Accounting** is concerned with the summarizing of the recorded transactions.
- **Accounting principles** are guidelines to establish standards for sound accounting practices and procedures in reporting the financial status of a business. These principles can be accounting concepts and accounting conventions.
- **Accounting concepts** are defined as basic assumptions on the basis of which financial statements of a business entity are prepared. While **'convention'** denotes custom or tradition or practice based on general agreement between the accounting bodies which guide the accountant while preparing the financial statements.
- Some of the important accounting concepts are: going concern concept, accrual concept, accounting period concept, materiality concept etc.

- Two classes of accounts are personal accounts and impersonal accounts. Impersonal accounts can be further classified into real and nominal accounts.
- Accounting cycle includes identifying, recording, classifying and summarizing of the transactions.
- Every transaction is recorded in the journal before being posted into the ledger. It is the book of account in which transactions are recorded in a chronological order.
- Recording in the journal is done following the rules of debit and credit which is called Golden Rules of Accounting.
- Posting is the process of recording transactions in the ledger based on the entries in the journal.
- The main function of a ledger is to classify or sort out all the items appearing in the journal or other subsidiary books under their appropriate accounts so that at the end of the accounting period summary of each account is easily available.
- Balancing of ledger accounts involves equalization of both sides of the account by putting the difference on the side where the amount is short.
- Various subsidiary books are: purchases book; sales book; purchases returns book; sales returns book; bills receivable book; bills payable book and cash book.
- **General journal or journal proper** is maintained for recording those transactions for which there are no other appointed subsidiary book.
- **Trial balance** is prepared after posting and balancing the entries in ledger to verify the arithmetical accuracy of entries made in the ledger.
- **Final Accounts:** The primary function of accounting includes computing the net result of operations of the business for the current period. To meet out this purpose, Trading Accounts, Income statement and Balance sheet are prepared. These documents are popularly called as Final Accounts.

GLOSSARY

Accounting

Accounting is "the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character and interpreting the results thereof.

Book-Keeping

Book-Keeping is a science as well as art of correctly recording in books of accounts all those business transactions that result in transfer of money or money's worth.

Journal

A journal is often referred to the Book of Prime Entry or Book of Original Entry. In this book transactions are recorded in their chronological order.

Subsidiary Books

Subsidiary Books refer to books meant for specific transactions of similar nature. These books are also known as special journals or day books.

Ledger

The book which contains accounts is known as the ledger.

Trial Balance

Trial Balance is a statement or a list of all ledger account balances taken from various ledger books on a particular date to check the arithmetical accuracy.

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation)

1. What are the Golden Rules of Accounting?
2. Illustrate with examples the difference between "Event" and "Transaction"
3. "Debit what comes in" and "Credit what goes out" illustrate with examples?
4. "Debit the receiver a/c" and "Credit the given a/c" illustrate with examples?
5. "Debit all expenses and loss" and "Credit all Income and Gains" illustrate with examples?
6. Define Accounting and Book-keeping with examples.
7. Discuss the Double Entry System of Accounting with examples?
8. Explain important accounting concepts.
9. Even a small amount of the transaction can be considered as material transaction. Explain How?
7. Explain the basic rules of debit and credit in accounting.
8. Define the term 'account' and name the types of accounts? Also explain with examples.
9. Point out the accounts which will be debited and credited for each one of the following transactions:
    - Cash received from X and discount allowed to him.
    - Cash paid to Y and discount received from him.
    - Credit Sales to Z.
    - Cash Sales to A.
    - Purchases from B on credit.
    - Salary paid to clerk by means of cheque.
    - Payment of cash to landlord for rent.
    - Depreciation on furniture.

- Interest due but not yet paid.
- Interest provided on capital.

10. Give Journal Entries of the following transaction:
    - Started business with cash Rs. 36,000
    - Paid rent in advance Rs. 800– Purchased goods for cash Rs.10,000 and on credit Rs. 4,000
    - Sold goods for cash Rs. 8,000
    - Rent paid Rs. 2000 and rent outstanding Rs. 400
    - Bought cycle for personal use Rs. 16,000
    - Purchased equipments for cash Rs. 10,000
    - Paid to creditors Rs. 1,200
    - Some business expenses paid Rs. 1,800
    - Depreciation on equipment Rs. 2,000.

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Introduction to Corporate Accounting

Lesson 2

KEY CONCEPTS

■ Financial Statement ■ Balance Sheet ■ Profit and Loss Account ■ Notes to Accounts ■ XBRL

Learning Objectives

To understand:

- Statutory provisions regarding preparation of final accounts of companies
- Requirements for preparation of statement of Profit and Loss and Balance Sheet
- General instructions for the preparation of Balance Sheet and Profit and Loss account
- How a true and fair view of financial statements can be achieved
- Applicability of XBRL

Lesson Outline

- Introduction
- Records of Accounts to be maintained by a Company
- Preparation and Presentation of Financial Statements
- Schedule III of the Companies Act, 2013
- General Instructions for the preparation of Balance Sheet and Profit and Loss Account
- Presentation of Balance Sheet
- Part-I – Form of Balance Sheet
- Disclosure Requirement: Schedules Forming Part of Financial Statements / Annual Report
- Part II-Form of Statement of Profit & Loss Account
- General Instructions for Preparation of Statement of Profit & Loss Account
- True & Fair View of Financial Statements
- XBRL
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

REGULATORY FRAMEWORK

- Section 128 of Companies Act, 2013
- Section 129 of Companies Act, 2013
- Schedule III of Companies Act, 2013

INTRODUCTION

There is no legal obligation for sole proprietorship and a partnership firm to prepare final accounts, but otherwise companies have statutory obligations to keep proper books of account and to prepare its final accounts every year in the manner as prescribed in the Companies Act. Chapter IX, Sections 128 to 138 of the Companies Act, 2013 deals with the legal provisions relating to the Accounts of Companies. These sections including Schedule II and III were brought into force from 1st April, 2014. The relevant rules pertaining to these provisions have also been notified. All these relevant provisions/schedules and rules will be applicable for the financial years commencing on or after 1st April, 2014.

What provisions are applicable for financial years that commenced earlier than 1st April 2014?

It is clarified that in respect of financial years that commenced earlier than 1st April 2014, shall be governed by the relevant provisions/schedules and rules of the Companies Act, 1956.

RECORDS OF ACCOUNTS TO BE MAINTAINED BY A COMPANY

Section 128 of the Companies Act, 2013 governs the Books of Account, etc., to be kept by Company as per which every company shall prepare and keep at its registered office books of account and other relevant books and papers and financial statement for every financial year which give a true and fair view of the state of the affairs of the company, including that of its branch office or offices, if any, and explain the transactions effected both at the registered office and its branches and such books shall be kept on accrual basis and according to the double entry system of accounting.

However, all or any of the books of account aforesaid and other relevant papers may be kept at such other place in India as the Board of Directors may decide and where such a decision is taken, the company shall, within seven days thereof, file with the Registrar a notice in writing giving the full address of that other place. Further the company may keep such books of account or other relevant papers in electronic mode in the following manner:

Manner of Books of Account to be kept in Electronic Mode

The books of account and other relevant books and papers maintained in electronic mode shall remain accessible in India, at all times, so as to be usable for subsequent reference.

Provided that for the financial year commencing on or after April 01, 2023, every company which uses accounting software for maintaining its books of account, shall use only such accounting software which has a feature of recording audit trail of each and every transaction, creating an edit log of each change made in books of account along with the date when such changes were made and ensuring that the audit trail cannot be disabled.

The books of account and other relevant books and papers referred above shall be retained completely in the format in which they were originally generated, sent or received, or in a format which shall present accurately the information generated, sent or received and the information contained in the electronic records shall remain complete and unaltered.

The information received from branch offices shall not be altered and shall be kept in a manner where it shall depict what was originally received from the branches. The information in the electronic record of the document shall be capable of being displayed in a legible form.

There shall be a proper system for storage, retrieval, display or printout of the electronic records as the Audit Committee, if any, or the Board may deem appropriate and such records shall not be disposed of or rendered unusable, unless permitted by law:

Provided that the back-up of the books of account and other books and papers of the company maintained in electronic mode, including at a place outside India, if any, shall be kept in servers physically located in India on a daily basis.

Notice of Address at Which Books of Account are to be Maintained

As per the Companies (Accounts) Rules, 2014 the notice regarding address at which books of account may be kept shall be in Form AOC-5.

Where a company has a branch office in India or outside India, it shall be deemed to have complied with the above provisions, if proper books of account relating to the transactions effected at the branch office are kept at that office and proper summarised returns periodically are sent by the branch office to the company at its registered office or the other place referred above.

The books of account and other books and papers maintained by the company within India shall be open for inspection at the registered office of the company or at such other place in India by any director during business hours, and in the case of financial information, if any, maintained outside the country, copies of such financial information shall be maintained and produced for inspection by any director subject to such conditions as mentioned below:

Conditions Regarding Maintenance and Inspection of Certain Financial Information by Directors

- The summarised returns of the books of account of the company kept and maintained outside India shall be sent to the registered office at quarterly intervals, which shall be kept and maintained at the registered office of the company and kept open to directors for inspection.
- Where any other financial information maintained outside the country is required by a director, the director shall furnish a request to the company setting out the full details of the financial information sought, the period for which such information is sought.
- The company shall produce such financial information to the director within fifteen days of the date of receipt of the written request.
- The financial information shall be sought for by the director himself and not by or through his power of attorney holder or agent or representative.

Further, the inspection in respect of any subsidiary of the company shall be done only by the person authorised in this behalf by a resolution of the Board of Directors.

Where an inspection is made, the officers and other employees of the company shall give to the person making such inspection all assistance in connection with the inspection which the company may reasonably be expected to give.

Period for Retention of Books of Accounts: The books of account of every company relating to a period of not less than **eight financial years** immediately preceding a financial year, or where the company had been in existence for a period less than eight years, in respect of all the preceding years together with the vouchers relevant to any entry in such books of account shall be kept in good order. However, where an investigation has been ordered in respect of the company under Chapter XIV, the Central Government may direct that the books of account may be kept for such longer period as it may deem fit.

Penalty: If the managing director, the whole-time director in charge of finance, the Chief Financial Officer or any other person of a company charged by the Board with the duty of complying with the provisions of this section, contravenes such provisions, such managing director, whole-time director in charge of finance, Chief Financial officer or such other person of the company shall be punishable with fine which shall not be less than fifty thousand rupees but which may extend to five lakh rupees.

FINANCIAL STATEMENTS

According to Section 2(40) of Companies Act, 2013 financial statement in relation to a company, includes –

- Balance Sheet as at the end of the financial year;
- Profit and Loss account, or in case of a company carrying on any activity not for profit, an income and expenditure account for the financial year;
- Cash Flow Statement for the financial year; and
- Any explanatory note annexed to, or forming part of, any document referred to in sub -clause (i) to sub-clause (iv).

However, the financial statement, with respect to One Person Company, small company and dormant company may not include cash flow statement.

PREPARATION AND PRESENTATION OF FINANCIAL STATEMENTS

Section 129 of the Companies Act, 2013 governs the preparation and presentation of financial statements of a company. The financial statements shall give a true and fair view of the state of affairs of a company or companies, complywith the accounting standards notified under Section 133 and shall be in the form or forms as may be provided for different class or classes of companies in Schedule III.

Central Government to Prescribe Accounting Standards

The Central Government may prescribe the standards of accounting or any addendum thereto, as recommended by the Institute of Chartered Accountants of India, constituted under section 3 of the Chartered Accountants Act, 1949, in consultation with and after examination of the recommendations made by the National Financial Reporting Authority.

- The items contained in such financial statements shall be in accordance with the accounting standards.
- Nothing contained in this sub-section shall apply to any insurance or banking company or any company engaged in the generation or supply of electricity, or to any other class of company for which a form of financial statement has been specified in or under the Act governing such class of company.
- The financial statements shall not be treated as not disclosing a true and fair view of the state of affairs of the company, merely by reason of the fact that they do not disclose –
  - (a) in the case of an insurance company, any matters which are not required to be disclosed by the Insurance Act, 1938, or the Insurance Regulatory and Development Authority Act, 1999;
  - (b) in the case of a banking company, any matters which are not required to be disclosed by the Banking Regulation Act, 1949;
  - (c) in the case of a company engaged in the generation or supply of electricity, any matters which are not required to be disclosed by the Electricity Act, 2003;
  - (d) in the case of a company governed by any other law for the time being in force, any matters which are not required to be disclosed by that law.
- At every annual general meeting of a company, the Board of Directors of the company shall lay before all members financial statements for the financial year.
- Where a company has one or more subsidiaries, it shall, in addition to financial statements provided under Sub-section (2), prepares a consolidated financial statement of the company and of all the subsidiaries in the same form and manner as that of its own which shall also be laid before the annual general meeting of the company along with the laying of its financial statement under Sub-section (2).
- The company shall also attach along with its financial statement, a separate statement containing the salient features of the financial statement of its subsidiary or subsidiaries. According to the rules, the statement shall contain the salient features of the financial statement of a company's subsidiary or subsidiaries, associate company and joint venture.
- The consolidation of financial statements of the company shall be made in accordance with the Accounting Standards, subject however, to the requirement that if under such Accounting Standards (AS), consolidation is not required for the reason that the company has its immediate parent outside India, then such companies will also be required to prepare Consolidated Financial Statements in the manner and format as specified under Schedule III to the Act.
- The provisions of this Act are applicable to the preparation, adoption and audit of the financial statements of a holding company shall, mutatis mutandis, apply to the consolidated financial statements.
- Where the financial statements of a company do not comply with the accounting standards, the company shall disclose in its financial statements, the deviation from the accounting standards, the reasons for such deviation and the financial effects, if any, arising out of such deviation.

- The Central Government may, on its own or on an application by a class or classes of companies, by notification, exempt any class or classes of companies from complying with any of the requirements of this section or the rules made thereunder, if it is considered necessary to grant such exemption in the public interest and any such exemption may be granted either unconditionally or subject to such conditions as may be specified in the notification.
- If a company contravenes the provisions of this section, the managing director, the whole-time director in charge of finance, the Chief Financial Officer or any other person shall be give the charge by the Board with the duty to complying with the requirements of this section and in the absence of any of the officers mentioned above, all the directors shall be punishable with imprisonment for a term which may extend to one year or with fine which shall not be less than fifty thousand rupees but which may extend to rupees five lakh or with both.

> *Explanation* –Any reference to the financial statement shall include any notes annexed to or forming part of such financial statement, giving information required to be given and allowed to be given in the form of such notes under this Act.

SCHEDULE III OF THE COMPANIES ACT, 2013

According to Section 129 of the Companies Act, 2013, all the companies registered under this Act will have to present its financial statements in Schedule III of the Companies Act. The Schedule III of the Companies Act, 2013 has been formulated to keep pace with the changes in the economic philosophy leading to privatization and globalization and consequent desired changes/reforms in the corporate financial reporting practices. It deals with the Form of Balance Sheet, Statement of Profit and Loss, and disclosures to be made therein, and it applies uniformly to all the companies registered under the Companies Act, 2013, for the preparation of financial statements of an accounting year. It has several new features like:

- A vertical format for presentation of Balance Sheet with classification of Balance Sheet items into current and non-current categories.
- A vertical format of Statement of Profit and Loss with classification of expenses based on nature.
- Elimination of the concept of “Schedules” and such information is now to be furnished in terms of “Notes to Accounts”.
- It does not contain any specific disclosure for items included in Schedule VI under the head, “Miscellaneous Expenditure”. As per Accounting Standard -16 borrowing cost and discount or premium relating to borrowing could be amortized over the loan period. Further, share issue expenses, discount on shares, discount/ premium on borrowing, etc. are excluded from AS-26. These items be amortized over the period of benefit, i.e., normally 3-5 years. The draft guidance note issued by ICAI suggests that unamortized portion of such expenses be shown under the head “Other Current/Non-current Assets” depending on whether the amount will be amortized in the next 12 months or thereafter.
- Debit Balance of Statement of Profit & Loss A/c will be disclosed under the head, Reserves & Surplus as the negative figure.
- No change in the format of cash flow statement as per revised schedule and therefore its preparation continues to be as per AS-3 i.e. cash flow statement.
- It gives prominence to Accounting Standards (AS), i.e., in case of any conflict between the AS and the Schedule, AS shall prevail.

GENERAL INSTRUCTIONS FOR THE PREPARATION OF BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

[Financial Statements for a company whose Financial Statements are required to comply wih the Companies (Accounting Standards) Rules, 2006 - Division I]

The Schedule III sets out minimum requirements for disclosure on the face of the Balance Sheet, and the Statement of Profit and Loss and Notes. Line items, sub-line items and sub-totals shall be presented as an addition or substitution on the face of the Financial Statements when such presentation is relevant to an understanding of the company's financial position or performance or to cater to industry/sector-specific disclosure requirements or when required for compliance with the amendments to the Companies Act or under the Accounting Standards. This means new line items or sub-items can be added or substituted on the face of the Financial Statements when such presentation is:

- Relevant to an understanding of the company's financial position or performance or to cater to industry/ sector-specific disclosure requirements.
- To cater to industry/sector-specific disclosure requirements or when required for compliance with the amendments to the Companies Act.
- Under the Accounting Standards.

Where compliance with the requirements of the Act including Accounting Standards as applicable to the companies require any change in treatment or disclosure including addition, amendment, substitution or deletion in the head or sub-head or any changes, inter se, in the financial statements or statements forming part thereof, the same shall be made and the requirements of this Schedule shall stand modified accordingly.

The disclosure requirements specified in this Schedule are in addition to and not in substitution of the disclosure requirements specified in the Accounting Standards prescribed under the Companies Act, 2013. Additional disclosures specified in the Accounting Standards shall be made in the notes to accounts or by way of additional statement unless required to be disclosed on the face of the Financial Statements. Similarly, all other disclosures as required by the Companies Act shall be made in the notes to accounts in addition to the requirements set out in this Schedule.

Notes to accounts shall contain information in addition to that presented in the Financial Statements and shall provide where required

- Narrative descriptions or disaggregation of items recognized in those statements; and
- Information about items that do not qualify for recognition in those statements.

Each item on the face of the Balance Sheet and Statement of Profit and Loss shall be cross-referenced to any related information in the notes to accounts. In preparing the Financial Statements including the notes to accounts, a balance shall be maintained between providing excessive detail that may not assist users of financial statements and not providing important information as a result of too much aggregation.

Depending upon the Total income of the company, the figures appearing in the Financial Statements shall be roundedoff as given below:

	Total Income	***Rounding off***
(a)	less than one hundred crore rupees	To the nearest hundreds, thousands, lakhs or millions, or decimals thereof.
(b)	one hundred crore rupees or more	To the nearest lakhs, millions or crores, or decimals thereof.

Once a unit of measurement is used, it should be used uniformly in the Financial Statements.

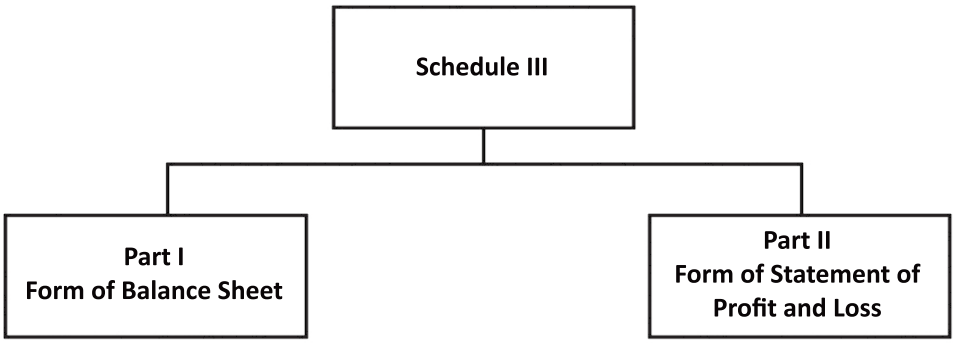
Except in the case of the first Financial Statements laid before the Company (after its incorporation) the corresponding amounts (comparatives) for the immediately preceding reporting period for all items shown in the Financial Statements including notes shall also be given.

PRESENTATION OF BALANCE SHEET

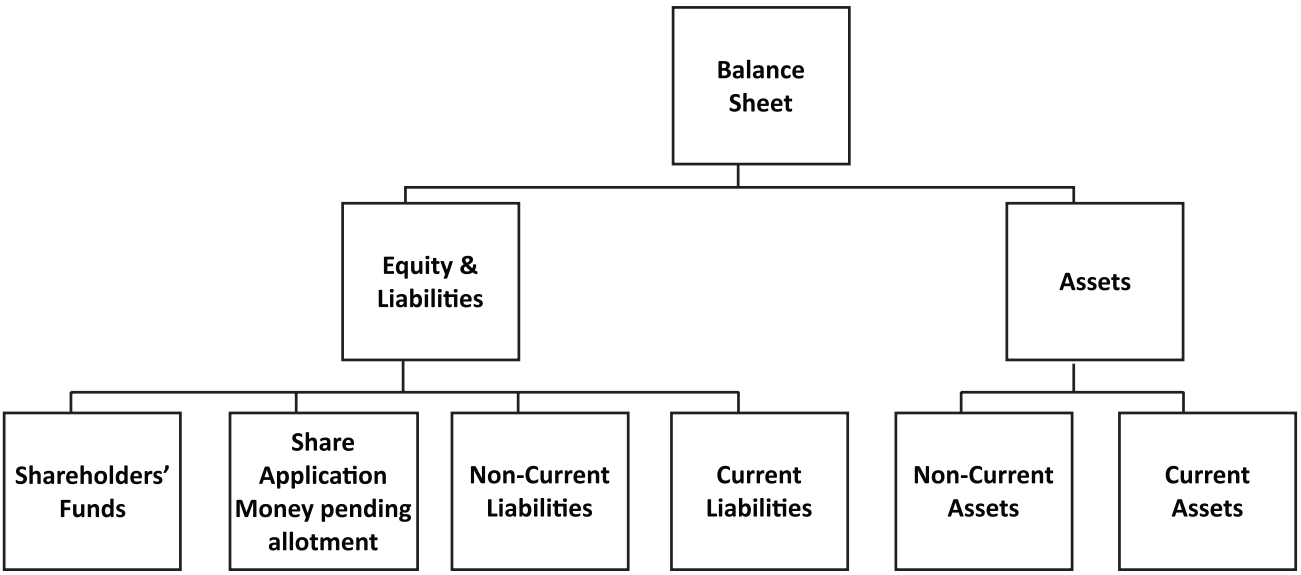
A Balance Sheet is a statement of the financial position of an enterprise as at a given date, which exhibits its assets, liabilities, capital, reserves and other account balances at their respective book values.

How often is a Balance sheet of a company calculated?

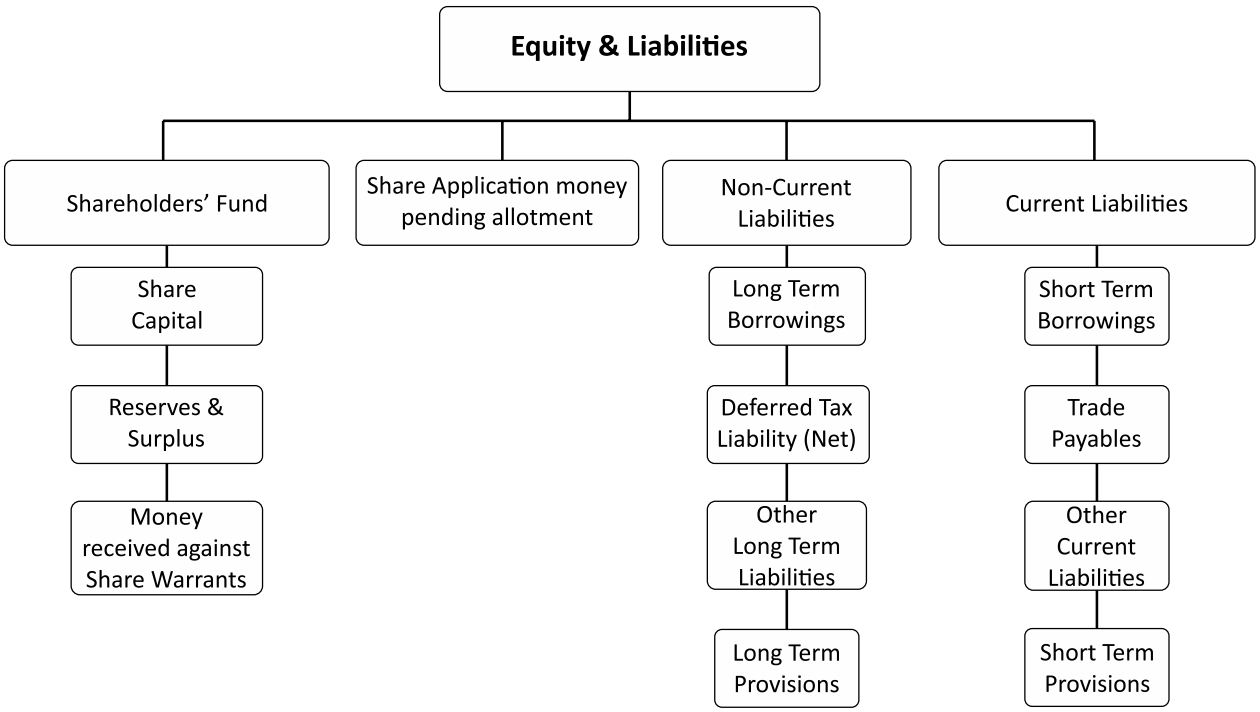
Balance sheet is more like a snapshot of the financial position of a company at a specified time, usually calculated after every quarter, six months or one year.



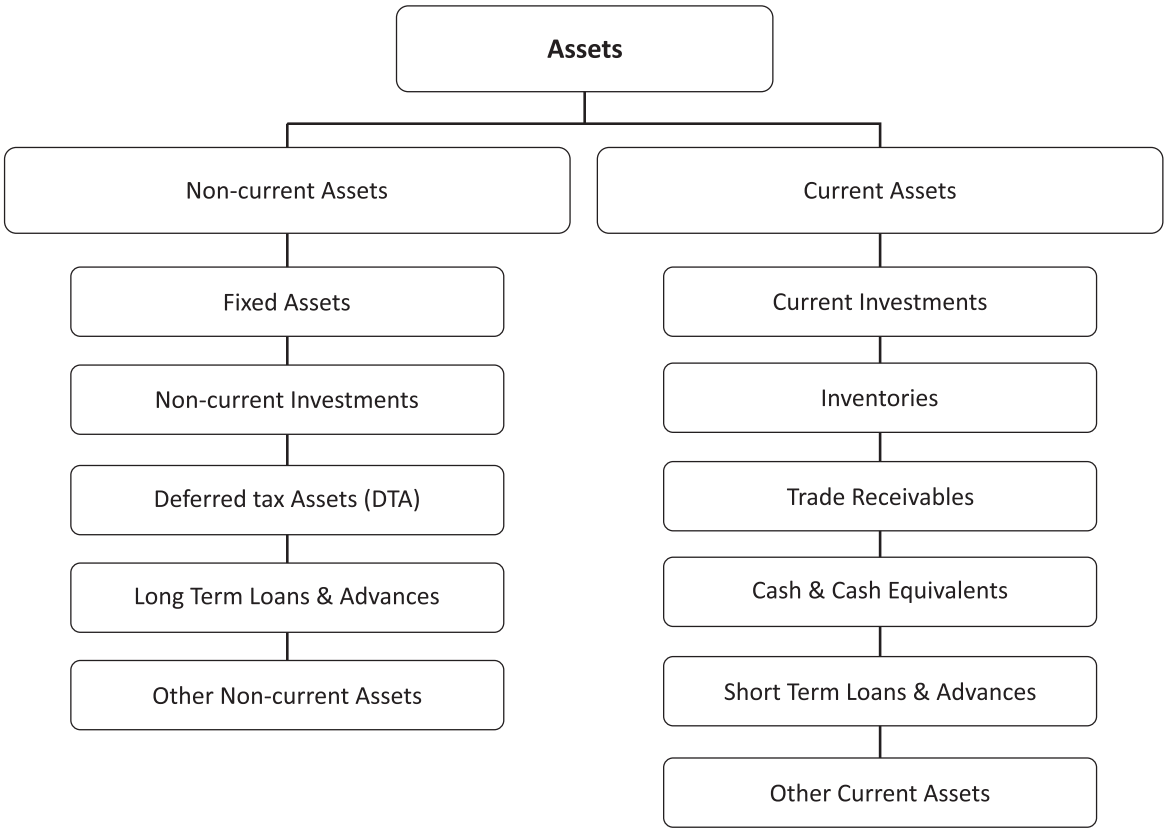
PART I – FORM OF BALANCE SHEET



Break-up of Equity & Liabilities



Break-up of Assets



PART I – FORM OF BALANCE SHEET

[Financial Statements for a company whose Financial Statements are required to comply wih the Companies (Accounting Standards) Rules, 2006 - Division I]

Name of the Company: .....

Balance Sheet as at: .....

	Particulars	*Note No.*	*Figure as at the end of Current Reporting Period*	*Figures as at the end of the Previous Reporting Period*
			(Rs.)	*(Rs.)*
I.	**EQUITY AND LIABILITIES**			
(1)	Shareholders' Funds			
	(a) Share Capital			
	(b) Reserves & Surplus			
	(c) Money Received against Share Warrants			
(2)	Share Application money pending allotment			
(3)	Non-Current Liabilities			
	(a) Long-Term Borrowings			
	(b) Deferred Tax liabilities (Net)			
	(c) Other Long-Term Liabilities			
	(d) Long-Term Provisions			
(4)	Current Liabilities			
	(a) Short-Term Borrowings			
	(b) Trade Payables (A) Total outstanding dues of micro enterprises and small enterprises and (B) Total outstanding dues of creditor other than micro enterprises and small enterprises.			
	(c) Other Current Liabilities			
	(d) Short-Term Provisions			
	TOTAL			
II.	**ASSETS**			
(1)	Non-Current Assets			

	(a) Property, Plant and Equipment and Intangible assets			
	(i) Property, Plant and Equipment			
	(ii) Intangible Assets			
	(iii) Capital work-in-progress			
	(iv) Intangible Assets under Development			
	(b) Non-Current Investments			
	(c) Deferred Tax Assets (DTA) (Net)			
	(d) Long-Term Loans & Advances			
	(e) Other Non-Current Assets			
(2)	Current Assets			
	(a) Current Investments			
	(b) Inventories			
	(c) Trade Receivables			
	(d) Cash & Cash Equivalents			
	(e) Short-Term Loans & Advances			
	(f) Other Current Assets			
	Total			

DISCLOSURE REQUIREMENT: SCHEDULES FORMING PART OF FINANCIAL STATEMENTS

[Financial Statements for a company whose Financial Statements are required to comply wih the Companies (Accounting Standards) Rules, 2006 - Division I]

(A) FOR "EQUITY AND LIABILITIES" ITEMS

(1) SHAREHOLDERS' FUNDS

(a) SHARE CAPITAL

Schedule III Disclosure Requirement	***Points to be considered***
General	• Schedule III deals only with presentation and disclosure requirements. • Accounting classification into Debt and Equity components is governed by the applicable Accounting Standard. • Preference Shares will have to be classified as "Share Capital" and they also include such Preference Shares of which redemption is overdue.

For each Class of Share Capital (different classes of Preference Shares to be treated separately):	
(a) Authorized Capital	It is the maximum number and face/par value, of each class of shares that a corporate entity may issue in accordance with its instrument of incorporation.
(b) Number of Shares Issued, Subscribed and Fully Paid, and Subscribed but not Fully Paid	• Subscribed Share Capital" is "that portion of the Issued Share Capital which has actually been subscribed by the public and subsequently allotted to the shareholders by the entity. This also includes any Bonus shares issued to the Shareholders. • "Paid-up Share Capital" is "that part of the Subscribed Share Capital for which consideration in cash or otherwise has been received. This also includes Bonus Shares allotted and Shares issued otherwise than for cash against purchase consideration, by the corporate entity." • If Shares are not fully called, then disclose the called up value per share.
(c) Face/Par Value per Share	Face Value/Par Value as per Capital Clause in Memorandum of Association should be disclosed.
(d) Reconciliation of No. of Shares	• For the Amount of Share Capital; • For comparative previous period; • Separate statements for both Equity and Preference Shares, which should again be sub-classified and represented for each class of Shares.
(e) Rights, Preferences and Restrictions attaching to shares including restrictions on the distribution of Dividends and the Repayment of Capital	• For Equity Share Capital, such rights / preferences / restrictions may be with voting rights, or with differential voting rights as to dividend, voting or otherwise as per Companies (Issue of Share Capital with Differential Voting Rights) Rules, 2001. • For Preference Shares, the rights include dividend and/ or capital related rights. Further, Preference Shares can be cumulative, non-cumulative, redeemable, convertible, non-convertible, etc. • All such Rights, Preferences and Restrictions attached to each class of Shares, terms of redemption, etc., should be disclosed separately.
(f) Shares held in the Company held by its Holding Company or its ultimate Holding Company including Shares held by Subsidiaries or Associates of the Holding Company or the ultimate Holding Company in aggregate	• Disclose number of Shares held by the entire chain of Subsidiaries and Associates starting from the Holding Company and ending right up to the Ultimate Holding Company. • All such disclosures should be made separately representing for each class of Shares, (for both Equity and Preference Shares).

(g) List of Shareholders holding more than 5% shares as on the Balance Sheet Date	• Date for computing the 5% limit should be taken as the Balance Sheet date. So, if during the year, any Shareholder held more than 5% Equity Shares but does not hold as much at the Balance Sheet date, disclosure is not required. • Companies should disclose the Shareholding for each class of Shares, both within Equity and Preference Shares. So, such% should be computed separately for each class of Shares. • This information should also be given for comparative previous period.
(h) Shares Reserved for issue under Options and Contracts/ commitments for the sale of Shares/ Disinvestment, including the Terms and Amounts	• Shares under Options generally arise under Promoters or Collaboration Agreements, Loan Agreements or Debenture Deeds (including Convertible Debentures), agreement to convert Preference Shares into Equity Shares, ESOPs or Contracts for supply of Capital Goods, etc. • Disclosure is required for the Number of Shares, Amounts and Other Terms for Shares so reserved. Such options are in respect of Unissued Portion of Share Capital.
(i) For the period of 5 years immediately preceding the date as at which the Balance Sheet is prepared- • Aggregate Number & Class of Shares allotted as Fully Paid up Pursuant to Contract(s) without payment being received in Cash • Aggregate No. and Class of Shares allotted as fully Paid up by way of Bonus Shares • Aggregate Number & Class of Shares bought back	Disclose only if such event has occurred during a period of 5 years immediately preceding the Current Year Balance Sheet date. • The aggregate number of shares allotted or bought back • If the company is in operation for a period of less than 5 years, then disclosure should cover all such earlier financial years. Not to disclose the following allotments: The following allotments are considered as Shares allotted for payment being received in cash, and hence should not be disclosed under this Clause – (a) If the subscription amount is adjusted against a bonafide debt payable in money at once by the Company, (b) Conversion of Loan into Shares in the event of default in repayment.
(j) Terms of any Securities Convertible into Equity / Preference Shares issued along with the earliest date of conversion in descending order starting from the farthest such date	• In case of Compulsorily Convertible Securities, where conversion is done in fixed tranches, all the dates of conversion have to be considered. • In case of Convertible Debentures/Bonds, etc., for the purpose of simplification, reference may also be made to the terms disclosed under the note on Long- Term Borrowings where these are required to be classified in the Balance Sheet, rather than disclosing the same against under this Clause.
(k) Calls Unpaid (showing aggregate value of Calls Unpaid by Directors and Officers)	Unpaid Amount towards Shares subscribed by the Subscribers of Memorandum of Association should be considered as 'Subscribed and paid-Up Capital' in the Balance Sheet and the Debts due from the Subscribers should be appropriately disclosed as an Asset in the Balance Sheet.

(l) Forfeited Shares (amount originally paid up)	
(m) Shareholding of Promoter	

Share held by promoter at the end of year			% Change during the years
Sr. No.	***Promoters Name***	***No. of Shares***	***% of Total Shares***
Total			

(1) (b) RESERVES & SURPLUS

Schedule III Disclosure Requirement	***Points***
Reserves & Surplus shall be classified as – (a) Capital Reserves	• Capital Reserve is a Reserve of a Corporate Enterprise which is not available for distribution as Dividend. • Profit on Re-issue of Forfeited Shares is basically profit of a Capital Nature and, hence, it should be credited to Capital Reserve.
(b) Capital Redemption Reserve	Capital Redemption Reserve (CRR) is required to be created u/s 55 and 68 (for redemption of Preference Share Capital and buyback of Equity Share Capital), subject to conditions specified in the respective Sections.
(c) Securities Premium	
(d) Debenture Redemption Reserve	Debenture Redemption Reserve (DRR) is required to be created u/s 71 and maintained until such Debentures are redeemed. On redemption of the Debentures, the amounts no longer necessary to be retained in this Account should be transferred to the General Reserve.
(e) Revaluation Reserve	Revaluation Reserve is a Reserve created on the revaluation of Assets or Net Assets of an Enterprise represented by the surplus of the estimated Replacement Cost or estimated market values over the Book Values thereof.
(f) Share Options Outstanding Account	As per ICAI Guidance Note on ESOP, Share Options Outstanding should be shown as separate line item. Under Schedule III, this line item should be shown separately under Reserves & Surplus.
(g) Other Reserves (specify the nature & purpose of each Reserve and the amount in respect thereof)	This includes any other Statutory Reserves, e.g. Tonnage Tax reserve to be created under the Income Tax Act, 1961.
(h) Surplus, i.e., balance in Statement of P&L disclosing allocations & appropriations, such as, Dividend, Bonus Shares and Transfer to/ from Reserves, etc.	

(Additions & Deductions since last Balance Sheet to be shown under each of specified heads)	Appropriations to the Profit for the year (including carried forward balance) is to be presented under the main head 'Reserves and Surplus'. Under Schedule III, the Statement of P&L will no longer reflect any appropriations, like Dividends transferred to Reserves, Bonus Shares, etc.

Notes:

1. **Fund** : A Reserve specifically represented by Earmarked Investments shall be termed as a 'Fund'.
2. **Profit and Loss Account (Dr.)** : Debit Balance Statement of Profit & Loss shall be shown as a Negative Figure under the head 'Surplus'. Similar, the balance of 'Reserves & Surplus', after adjusting Negative balance of Surplus, if any, shall be shown under the head 'Reserves & Surplus' even if the resulting figure is in the negative.

(1) (c) MONEY RECEIVED AGAINST SHARE WARRANTS

Schedule III Disclosure Requirement	***Points***
To be shown as a separate line item on the face of Balance Sheet	In case of Listed Companies, Share warrants are issued to Promoters & others in terms of the Guidelines for Preferential Issues, viz. SEBI (Issue of Capital and Disclosure Requirements), Guidelines, 2009. Effectively, Share Warrants are amounts which would ultimately form a part of the Shareholder's Funds. Since Shares are yet to be allotted against the same, these are not reflected as a part of Share Capital, but as a separate line-item

(2) SHARE APPLICATION MONEY PENDING ALLOTMENT

Schedule III Disclosure Requirement	***Points***
To be shown as a separate line item on the face of Balance Sheet	Share Application Money not exceeding the Issued Capital and to the extent not refundable is to be disclosed as a separate line item after "Share Holders Funds" and before "Non-Current Liabilities". If the Company's Issued Capital is more than the Authorized Capital, and approval of increase in Authorized Capital is pending, the amount of Share Application Money received over and above the Authorized Capital should be shown under the head "Other Current Liabilities". The amount shown as 'Share Application Money Pending Allotment' will not include Share Application Money to the extent refundable, for example, the amount in excess of Issued Capital, or where Minimum Subscription requirement is not met. Such amount will have to be shown separately under 'Other Current Liabilities'. Calls Paid in Advance are to be shown under "Other Current Liabilities". The amount of interest which may accrue on such advance should also is to be reflected as a Liability.

(3) NON-CURRENT LIABILITIES

(3) (a) LONG-TERM BORROWINGS

Schedule III Disclosure Requirement	*Points*
Long-Term Borrowings shall be classified as – (a) Bonds/Debentures	-----
(b) Terms Loans – (i) from Banks, and (ii) from Other Parties,	Loans with repayment period beyond 36 months are usually known as "Term Loans". So, Cash Credit, Overdraft and Call Money Accounts/ Deposits are not covered by the expression "Term Loans".
(c) Deferred Payment Liabilities,	Deferred Payment Liabilities would include any Liability for which payment is to be made on deferred credit terms, e.g., Deferred Sales Tax Liability, Deferred Payment for Acquisition of fixed Assets, etc.
(d) Deposits,	Deposits classified under Borrowings would include Deposits accepted from Public and Inter-Corporate Deposits which are in the nature of Borrowings.
(e) Loans & Advances from Related Parties,	Loans and Advances from related parties are required to be disclosed. Advances under this head should include those Advances which are in the nature of loans.
(f) Long-Term Maturities of Finance Lease Obligations	
(g) Other Loans & Advances (specify nature)	

Notes: 1. **Security-wise Classification**: Borrowings shall further be sub-classified as Secured and Unsecured. Nature of Security shall be specified separately in each case.	• Nature of Security shall be specified separately in each case. A blanket disclosure of different securities covering all Loans classified under the same head such as "All Term Loans from Banks" will not suffice. • However, where one security is given for multiple Loans, the same may be clubbed together for disclosure purposes with adequate details of cross referencing. • Disclosure about the nature of security should also cover the type of asset given as security, e.g., Inventories, Plant and Machinery, Land and Building, etc. • When Promoters, other Shareholders or any third party have given any personal security for any borrowing, e.g., Shares or Other Assets held by them, disclosure should be made thereof, though such security does not result in the classification of such borrowing as secured.

2. **Guarantees**: Where Loans have been guaranteed by Directors or Others, the aggregate amount of such Loans under each head shall be disclosed.	The word "Others" used in the phrase "Directors or Others" would mean any Person or Entity other than a Director, e.g., Related Parties, or any person associated with the Company in some manner.
3. **Maturity Date wise**: Bonds / Debentures (along with Rate of Interest & particulars of Redemption or Conversion, as the case may be) shall be stated in descending order of maturity or conversion, starting from farthest Redemption or Conversion Date, as the case may be.	• Current Maturities of all Long-Term Borrowings will be disclosed under "Other Current Liabilities" and not under Long-Term Borrowings and Short- Term Borrowings. • So, it is possible that the same Bonds/Debentures/ Term Loans may be bifurcated under both "Long-Term Borrowings" as well as under "Other Current Liabilities".
4. **Installment Redemption**: Where Bonds/ Debentures are redeemable by Installments, the Date of Maturity for the purpose must be reckoned as the Date on which the First Installment becomes due.	
5. **Power to Reissue**: Particulars of any redeemed Bonds/Debentures which the Company has power to reissue shall be disclosed.	
6. **Terms of Repayment**: Repayment of Term Loans and Other Loans shall be stated.	Other Loans should be interpreted to mean all categories listed under the heading 'Long-Term Borrowings' as per Schedule VI (R). Disclosure of terms of repayment should be made preferably for each Loan unless the repayment terms of individual loans within a category are similar, in which case, they may be aggregated.
7. **Default**: Period and amount of continuing default as on the Balance Sheet date in repayment of Loans and Interest, shall be specified separately in each case.	The term "Continuing Default" is used w.r.t. Long-Term Borrowings, whereas the term "Default" is used w.r.t. Short-Term Borrowings. • Under CARO, the Auditor shall report on the default made and the period of default. • As per Schedule VI (R), the period and amount of continuing default as on the Balance Sheet date in repayment or Term Loans and Interest shall be specified separately in each case. • Disclosures relating to default should be made for all items listed under the category of Borrowings such as Bonds/ Debentures, Deposits, Deferred Payment Liabilities, Finance Lease Obligations, etc., and not only to items classified as "Loans" such as Term Loans, Loans and Advances.

	• Defaults other than in respect of repayment of Loan and Interest, e.g., non-compliance with Debt Covenants, etc., need not be disclosed. • Any default that had occurred during the year and was subsequently made good before the end of the year need not be disclosed.

(3) (b) DEFERRED TAX LIABILITIES (Also Refer AS-22)

Schedule III Disclosure Requirement	*Points*
To be shown as a separate line item on the face of Balance Sheet.	----

(3) (c) OTHER LONG-TERM LIABILITIES

Schedule III Disclosure Requirement	*Points*
It shall be classified as – (a) Trade Payables	Sundry Creditors for Goods or Services, and Acceptances should be disclosed as part of Trade Payables. Disclosure Requirements under MICRO, SMALL & MEDIUM ENTERPRISES DEVELOPMENT (MSMED) Act will also be required to be made in the annual Financial Statements.
(b) Others	Amounts due under contractual obligations, e.g., payables in respect of statutory obligations, like contribution to Provident Fund, Purchase of Fixed Assets, Contractually Reimbursable Expenses, Interest Accrued on Trade Payables, etc., should be classified as "Others" and each such item should be disclosed nature wise.

(3) (d) LONG-TERM PROVISIONS

Schedule III Disclosure Requirement	*Points*
It shall be classified as – (a) Provision for Employee Benefits	This should be classified into short-term and long-term portions, and the latter amount should be included here.
(b) Others (Specifying nature)	This would include items like Provisions for Warranties.

(4) CURRENT LIABILITIES

(a) SHORT-TERM BORROWINGS

Schedule III Disclosure Requirement	*Points*
1. Short-Term Borrowings shall be classified as –	• Short-Term Borrowings will include all Loans within a period of 12 months from the date of the loan, Loans payable on demand, etc., but they will not include Current Maturity of Long-Term Borrowings (which should be treated only as "Other Current Liabilities").

• Loans Repayable on demand– (i) from Banks, & (ii) Other Parties, • Loans and Advances from Related Parties, • Deposits, • Others Loans and Advances (specify nature) • Current maturities of Long Term Borrowing	• In case of Short-Term Borrowings, all defaults (not continuing defaults as in the case of Long Term Borrowings) existing as at the date of the Balance Sheet should be disclosed (item wise) • A 3-Year Loan taken for a business with a 4-year Operating Cycle will be categorized only as Short- Term Borrowings, and not as Long-Term Borrowings.

(4) (b) TRADE PAYABLES

Schedule III Disclosure Requirement	***Points***
It shall be classified as – (A) Total outstanding dues of micro enterprises and small enterprises; and (B) Total outstanding dues of creditors other than micro enterprises and small enterprises."	• Liability for Capital Goods Purchases: Amount due towards purchase disclosed under "Other Current Liabilities" with a suitable description. • Liability under Contractual Obligations: Liability towards Employees, Leases or other Contractual Liabilities should not be included under Trade Payables. Only "Commercial Dues" can be included under Trade Payables.

Note:

The following details relating to Micro, Small and Medium Enterprises shall be disclosed in the notes:

(a) The principal amount and the interest due thereon (to be shown separately) remaining unpaid to any supplier at the end of each accounting year;

(b) The amount of interest paid by the buyer in terms of Section 16 of the Micro, Small and Medium Enterprises Development Act, 2006, along with the amount of the payment made to the supplier beyond the appointed day during each accounting year;

(c) The amount of interest due and payable for the period of delay in making payment (which have been paid but beyond the appointed day during the year) but without adding the interest specified under the Micro, Small and Medium Enterprises Development Act, 2006;

(d) The amount of interest accrued and remaining unpaid at the end of each accounting year; and

(e) The amount of further interest remaining due and payable even in the succeeding years, until such date when the interest dues above are actually paid to the small enterprise, for the purpose of disallowance of a deductible expenditure under Section 23 of the Micro, Small and Medium Enterprises Development Act, 2006.

(f) *Explanation* – the terms 'appointed day', 'buyer', 'enterprise', 'micro enterprise', 'small enterprise' and 'supplier' shall have the same meaning assigned to those under (b),(d),(e),(h),(m) and (n) respectively of Section 2 of the Micro, Small and Medium Enterprises Development Act, 2006.

(4) (c) OTHER CURRENT LIABILITIES

Schedule III Disclosure Requirement	*Points*
It shall be classified as – (a) Current Maturities of Finance Lease Obligations, (b) Interest Accrued but not due on Borrowings, (c) Interest Accrued and due on Borrowings, (d) Income Received in Advance, (e) Unpaid Dividends, (f) Application Money received for allotment of Securities and due for Refund and Interest Accrued thereon (Refer note below) (g) Unpaid Matured Deposits and Interest Accrued thereon, (h) Unpaid Matured Debentures and Interest Accrued thereon, (i) Other Payables (specify nature). **Note:** 1. Share Application Money includes Advances towards allotment of Share Capital. 2. Terms and Conditions include the Number of Shares proposed to be issued, the Amount of Premium, if any, and the period before which shares be allotted shall be disclosed. 3. It shall also be disclosed whether the Company has sufficient Authorized Capital to cover the Share Capital Amount resulting from Allotment of Shares out of such Share Application Money. 4. Further, the period for which the Share Application Money has been pending beyond the period for Allotment as mentioned in the document inviting application for shares along with the reason for such Share Application Money being pending shall be disclosed. 5. Share Application Money not exceeding the Issued Capital and to the extent not refundable shall be shown under the head 'Equity' and Share Application Money to the extent refundable, i.e., the amount in excess of subscription or in case the requirements of minimum subscription are not met, shall be separately shown under 'Other Current Liabilities'.	• The portion of Long Term Debts/ Lease Obligations, which is due for payments within 12 months of the reporting date is required to be classified under "Other Current Liabilities", while the balance amount should be classified under Long-Term Borrowings. • Trade Deposits and Security Deposits which are not in the nature of Borrowings should be classified separately under Other Non- Current/ Current Liabilities. • Other Payables under this head may be in the nature of statutory dues such as Withholding Taxes, Service Tax, VAT, Excise Duty, etc. • Current Year Classification as Current Liability and Previous Year Non-Current Liability: Current/ Non/Current Classification of Assets / Liabilities is determined on a particular date, i.e., Balance Sheet date. So, if there is any change in the position at the end of the current year resulting in a different classification of Assets / Liabilities in the current year, it will not impact the classification made in the previous year.

(4) (d) SHORT TERM PROVISIONS

Schedule III Disclosure Requirement	*Points*
It shall be classified as – (a) Provision for Employee Benefits	This should be classified into short-term and long- term portions, and the former amount should be included here.
(b) Others (Specifying nature)	This includes Provision for Dividend, Provision for Taxation, Provision for Warranties, etc.

B. DISCLOSURE REQUIREMENTS FOR "ASSETS" ITEMS

(1) NON-CURRENT ASSETS

(1) (a) (i) PROPERTY PLANT AND EQUIPMENT (Also Refer AS – 6, 10)

Schedule III Disclosure Requirement	*Points*
1. **Classification shall be given as –** (a) Land, (b) Buildings, (c) Plant and Equipment, (d) Furniture & Fixtures, (e) Vehicles, (f) Office Equipment, (g) Others (Specify Nature).	AS-19 excludes Land Leases from its scope. Leasehold Land should be presented as a separate assets class under Tangible Assets. Also, Freehold Land should be presented as a separate asset class.
2. Assets under Lease shall be separately specified under each class of Asset.	• The term "under lease" should mean – (a) Assets given on Operating Lease in the case of Lessor, and (b) Assets held under Finance Lease in the case of Lessee. • Leasehold Improvements should continue to be shown as a separate asset class.
3. **Re-evaluation**: Where sums have been written off on a Reduction of Capital or Re-evaluation of Assets of where sums have been added on Re-evaluation of Assets, every Balance Sheet subsequent to date of such write off, in addition shall show the Reduced or Increased figures as applicable and shall be way of a Note also show the amount of the Reduction or Increase as applicable together with the date thereof for the first 5 years subsequent to the dare of such Reduction or Increase.	• AS-10 requires disclosure of details such as Gross Book Value of Re-evalued Assets, Method adopted to compute re-evalued amounts, Nature of indices used, Year of appraisal, Involvement of External Valuer, etc. as long as the concerned assets are held by the Enterprise. [but only 5 years period is specified in Schedule III] • AS-10 requirements will prevail. [Note: AS 26 does not permit re-evaluation of Intangible Assets.]

4. **Reconciliation**: A Reconciliation of the Gross and Net Carrying Amounts of each Class of Assets at the Beginning and End of the Reporting period showing Additions, Disposals, Acquisitions through Business Combinations and other Adjustments and the related Depreciation and Impairment Losses / Reversals shall be disclosed separately.	(a) Since reconciliation of Gross and Net Carrying Amounts of Fixed assets is required, the Depreciation/ Amounts of fixed assets is required, the Depreciation/ Amortization for each class of asset should be disclosed in terms of – ● Opening Accumulated Depreciation, ● Depreciation/Amortization for the year, ● Deductions/Other Adjustments, and ● Closing Accumulated Depreciation/ Amortization. (b) Similar disclosures should also be made for Impairment, if any, as applicable. (c) Business Combinations: ● Business Combination should be taken as an amalgamation or acquisition or any other mode of restructuring of a set of Assets and/or a group of Assets and Liabilities constituting a business. ● Acquisitions through 'Business Combinations' should be disclosed separately for each class of assets. ● Asset Disposals through Demergers, etc., if any also be disclosed separately for each class of assets. (d) Other Adjustments: This includes – ● Capitalization of FOREX Differences where such option has been exercised by the Company as per AS-11. ● Adjustments on a/c of Exchange Fluctuations for Fixed Assets in case of Non-Integral Operations (AS- 11). ● Borrowing Costs capitalized as per AS-16.

(1) (a)(ii) INTANGIBLE ASSETS (Also Refer AS-26)

Schedule III Disclosure Requirement	***Points***
Classification shall be given as – (a) Goodwill, (b) Brands / Trademarks, (c) Computer Software, (d) Mastheads and Publishing Titles, (e) Mining Rights, (f) Copyrights, and Patents and Other Intellectual Property Rights, Services and Operating Rights, (g) Recipes, Formula, Models, Designs and Prototypes, (h) Licenses and Franchise, (i) Others (specify nature).	Classification of Intangible Assets has been introduced under Schedule VI (R). Intangible Assets under development should also be disclosed separately, if AS-26 criteria are met.

A reconciliation of the gross and net carrying amounts of each class of assets at the beginning and end of the reporting period showing additions, disposals, acquisitions through business combinations, amount of change due to revaluation (if change is 10% or more in the aggregate of the net carrying value of each class of intangible assets) and other adjustments and the related depreciation and impairment losses or reversals shall be disclosed separately.

(1) (a)(iii) CAPITAL WORK IN PROGRESS

Schedule III Disclosure Requirement	***Points***
To be shown as a separate line item on the face of Balance Sheet	Capital Advances should be included under Long- Term Loans and Advances and hence, cannot be included under Capital WIP.

(1) (a)(iv) INTANGIBLE ASSETS UNDER DEVELOPMENT

Schedule III Disclosure Requirement	***Points***
To be shown as a separate line-item on the face of Balance Sheet	Intangible Assets under development should be disclosed under this head provided they can be recognized based on the criteria laid down in AS-26.

(1) (b) NON CURRENT INVESTMENTS (Also Refer AS – 13)

Schedule III Disclosure Requirement	***Points***
Non-Current Investments shall be classified as Trade Investments and Other Investments, and further classified as Investments in – (a) Property, (b) Equity Instruments, (c) Preference Shares, (d) Government / Trust Securities, (e) Debentures or Bonds, (f) Mutual Funds, (g) Partnership Firms, and (h) Other Non-Current Investments (specify nature).	• If a Debenture is to be redeemed partly within 12 months and balance again after 12 months, the amount to be redeemed within 12 months should be disclosed as current, and balance as Non-Current. • "Trade Investment" is normally understood as an Investment made by a Company in Shares or Debentures of another Company, to promote the trade or business of the first Company.
Notes: 1. Under each classification, details shall be given about the Names of Bodies Corporate (indicating separately whether such bodies are – (i) Subsidiaries, (ii) Associates, (iii) Joint Ventures, or (iv) Controlled Special	(a) **Controlled SPEs**: • Schedule III requires separate disclosure of Investments in "Controlled Special Purpose Entities" in addition to Subsidiaries, Joint Venture, Associates, etc. • Since the expression "Controlled SPEs" is not defined in the Act/Sch. III/AS, no disclosures would be additionally

Purpose Entities) in whom Investments have been made and the nature and extent of the Investment so made in each such Body Corporate (showing separately Investments which are partly-paid).	required to be made under this caption. If and when such terminology is explained/ introduced in the applicable AS, the disclosure requirement would become applicable. (b) **Other Points**: "Nature and Extent" of Investment in each Body Corporate should be interpreted to mean the Number and Face Value of Share. Also, it is advisable to clearly disclose whether Investments are fully paid or partly paid. (item wise)
2. With regard to Investments in the capital of Partnership Firms, the Names of the Firms (with the names of all their Partners, Total Capital and the Shares of each Partner) shall be given.	(a) **LLP**: A LLP is a Body Corporate, and not a Partnership Firm as envisaged under the Partnership Act, 1932. Hence, disclosures pertaining to Investments, in Firms will not include LLPs. Investments in LLPs will be disclosed separately under "Other Investments". (b) **Change in Constitution**: In case of change in constitution of the Firm during the year, the names of the Other Partners should be disclosed based on the position existing as on the date of Company's Balance Sheet. (c) **Capital:** ● The Total Capital of the Firm, to be disclosed, should be with reference to the Amount of Capital on the date of the Company's Balance Sheet. ● If the Partnership Firm has separate accounts for Partners' Capital, Drawings or Current, Loans to or from Partners, etc. disclosure must be made with regard to the Total of Capital Accounts alone, since this is what constitutes the capital of the Partnership Firm. ● Where, however, such Accounts have not been segregated, or where the Partnership Deed Provides that the Capital of each Partner is to be calculated by reference to the Net Amount at his credit after merging all the Accounts, the disclosure relating to the Partnership Capital must be made on the basis of the total effect of such accounts taken together. ● **Share of each Partner:** Share of each Partner means share in the Profits of the Firm, rather than the share in the Capital. ● **Different Reporting Dates:** If it is not practicable to draw up the Financial Statements of the Partnership upto such date and, are drawn upto different reporting dates, drawing analogy from AS-21 and AS-27, adjustments should be made for effects of significant transactions or other

	events that occur between those dates and the date of the Partners' Financial Statements. Also, the difference between reporting dates should not be more than 6 months. In such cases, the difference in reporting dates should be disclosed.
3. Investments carried at other than at Cost should be separately stated specifying the basis for valuation thereof.	**Basis of Valuation**: Disclosure for the basis of valuation of Non-Current Investments may be either of – (a) Cost, or (b) Costless Provision for other than temporary diminution, or (c) Lower of Cost and Fair Value.
4. The following shall also be disclosed- (a) Aggregate amount of Quoted Investments and Market Value thereof, (b) Aggregate Amount of Unquoted Investments, (c) Aggregate Provision for Diminution in value of Investments.	It is recommended to disclose the amount of provision netted-off for each Long-Term Investment. However, the aggregate amount of provision made in respect of all Non- Current Investments should also be separately disclosed to comply with the specific disclosure requirement in Schedule III.

(1) (c) DEFERRED TAX ASSET (Also Refer AS – 22)

Schedule III Disclosure Requirement	***Points***
To be shown as a separate line-item on the face of Balance Sheet.	––

(d) LONG TERM LOANS AND ADVANCES

Schedule III Disclosure Requirement	***Points***
1. **General Classification**: Long-Term Loans and Advances shall be classified as – (a) Capital Advances, (b) Loans and Advances to Related Parties (giving details thereof), (c) Other Loans and Advances (specify nature)	**Capital Advances:** • It should be specifically included under Long- Term Loans and Advances and hence, cannot be included under Capital Work-In-Progress. • Capital Advances are advances given for procurement of Fixed Assets which are Non- Current Assets. They are not realized back in cash, and over a period, get converted into Fixed Assets. Assets. Hence, they are always Long-Term Advances, irrespective of when the Fixed Assets are expected to be received. Other Loans and Advances should include all other items in the nature of advances recoverable in cash or kind, e.g., Prepaid Expenses, Advance Tax, CENVAT Credit Receivable, VAT Credit Receivable and Service Tax Credit Receivable which are not expected to be realized within the next 12 months or operating cycle whichever is longer, from the Balance Sheet date.

2. **Security wise Classification**: The above shall be separately sub-classified as – (a) Secured, considered Good (b) Unsecured, considered Good (c) Doubtful.	–
3. **Bad / Doubtful**: Allowance for Bad and Doubtful Loans and Advances shall be disclosed under the relevant heads separately.	–
4. **Directors etc.**: Loans and Advances due by Directors or Other Officers of the Company or any of them either severally or jointly with any other persons or amounts due by Firms or Private Companies respectively in which any Director is a Partner in a Director of a Member should be separately stated.	The term "Details" of Loans and Advances of Related Parties would mean disclosure requirements contained in AS-18.

(1) (e) OTHER NON-CURRENT ASSETS

Schedule III Disclosure Requirement	***Points***
1. Other Non-Current Assets shall be classified as – (a) Long-term Trade Receivables (including Trade Receivables on Deferred Credit Terms) (b) Securities Deposits (c) Others (specify nature)	• A Receivable shall be classified as 'Trade Receivable' if it is in respect of the amount due on account of goods sold or services rendered in the normal course of business.
2. Security wise Classification: Long-Term Receivables shall be separately sub classified as – (a) Secured, considered good (b) Unsecured, Considered Good (c) Doubtful.	• Dues in respect of Insurance Claims, Sale of Fixed Assets, Contractually Reimbursable Expenses, Interest Accrued on Trade Receivables, etc., should be classified as "Others" and each such item should be disclosed according to their nature.
3. For Trade Receivables Outstanding	• Trade Receivables ageing schedule

2. CURRENT ASSETS

(2) (a) CURRENT INVESTMENTS (Also Refer AS – 13)

Schedule III Disclosure Requirement	***Points***
Current Investments shall be classified as – (a) Investments in Equity Instruments, (b) Investment in Preference Shares, (c) Investments in Government or Trust Securities, (d) Investments in Debentures or Bonds, (e) Investments in Mutual Funds, (f) Investments in Partnership Firms, (g) Other Investments (specify nature).	Principles given for Non- current Investments will apply here also to the relevant. However, Trade vs Non-Trade Classification, is not required for Current Investments.
Notes: 1. Under each classification, details shall be given of Names of Bodies Corporate [indicating separately whether such Bodies are – (i) Subsidiaries, (ii) Associates, (iii) Joint Ventures, or (iv) Controlled Special Purpose Entities] in whom Investments have been made and the nature and extent of the Investment so made in each such Body Corporate (showing separately investments which are party- paid). In regard to Investments in the Capital of Partnership Firms, the names of the Firms (with the names of all their Partners, Total Capital and the percentage of Shares of each Partner) shall be given. 2. The following shall also be disclosed: (a) Basis of Valuation of individual Investments, (b) Aggregate Amount of Quoted Investments and Market Value thereof, (c) Aggregate Amount of Unquoted Investments, (d) Aggregate Provision made for Diminution in Value of Investments.	

(2) (b) INVENTORIES (Also Refer AS-2)

Schedule III Disclosure Requirement	***Points***
Inventories shall be classified as – (a) Raw materials, (b) Work In Progress,	• Goods in Transit should be included under relevant heads with suitable disclosure.

(c) Finished Goods, (d) Stock-in-Trade (in respect of goods acquired for Trading), (e) Stores and Spares, (f) Loose Tools, (g) Others (specify nature). **Note**: Goods-in-Transit shall be disclosed under the relevant subhead of Inventories. Mode of Valuation shall be stated.	• The heading "Finished Goods" should comprise all Finished Goods other than those acquired for trading purposes. Those acquired for trading purposes are to be shown under "Stock in Trade".

(2) (c) TRADE RECEIVABLES

Schedule III Disclosure Requirement	*Points*
1. Aggregate amount of Trade Receivables outstanding for a period exceeding 6 months from the date they are due for payment should be separately stated. 2. **Security wise Details:** Trade Receivables shall be separately sub classified as – (a) Secured, considered Good (b) Unsecured, considered Good (c) Doubtful. 3. **Bad /Doubtful:** Allowance for Bad and Doubtful Loans and Advances shall be disclosed under the relevant heads separately. 4. **Directors, etc:** Debts due by Directors or Other Officers of the Company or any of them either severally or jointly with any other person or debts due by Firms or Private Companies, respectively in which any Director is a Partner, or a Director, or a Member should be separately stated. 5. Trade Receivables ageing schedule	• Schedule III requires separate disclosure of "Trade Receivables O/s for a period exceeding 6 months from the date they become due for payment", only for the current portion of Trade Receivables. • Where no due date is specifically agreed upon, normal credit period allowed by the Company should be taken into consideration for computing the due date, which may vary depending upon the Nature of Goods or Services sold and the Type of Customers, etc. • Amounts due under contractual obligations, e.g., dues in respect of Insurance Claims, Sale of Fixed Assets, Contractually Reimbursable Expenses, Interest Accrued on Trade Receivables, etc., cannot be included within Trade Receivables. Such Receivables should be classified as "Other Current Assets" and each such item should be disclosed naturewise. • Lean Period Activities: Receivables arising out of sale of materials/ rendering of services during a Company's lean period, should be included under "Trade Receivables", if such activity is in the normal course of business. If they are not part of "normal course of business", they are to be classified under "Other Assets".

(2) (d) CASH AND CASH EQUIVALENTS (Also Refer AS-3)

Schedule III Disclosure Requirement	*Points*
Cash and Cash Equivalents shall be classified as – (a) Balances with Banks, (b) Cheques, Drafts on Hand, (c) Cash on Hand, (d) Other (Specify nature). Notes: ● Earmarked Balances with Banks (e.g. for Unpaid Dividend) shall be separately stated. ● Balances with Banks to the extent held as margin Money or Security against the Borrowings, Guarantees, Other Commitments shall be disclosed separately. ● Repatriation restrictions, if any, in respect of Cash and Bank Balances shall be separately stated. ● Bank Deposits with more than 12 months Maturity shall be disclosed separately.	● "Other Bank Balances" would comprise items like Balances with Banks to the extent of holding as Margin Money or Security against Borrowings, etc., and Bank Depositswith more than 3 months maturity. ● Bank Deposits with more than 12 months maturity will also need to be separately disclosed under the above subhead. ● The Non-Current Portion of each of the above balances should be classified under the head "Other Non-Current Assets" with separatedisclosure thereof.

(2) (e) SHORT TERM LOANS AND ADVANCES

Schedule III Disclosure Requirement	*Points*
1. General Classification: Short-Term Loans and Advances shall be classified as – (a) Loans and Advances to Related Parties (giving details thereof), (b) Others (specify nature). 2. Security wise Classification: The above shall also be sub classified as- (a) Secured, considered Good, (b) Unsecured, considered Good, (c) Doubtful. 3. Bad / Doubtful: Allowance for Bad and Doubtful Loans and Advances shall be disclosed under the relevant heads separately. 4. Directors, etc.: Loans & Advances due by Directors or Other Officers of the Company or any of them either severally or Jointly with any other person or amounts due by Firms or Private Companies, respectively in which any Director is a Partner or a Director or a Member shall be separately stated.	Principles given for Long-Term Loans and Advances will apply here to the relevant extent.

(f) OTHER CURRENT ASSETS

Schedule III Disclosure Requirement	*Points*
• This is an all-inclusive heading, which incorporates Current Assets which do not fit into any other Asset Categories. • Nature of each item should be specified • In case any amount classified under this category is doubtful, it is advisable that such doubtful amount as well as any provision made there against should be separately disclosed.	• This is an all-inclusive heading, which incorporates Current Assets that do not fit into any other asset categories, e.g., Unbilled Revenue, Unamortized Premium on Forward Contracts, etc.

(g) CONTINGENT LIABILITIES AND COMMITMENTS (TO THE EXTENT NOT PROVIDED FOR)

Schedule III Disclosure Requirement	*Points*
(i) Contingent liabilities shall be classified as: a) Claims against the company not acknowledged as debt; b) Guarantees; c) Other money for which the company is contingently liable. (ii) Commitments shall be classified as: a) Estimated amount of contracts remaining to be executed on capital account and not provided for; b) Uncalled liability on shares and other investments partly paid; c) Other commitments (specify nature).	The amount of dividends proposed to be distributed to equity and preference shareholders for the period and the related amount per share shall be disclosed separately. Arrears of fixed cumulative dividends on preference shares shall also be disclosed separately. Where in respect of an issue of securities made for a specific purpose, the whole or part of the amount has not been used for the specific purpose at the balance sheet date, there shall be indicated by way of note how such unutilised amounts have been used or invested. Where the company has not used the borrowings from banks and financial institutions for the specific purpose for which it was taken at the balance sheet date, the company shall disclose the details of where they have been used.

(h) ADDITIONAL REGULATORY INFORMATION

i. Title deeds of Immovable Property not held in name of the Company

ii. Where the Company has revalued its Property, Plant and Equipment, the company shall disclose as to whether the revaluation is based on the valuation by a registered valuer as defined under rule 2 of the Companies (Registered Valuers and Valuation) Rules, 2017.

iii. Following disclosures shall be made where Loans or Advances in the nature of loans are granted to promoters, directors, KMPs and the related parties (as defined under Companies Act, 2013,) either severally or jointly with any other person, that are:

a) repayable on demand or

b) without specifying any terms or period of repayment

iv. Capital-Work-in Progress (CWIP)

v. Intangible assets under development

vi. Details of Benami Property held

vii. Where the Company has borrowings from banks or financial institutions on the basis of security of current assets, it shall disclose the following:-

a) whether quarterly returns or statements of current assets filed by the Company with banks or financial institutions are in agreement with the books of accounts.

b) if not, summary of reconciliation and reasons of material discrepancies, if any to be adequately disclosed.

viii. Wilful Defaulter- Where a company is a declared wilful defaulter by any bank or financial Institution or other lender, following details shall be given:

a) Date of declaration as wilful defaulter,

b) Details of defaults (amount and nature of defaults),

ix. Relationship with Struck off Companies

x. Registration of charges or satisfaction with Registrar of Companies

xi. Compliance with number of layers of companies

xii. Following Ratios to be disclosed:-

a) Current Ratio,

b) Debt-Equity Ratio,

c) Debt Service Coverage Ratio,

d) Return on Equity Ratio,

e) Inventory turnover ratio,

f) Trade Receivables turnover ratio,

g) Trade payables turnover ratio,

h) Net capital turnover ratio,

i) Net profit ratio,

j) Return on Capital employed,

k) Return on investment.

xiii. Compliance with approved Scheme(s) of Arrangements

xiv. Utilisation of Borrowed funds and share premium.

Special Point: Unamortised portion of share issue expenses, etc.

1. Schedule III does not contain any specifies disclosure requirement for the unamortized portion of expense items such as Share Issue Expenses, Ancillary Borrowing Costs and Discount or Premium relating to Borrowings.
2. As per AS-16, Ancillary Borrowing Costs and Discount or Premium relating to Borrowings could be amortized over the loan period. Further, share Issue Expenses, Discount on Shares, Ancillary Costs-Discount, Premium on Borrowing, etc. being special nature items, are excluded from the scope of AS- 26 Intangible Assets.
3. Certain companies have taken a view that it is an acceptable practice to amortize these expenses over the period of benefit, i.e., normally 3 to 5 years.
4. Conclusion: Schedule III does not deal with any accounting treatment of these items, and the same continues to be governed by the respective AS / best practices. So, a Company can disclose the Unamortized Portion of such expenses as "Unamortized Expenses", under the head "Other Current/ Non- Current Assets", depending on whether the amount will be amortized in the next 12 months or thereafter.

PART II-FORM OF STATEMENT OF PROFIT AND LOSS

Name of the Company :.....

Profit and Loss Statement for the year ended:..... (Rs. in.....)

Particulars	*Note No.*	*Figures for the Current Reporting Period*	*Figures for the Previous Reporting Period*
I	Revenue from Operations	XXX	XXX
II	Other Income	XXX	XXX
III	**Total Income (I+II)**	XXX	XXX
IV	Expenses:		
	Cost of Materials Consumed Purchases of Stock-In-Trade	XXX	XXX
	Changes in Inventories of Finished Goods/Work-in-progress and Stock-In-Trade	XXX	XXX
	Employee Benefits Expense	XXX	XXX
	Finance Costs	XXX	XXX
	Depreciation and Amortization Expense	XXX	XXX
	Other Expenses	XXX	XXX
Total Expenses		**XXX**	**XXX**
V	Profit before Exceptional & Extraordinary Items and Tax (III – IV)	XXX	XXX

VI	Exceptional Items	XXX	XXX
VII	Profit before Extraordinary Items (V-VI)	XXX	XXX
VIII	Extraordinary Items	XXX	XXX
IX	Profit before Tax (VII-VIII)	XXX	XXX
X	Tax Expenses: (1) Current Tax (2) Deferred Tax	XXX	XXX
XI	Profit /(Loss) for the period from Continuing Operations (IX – X)	XXX	XXX
XII	Profit /(Loss) from Discontinuing Operations	XXX	XXX
XIII	Tax Expense of Discontinuing Operations	XXX	XXX
XIV	Profit /(Loss) from Discontinuing Operations (After Tax) (XII-XIII)	XXX	XXX
XV	Profit / (Loss) for the period (XI + XIV)	XXX	XXX
XVI	Earnings per Equity Share: (1) Basic (2) Diluted	XXX	XXX

GENERAL INSTRUCTIONS FOR PREPARATION OF STATEMENT OF PROFIT AND LOSS

Item	*Description*	
1. Revenue from Operations	For Company other than a Finance Company: Revenue from Operations shall disclosed separately in the Notes, Revenue from – (a) Sale of Products (b) Sale of Services (ba) Grants or donation received (relevant in case of Section 8 Companies) (c) Other Operating Revenues (d) Less: Excise Duty	**For Finance Company:** Revenue from Operations shallinclude Revenue from: (a) Interest & (b) Other Financial Services Revenue under each of the above heads shall be disclosed separately by way of Notes to Accounts to the extent applicable.

2. Finance Costs	Finance Costs shall be classified as – (a) Interest Expenses, (b) Other Borrowing Costs, (c) Applicable Net Gain / Loss on Foreign Currency Transactions and Translation.
3. Other Income	Other Income shall be classified as – (a) Interest Income (in case of a Company other than a Finance Company), (b) Dividend Income, (c) Net Gain/Loss on Sale of Investments, (d) Other Non-Operating Income (Net of Expenses directly attributable to such income).
4. Additional Information	A Company shall disclose by way of Notes, additional information regarding Aggregate Expenditure and Income on the following items referred below.

(i) Employee Benefits, Expense, Income Items, etc:

(a) Employee Benefits Expense [showed separately – (i) Salaries & Wages, (ii) Contribution to PF and Other Funds, (iii) Expense on ESOP and Employee Stock Purchase Plan (ESPP), (iv) Staff Welfare Expenses]

(b) Depreciation and Amortization Expenses,

(c) Any item of Income of Expenditure which exceeds 1% of Revenue from Operations or Rs. 1,00,000 whichever is higher,

(d) Interest Income,

(e) Interest Expense,

(f) Dividend Income,

(g) Net Gain / Loss on Sale of Investments,

(h) Adjustments to the Carrying Amount of Investments,

(i) Net Gain / Loss on Foreign Currency Transaction & Translation (other than the cost considered as Finance Cost),

(j) Payments to the Auditor as – (a) Auditor, (b) For Taxation Matters, (c) For Company Law Matters, (d) For Management Services, (e) For other Services, (f) For Reimbursement of Expenses,

(k) In case of companies covered u/s 135, amount of expenditure incurred on Corporate Social Responsibility activities

(l) Item of Exceptional and Extraordinary Nature,

(m) Prior Period Items.

(ii) Materials, Goods, Services, etc.

(a) In the case of Manufacturing Companies –

Raw Materials under broad heads. Goods Purchased under broad heads.

(b) In the case of Trading Companies, Purchases in respect of goods Traded in by the Company under broad heads.

(c) In the case of Companies rendering or supplying services, Gross Income derived from Services Rendered or Supplied, are shown under broad heads.

(d) In the case of a Company, which falls under more than one of the categories mentioned in (a), (b) and (c) above, it shall be sufficient compliance with the requirements herein if Purchases, Sales and Consumption of Raw Material and the Gross Income from Services rendered is shown under broad head.

(e) In the case of Other Companies, Gross Income derived under broad heads are shown.

(iii) In the case of all concerns regarding Works-in-Progress are shown under broad heads.

(iv) Reserves – Creation & Utilization:

(a) The aggregate, if material, of any amounts set aside or proposed to be set aside to Reserve, without including Provisions made to meet any Specific Liability, Contingency or Commitment known to exist at the date as to which the Balance Sheet is made up.

(b) The aggregate, if material, of any amounts withdrawn from such Reserves.

(v) Provision – Creation & Utilization:

(a) The aggregate, if material, of the amounts set aside to Provisions made for meeting Specific Liabilities, Contingencies or Commitments.

(b) The aggregate, if material, of the amounts withdrawn from such provisions, as no longer required.

(vi) Expenses, etc: Expenditure incurred on each of the following items, separately for each item:

(a) Consumption of Stores and Spare Parts,

(b) Power and Fuel,

(c) Rent,

(d) Repairs of Buildings,

(e) Repairs of Machinery,

(f) Repairs of Machinery,

(g) Insurance,

(h) Rates and Taxes, excluding Taxes on Income,

(i) Miscellaneous Expenses.

(vii) Subsidiaries Information:

(a) Dividends from Subsidiary Companies.

(b) Provisions for Losses of Subsidiary Companies.

(viii) Forex Information: The P&L A/c shall also contain by way of a Note the following Information,namely –

(a) Value of Imports calculated on CIF basis by the Company during the Financial Year in respect of – (I) Raw Materials, (II) Components and Spare Parts, (III) Capital Goods

(b) Expenditure in Foreign Currency during the Financial Year on account of Royalty, Know-How, Professional and Consultation Fees, Interest, and Other Matters

(c) Total Value if all Imported Raw Materials, Spare Parts and Components consumed during the Financial Year and the Total Value of all Indigenous Raw Materials, Spare Parts and Components similarly consumed and the Percentage of each to the Total Consumption,

(d) Amount remitted during the year in Foreign Currencies on account of Dividends with a specific mention of the total number of Non-Resident Shareholders, the Total Number of Shares held by themon which the Dividends were due and the year to which the Dividends related.

(e) Earnings in Foreign Exchange classified under the following heads, namely-Export of Goods calculated on FOB Basis, Royalty, Know-How, Professional & Consultation Fees, Interest and Dividend, Other Income, indicating the nature thereof.

Note: Broad heads shall be decided taking into account the concept of Materiality and Presentation of Trueand Fair view of Financial Statements.

(ix) Undisclosed income:

The Company shall give details of any transaction not recorded in the books of accounts that has been surrendered or disclosed as income during the year in the tax assessments under the Income Tax Act, 1961 (such as, search or survey or any other relevant provisions of the Income Tax Act, 1961), unless there is immunity for disclosure under any scheme and also shall state whether the previously unrecorded income and related assets have been properly recorded in the books of account during the year.;

(x) Corporate Social Responsibility (CSR):

Where the company covered under section 135 of the companies act, the following shall be disclosed with regard to CSR activities:-

a. amount required to be spent by the company during the year,

b. amount of expenditure incurred,

c. shortfall at the end of the year,

d. total of previous years shortfall,

e. reason for shortfall,

f. nature of CSR activities,

g. details of related party transactions, e.g., contribution to a trust controlled by the company in relation to CSR expenditure as per relevant Accounting Standard,

h. where a provision is made with respect to a liability incurred by entering into a contractual obligation, the movements in the provision during the year should be shown separately.

(xi) Details of Crypto Currency or Virtual Currency:

Where the Company has traded or invested in Crypto currency or Virtual Currency during the financial year, the following shall be disclosed:-

a. profit or loss on transactions involving Crypto currency or Virtual Currency

b. amount of currency held as at the reporting date,

c. deposits or advances from any person for the purpose of trading or investing in Crypto Currency/ virtual currency.

TRUE AND FAIR VIEW OF FINANCIAL STATEMENTS

According to Section 128 (1) of the Companies Act, 2013, every company shall prepare and keep its registered office books of account and other relevant books and papers and financial statements for every financial year which give a true and fair view of the state of the affairs of the company.

Further Section 129(1) of the Companies Act, 2013, states that the financial statements shall give a true and fair view of the state of affairs of the company or companies, comply with the accounting standards notified under Section 133 and shall be in the form provided for different class or classes of companies in Schedule III.

Thus, the Companies Act requires that the profit and loss account must exhibit a true and fair view of the profit earned or loss suffered by the company during the period for which the account has been prepared.

> The term 'true and fair' has not been defined nor has it been the subject of any judicial decision. But in order to show a true and fair view financial statement (Statement of Profit and Loss and Balance Sheet) should not mislead the user about the financial health of organization.

From the accounting point of view, the profit and loss account should be drawn upon the principles stated below:

(a) **Materiality:** All significant factors which will have an impact on the mind of the reader should be disclosed.

> For example, if a large quantity of raw materials is sold and there is a amount of profit or loss, the sale should not be included in the Sales Account; instead, the cost of the materials should be deducted from materials consumed and the profit or loss on the sale of raw materials should be separately disclosed in the profit and loss account. The reader will then know why the profit or loss occurred and how much it was; the reason will not be clear if the sale of raw materials is added to Sales or deductedfrom materials consumed. If, however, only a small quantity was sold leading to a rather insignificantprofit or loss, separate disclosure is not necessary because such a disclosure will not change the impression of the reader about the profit situation.

What is material does not depend upon the judgment of the management. But the materiality of a figure should be judged from the point of view of both the total amount of the item and the amount of the profit or loss. In the above example, materiality has to be seen from the point of view of :

(i) the amount of materials consumed and

(ii) the profit or loss during the year.

(b) **Prior-Period Items:** The rule in India is that once accounts are adopted at the annual general meeting, they cannot be reopened. If any error is discovered, it can be corrected only in the accounts of the subsequent period. Apart from errors, some of the accounts relating to the previous year may come to knowledge or may be ascertained only in the current year.

> For example, rates have been revised with effect from October, 2015, but the decision was made only in March, 2017, The increased wages for 2016-17 can certainly be added to the 2016-2017 wages but the increased wages for six months of 2015-2016 will also have to be taken out into account. Errors and other items relating to the previous year should be shown separately in the profit and loss account, and not clubbed with the item relating to the current year unless the concerned amounts are not material. Preferably, errors and prior year items should be stated below the line, i.e., in the Profit and Loss Appropriation Account.

(c) **Extraordinary Items:** If expenses or income that do not arise in the ordinary course and are material they should be stated separately in the profit and loss account.

For example, if a fixed asset is sold, its profit or loss has to be shown separately. Another example would be speculation loss or profit; yet another would be subsidy received from government for operational purposes.

(d) **Change in Accounting Policies:** It is well known that if there is any change in an accounting policy, say method of valuation of inventories or of change in depreciation, there has to be a disclosure about the factof change and on profit or loss resulting from such a change.

XBRL (EXTENSIBLE BUSINESS REPORTING LANGUAGE)

XBRL is a language for the electronic communication of business and financial data which is revolutionizing business reporting around the world. It provides major benefits in the preparation, analysis and communication of business information. It offers cost savings, greater efficiency and improved accuracy and reliability to all those involved in supplying or using financial data. XBRL stands for eXtensible Business Reporting Language. It is already being put to practical use in a number of countries and implementations of XBRL are growing rapidly around the world.

How Does XBRL work?

XBRL makes the data readable, with the help of two documents – Taxonomy and instance document. Taxonomy defines the elements and their relationships based on the regulatory requirements. Using the taxonomy prescribed by the regulators, companies need to map their reports, and generate a valid XBRL instance document. The process of mapping means matching the concepts as reported by the company to the corresponding element in the taxonomy. In addition to assigning XBRL tag from taxonomy, information like unit of measurement, period of data, scale of reporting etc., needs to be included in the instance document.

How do companies create statements in XBRL?

There are a number of ways to create financial statements in XBRL:

- XBRL-aware accounting software products are becoming available which will support the export of data in XBRL form. These tools allow users to map charts of accounts and other structures to XBRL tags.
- Statements can be mapped into XBRL using XBRL software tools designed for this purpose.
- Data from accounting databases can be extracted in XBRL format. It is not strictly necessary for an accounting software vendor to use XBRL; third party products can achieve the transformation of the data to XBRL.
- Applications can transform data in particular formats into XBRL. The route which an individual company may take will depend on its requirements and the accounting software and systems it currently uses, among other factors.

XBRL filing under the Companies Act, 2013

The following class of companies shall file their financial statements and other documents under section 137 of the Companies Act with the Registrar in e-form AOC-4 XBRL as per Annexure-I:-

(i) Companies listed with stock exchanges in India and their Indian subsidiaries;

(ii) Companies having paid up capital of five crore rupees or above;

(iii) Companies having turnover of one hundred crore rupees or above;

(iv) All companies which are required to prepare their financial statements in accordance with Companies (Indian Accounting Standards) Rules, 2015.

The companies preparing their financial statements under the Companies (Accounting Standards) Rules, 2006 shall file the statements using the Taxonomy provided in Annexure-II and companies preparing their financial statements under Companies (Indian Accounting Standards) Rules, 2015, shall file the statements using the Taxonomy provided in Annexure-II A. However, non-banking financial companies, housing finance companies and companies engaged in the business of banking and insurance sector are exempted from filing of financial statements under these rules.

The companies which have filed their financial statements under above rule shall continue to file their financial statements and other documents though they may not fall under the class of companies specified therein in succeeding years.

The companies which have filed their financial statements under the erstwhile rules, namely the Companies (Filing of Documents and Forms in Extensible Business Reporting Language) Rules, 2011, shall continue to file their financial statements and other documents though they do not fall under the class of companies specified therein.

Benefits of XBRL

XBRL increases the usability of financial statement information. The need to re-key financial data for analytical and other purposes can be eliminated. By presenting its statements in XBRL, a company can benefit investors and all other stakeholders and enhance its profile. It meets the requirements of regulators, lenders and others consumers of financial information, who are increasingly demanding reporting in XBRL. This improves business relations and lead to a range of benefits.

All types of organizations can use XBRL to save costs and improve efficiency in handling business and financial information. Because XBRL is extensible and flexible, it can be adapted to a wide variety of different requirements. All participants in the financial information supply chain can benefit, whether they are preparers, transmitters or users of business data.

XBRL offers major benefits at all stages of business reporting and analysis. The benefits are seen in automation, cost saving, faster, more reliable and more accurate handling of data, improved analysis and in better quality of information and decision-making. XBRL enables producers and consumers of financial data to switch resources away from costly manual processes, typically involving time-consuming comparison, assembly and re-entry of data. They are able to concentrate effort on analysis, aided by software which can validate and process XBRL information. XBRL is a flexible language, which is intended to support all current aspects of reporting in different countries and industries. Its extensible nature means that it can be adjusted to meet particular business requirements, even at the individual organization level.

XBRL benefits comparability by helping to identify data which is genuinely alike and distinguishing information which is not comparable. Computers can process this information and populate both pre defined and customized reports.

With full adoption of XBRL, companies can automate data collection. For example, data from different company divisions with different accounting systems can be assembled quickly, cheaply and efficiently. Once data is gathered in XBRL, different types of reports using varying subsets of the data can be produced with minimum effort. A company finance division, for example, could quickly and reliably generate internal management reports, financial statements for publication, tax and other regulatory filings, as well as credit reports for lenders. Not only can data handling be automated, removing time-consuming, error-prone processes, but the data can be checked by software for accuracy.

LESSON ROUND-UP

- Final accounts of a company consist of balance sheet as at the end of the accounting period, and profit and loss account for that period.
- Section 129 of the Companies Act, 2013 prescribes the form and contents of balance sheet, and profit and loss account of a company.
- Balance sheet of a company shall be prepared according to Schedule III of the Companies Act, 2013.
- The Schedule III sets out minimum requirements for disclosure on the face of the Balance Sheet, and the Statement of Profit and Loss (hereinafter referred to as "Financial Statements") and Notes.
- Statement of Profit & Loss of a company shall be prepared according to Part II of Schedule III of the Companies Act, 2013.
- Section 129(1) of the Companies Act 2013, states that the financial statements shall give a true and fair view of the state of affairs of the company or companies, comply with the accounting standards notified under section 133 and shall be in the form provided for different class or classes of companies in Schedule III.

GLOSSARY

Extensible Business Reporting Language: Extensible Business Reporting Language (XBRL) is a language for the electronic communication of business and financial data which is revolutionizing business reporting around the world.

Balance Sheet: A Balance Sheet is a statement of the financial position of an enterprise as at a given date, which exhibits its assets, liabilities, capital, reserves and other account balances at their respective book values

Extraordinary Items: If expenses or income that do not arise in the ordinary course and are material they are stated separately in the profit and loss account are called Extraordinary items.

Profit and Loss Account: The profit and loss (P&L) statement is a financial statement that summarizes the revenues, costs, and expenses incurred during a specified period, usually a fiscal quarter or year.

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation.)

Multiple Choice Questions (MCQs)

1. In the context of filing of financial statements by a company, the term "XBRL" means.....
   a. Extensible Business Reporting Language
   b. Xavier Business Reporting Language
   c. Extensible Business Rules and Law
   d. None of the Above

   Answer: (a)

2. According to Section 128(1) of the Companies Act, 2013 every company shall prepare and keep its books of account and other relevant books and papers and financial statements for every financial year which give a true and fair view of the state of the affairs of the company at its ..... .
   a. Corporate Office
   b. Branch Office
   c. Registered office
   d. Every Regional office

   Answer: (c)
3. Share Options Outstanding Account is shown on the liabilities side in the Balance Sheet under the head:
   a. Current Liabilities
   b. Share Capital
   c. Reserves and Surplus
   d. None of the Above

   Answer: (c)
4. The format of the Financial Statement of a company is prescribed in:
   a. Section 129, Schedule III
   b. Section 121, Schedule III
   c. Section 130, Schedule III
   d. None of the Above

   Answer: (a)
5. If the Company's Issued Capital is more than the Authorized Capital, and approval of increase in Authorized Capital is pending, the amount of Share Application Money received over and above the Authorized Capital should be shown under the head :
   a. Other Current Liabilities
   b. Other Long-Term Liabilities
   c. Reserve and Surplus
   d. Short-Term Provision

   Answer: (a)
6. Financial statements include :
   a. Income Statement, Balance Sheet, Statement of Stockholders Equity, Statement of Cash Flow
   b. Income Statement, Balance Sheet, Statement of Fund Flow, Statement of Cash Flow
   c. Income Statement, Balance Sheet, Statement of Cash Flow, Statement of Trend Analysis
   d. Income Statement, Balance Sheet, Statement of Stockholders Equity, Statement of Trend Analysis

   Answer: (a)

7. "Interest accrued & due on debentures" is shown ..... .
   a. Under debentures
   b. As other current liabilities
   c. As provisions
   d. As a reduction of bank balance

   Answer: (b)

8. Which class of companies are required to file financial statements with Registrar as per XBRL Taxonomy ?
   a. Companies listed with stock exchanges in India and their Indian subsidiaries
   b. Companies having paid up capital of five crore rupees or above
   c. Companies having turnover of one hundred crore rupees or above
   d. All of the Above

   Answer: (d)

9. At the balance sheet date, the balance on the Accumulated Provision for Depreciation Account is
   a. Deducted from the asset in the Balance Sheet
   b. Transferred to Profit and Loss Account
   c. Transferred to the Asset Account
   d. Transferred to Depreciation Account

   Answer: (a)

10. Schedule III does not contain any specifies disclosure requirement for the unamortized portion of expense items such as .....
    a. Share Issue Expenses
    b. Ancillary Borrowing Costs
    c. Discount or Premium relating to Borrowings
    d. All of the Above

    Answer: (d)

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.

- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House

- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann

- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Accounting Standards (AS)

Lesson 3

KEY CONCEPTS

■ Accounting Standards ■ Ind AS ■ IFRS

Learning Objectives

To understand:

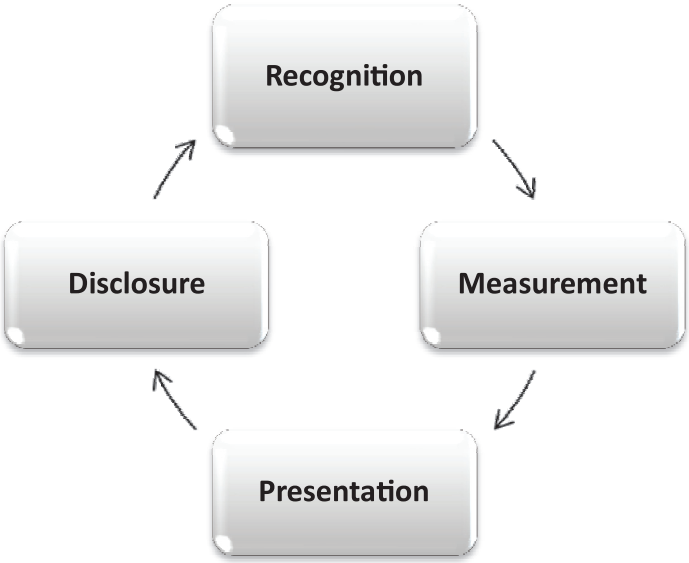
- Meaning and applicability of Accounting Standards
- Overview of Accounting Standards in India
- Convergence of Indian Accounting Standards with International Financial Reporting Standards as global Standards
- IFRS vs .IGAAP
- Comparison of Indian GAAP and Ind AS

Lesson Outline

- Introduction – Accounting Standard
- Need of Accounting Standard
- List of Accounting Standard issued by ICAI
- Applicability of Accounting Standard
- Overview of Accounting Standard
- Need for Convergence with Global Standard
- IFRS as Global Standard
- Convergence of Accounting Standard with IFRS in India
- Lists of IFRS
- Applicability of Ind AS
- Overview of Ind AS
- *IFRS* v. *IGAAP*
- Comparison of Indian GAAP and Ind AS
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION - ACCOUNTING STANDARDS

Accounting Standards are written policy documents issued by expert accounting body or by the government or other regulatory body covering the aspects of recognition, measurement, presentation, and disclosure of accounting transactions in financial statements.



This point may be explained as under:

(i) ***Recognition of transactions and other events*:** Recognition is the process of incorporating an item in the Balance Sheet and statement of Profit and Loss. It involves the depiction of an item in words and by a monetary amount and inclusion of that amount in the totals of the Balance Sheet and Statement of Profit and Loss. The Accounting standards tell us which items to recognize in the Balance sheet and which ones in the Statement of Profit and Loss.

(ii) ***Measurement of the transactions and other events*:** Accounting standards also provide guidance as to what monetary amount should be allocated to the transaction and events i.e. these help in the measurement or quantification of the items of transactions and events. For example, Accounting Standard (AS) 10 'Property, Plant and Equipment' provides that for the initial recognition of an item of PPE, the costs of the items to be considered are (a) Purchase price less trade discount and rebates; (b) Non-refundable purchase taxes; (c) Import duties; (d) Directly attributable cost to bring the asset in the location and condition for operation as intended by the management.

(iii) ***Presentation of transactions and other events*:** Accounting Standards also deal with the manner of presentation of transactions and other events in the Balance Sheet and Statement of Profit and Loss. For Example, paragraphs 8 to 17 of Accounting Standard 3 'Cash Flow Statements' deal with the manner of presentation of operating activities, investing and financing activities in the cash flow statement.

(iv) ***Disclosure of transactions and other events*:** Accounting standards also deal with the manner of disclosure of transactions and other events in the financial statements. For example, paragraph 37 of the AS 10 provides that in the financial statements, gross and net carrying amounts of the items of PPE at the beginning and end of an accounting period showing additions, disposals, acquisitions and other movements should be disclosed separately.

It may be noted that almost all the Accounting Standards deal with recognition, measurement, presentation and disclosure of transactions and other events in the Financial Statements.

NEED OF ACCOUNTING STANDARD

The accounting standards seek to describe the accounting principles, valuation techniques and the methods of applying these accounting principles in the preparation and presentation of the financial statements so that they represent a true and fair view of the financial position and financial performance of the enterprise. The ostensible purpose of the standards setting bodies is to promote the dissemination of the timely and useful financial information to the users. The need of Accounting Standards may be enumerated as under:

(i) ***Improvement of credibility and reliability of financial statements*:** The accounting standards create an environment of confidence among the users of accounting information by providing a uniform structure of uniform guidelines which provide credibility and reliability to the accounting information. In this way, the financial statements present a true and fair view of the financial position and financial performance of an entity.

(ii) ***Comparability of financial Statements made easy*:** The value of the accounting information is enhanced if the same may be compared in the same line of business activity. But, the comparability is possible only if the same accounting standards are used in the preparation of the financial statements of the different enterprises in the same industry. It is a positive step to protect the interests of the users of the accounting information.

(iii) ***Benefits to the accountants and auditors*:** The accounting standards provide a basis for the uniform accounting principles. Due to this reason, there is a less possibility of frauds being committed by the accountant. There is more transparency in the accounting information. Since the accounting profession follows the accounting standards without any exception, they are helpful not only to the accounting entity but also to the accountants and the auditors. Any type of misinformation can lead to a strict action against the accountants and the auditors.

(iv) ***Additional disclosures*:** There are certain areas where the important information is not required to be disclosed by the law. The accounting standards require the disclosure of such matters such as the method of depreciation and the change in the method of depreciation which help the users of the financial statements to take important financial decision.

(v) ***Evaluation of the managerial ability*:** Accounting standards are useful in measuring the efficiency of the management regarding profitability, liquidity, solvency and other general areas of progress of the enterprise. In the absence of Accounting Standards, it would be difficult to evaluate the managerial efficiency because there is no basis to compare the financial statements of one enterprise with those of another. Each enterprise would evolve its own rules and standards to suit its own purpose and users would, therefore, not be able to get a true and fair view of the functioning of the enterprise.

(vi) ***Helpful to the Government*:** The Government officials would find the financial information useful for economic planning, market analysis and tax collection if the financial statements are based on the established accounting standards.

LIST OF ACCOUNTING STANDARDS ISSUED BY ICAI

The Institute of Chartered Accountants of India has, so far, issued 32 Accounting Standards. However, the Accounting Standard 8 “Accounting for Research and Development” was withdrawn subsequent to the issuance of Accounting Standard 26 “Intangible Assets” and the Accounting Standard 6 “Depreciation Accounting” was withdrawn subsequent to the issuance of revised Accounting Standard 10 “Property, Plant and Equipment” including the matters related to depreciation accounting for the old AS 10 “Accounting for Fixed Assets”. The Accounting Standards 30, 31 and 32 related to “Financial Instruments” have been withdrawn by the ICAI in the year 2016. Thus, effectively, there are only 27 Accounting Standards at present.

AS 1	Disclosure of Accounting Policies
AS 2	Valuation of Inventories (Revised)
AS 3	Cash Flow Statements
AS 4	Contingencies and Events Occurring After Balance Sheet Date (Revised)
AS 5	Net profit or Loss for the period, Prior Period Items and Changes in Accounting Policies
AS 7	Construction Contracts
AS 9	Revenue Recognition
AS 10	Property, Plant and Equipment (Revised)
AS 11	The Effects of Changes in Foreign Exchange Rates
AS 12	Government Grants
AS 13	Accounting for Investments (Revised)
AS 14	Accounting for Amalgamations (Revised)
AS 15	Employee Benefits
AS 16	Borrowing Costs
AS 17	Segment Reporting
AS 18	Related Party Disclosures
AS 19	Leases
AS 20	Earnings per Share
AS 21	Consolidated Financial Statements (Revised)
AS 22	Accounting for Taxes on Income
AS 23	Accounting for Investments in Associates
AS 24	Discontinuing Operations
AS 25	Interim Financial Reporting
AS 26	Intangible Assets
AS 27	Financial Reporting of Interests in Joint Ventures
AS 28	Impairment of Assets
AS 29	Provisions, Contingent Liabilities and Contingent Assets (Revised)

APPLICABILITY OF ACCOUNTING STANDARDS

As per paragraph 3.3. of the 'Preface to the Statements of Accounting Standards' in the 'Compendium of Accounting Standards (Accounting Standards as on July 1, 2019)' issued by the Institute of Chartered Accountants of India (ICAI), accounting standards are intended to apply to enterprises (whether organized in corporate, co-operative or other forms) engaged in commercial, industrial or business activities irrespective of whether it is profit oriented or it is established for charitable or religious purposes. However, the Accounting Standards will not apply to the enterprises which carry on only those activities which are not of commercial, industrial or business nature (e.g. an activity of collecting donations and giving them to flood affected people). Exclusion of an enterprise from the applicability of Accounting Standards would be permissible only if no part of the activity of such enterprise is commercial, industrial or business in nature. Even if a very small proportion of the activities of an enterprise is considered to be commercial, industrial or business in nature, the Accounting Standards would apply to all its activities including those which are not commercial, industrial or business in nature.

Thus, it may be stated that the Accounting Standards apply to:

(a) Sole proprietorship concerns/individuals

(b) Partnership firms

(c) Societies

(d) Trusts

(e) Hindu Undivided families

(f) Association of Persons (AOP)

(g) Body of individuals (BOI)

(h) Co-operative societies

(i) Companies and LLPs

Applicability of Accounting Standard to which types of financial statements or reports?

As per paragraph 3.3 of the 'Preface to the Statements of Accounting Standards' in the 'Compendium of Accounting Standards (Accounting Standards as on July 1, 2019)' issued by the Institute of Chartered Accountants of India (ICAI), Accounting Standards apply to the general-purpose financial Statements and other financial reporting which are subject to attest functions of the members of the ICAI. As per paragraph 3.4 of the said preface, the term 'General purpose Financial Statements' includes 'Balance Sheet', 'Statement of Profit and Loss', 'A Cash Flow Statement' (where applicable), and Statements and explanatory notes which form part thereof issued for the use of various stakeholders, government and their agencies and the public at large.

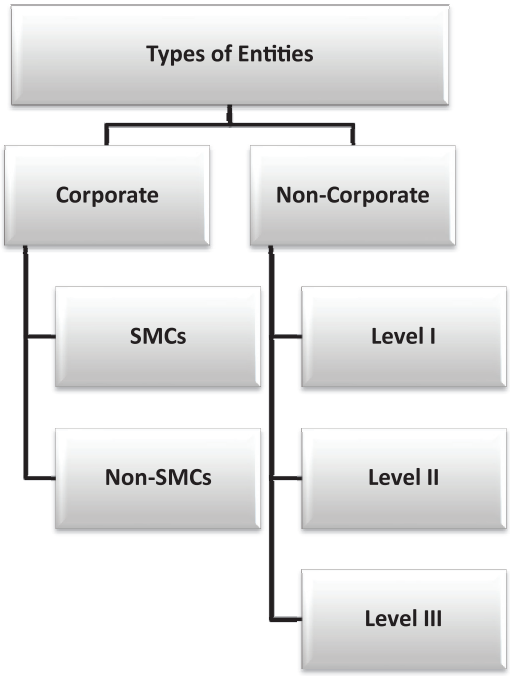
ACCOUNTING STANDARD AND AUDITORS

It is the duty of the auditors that while discharging their function, they ensure that the Accounting Standards issued and made mandatory by the Central Government are compiled with. Section 143(3)(e) of the Companies Act, 2013 requires the auditor to report whether in his opinion, the financial statements comply with the Accounting Standards referred in section 133 of the Companies Act, 2013.

ACCOUNTING STANDARD AND BOARD'S REPORT

Section 134(5)(a) of the Companies Act, 2013 states that Directors Responsibility Statement should include that in the preparation of the annual accounts, the applicable Accounting Standards had been followed along with proper explanations relating to material departure.

For the purpose of applicability of Accounting Standard, entities are grouped as follows:



Corporate Entities		
Type	***Conditions***	***Applicability of Accounting Standard***
Small and Medium Companies (SMCs)	SMCs are companies that satisfy the following conditions: (a) Equity and debt securities of the company are not listed or are not in the process of listing on any stockexchange, whether in India or outside India (b) Company is not a bank or financial institution or insurance company (c) Company's turnover (excluding other income) does not exceed Rs. 250 crores in the immediately preceding accounting year (d) Company does not have borrowing (including public deposits) exceeding Rs. 50 crores at any time during the immediately preceding accounting year and (e) Company is not a holding company or subsidiary of a non-SMC.	**Partial Exemption**: Certain relaxations are provided with respect to following Accounting Standard: AS 17 – Segment Reporting AS 15 – Employee Benefits AS 19 – Leases AS 20 – Earnings Per Share (EPS) AS 29 – Provisions, contingent liabilities and contingent assets **Full Exemption** AS 3 – Cash Flow Statements, shall not apply to SMCs if it is a One Person Company (OPC), dormant company and Small Company
Non-SMCs	Any Other Corporate Entities not falling under SMCs	All the accounting standards are applicable to Non-SMCs.

Non-Corporate Entities		
Levels	**Conditions**	**Applicability of AS**
Level I Entities	Non-company entities which fall in any one or more of the following categories, at the end of the relevant accounting period, are classified as Level I entities: i. Entities whose securities are listed or are in the process of listing on any stock exchange, whether in India or outside India. ii. Banks (including co-operative banks), financial institutions or entities carrying on insurance business. iii. All entities engaged in commercial, industrial or business activities, whose turnover (excluding other income) exceeds Rs. 250 crore in the immediately preceding accounting year. iv. All entities engaged in commercial, industrial or business activities having borrowings (including public deposits) in excess of Rs. 50 at any time during the immediately preceding accounting year. v. Holding and subsidiary entities of any one of the above.	Level I entities are required to comply in full with all the Accounting Standards. However, AS 21, 23, 25, 27 will apply based on regulatory requirement.
Level II Entities	Non-company entities which are not Level I entities but fall in any one or more of the following categories are classified as Level II entities: i. All entities engaged in commercial, industrial or business activities, whose turnover (excluding other income) exceeds Rs. 50 crore but does not exceed Rs. 250 crore in the immediately preceding accounting year. ii. All entities engaged in commercial, industrial or business activities having borrowings (including public deposits) in excess of Rs. 10 crore but not in excess of Rs. 50 crore at any time during the immediately preceding accounting year. iii. Holding and subsidiary entities of any one of the above.	Level II entities are required to comply all the Accounting Standard except the following: ● AS 21, 23, 25, 27 will apply based on regulatory requirement. ● AS not Applicable: AS 3, 17, 20. ● AS applicable with disclosure and other exemptions: AS 15, 19, 28, 29.
Level III Entities	Non-company entities which are not covered under Level I and Level II but fall in any one or more of the following categories are classified as Level III entities: i. All entities engaged in commercial, industrial or business activities, whose turnover (excluding other income) exceeds Rs. 10 crore but does not exceed Rs. 50 crore in the immediately preceding accounting year.	Level III entities are required to comply all the Accounting Standard except the following: ● AS 21, 23, 25, 27 will apply based on regulatory requirement. ● AS not Applicable: AS 3, 17, 18, 20, 24

Non-Corporate Entities		
Levels	**Conditions**	**Applicability of AS**
	ii. All entities engaged in commercial, industrial or business activities having borrowings (including public deposits) in excess of Rs. 2 crore but does not exceed Rs. 10 crore at any time during the immediately preceding accounting year. iii. Holding and subsidiary entities of any one of the above.	• AS applicable with disclosure and other exemptions: AS 10, 11, 15, 19, 28, 29
Level IV Entities	Non-company entities which are not covered under Level I, Level II and Level III are considered as Level IV entities.	Level IV entities are required to comply all the Accounting Standard except the following: • AS 14, 21, 23, 25, 27 will apply based on regulatory requirement. • AS not Applicable: AS 3, 17, 18, 20, 24, 28 • AS applicable with disclosure and other exemptions: AS 10, 11, 13, 15, 19, 22, 26, 29

Conflict between Act and Accounting Standards

In case there is any conflict between provisions of any applicable Act and Accounting Standard (AS), the provisions of the Act shall prevail to that extent.

OVERVIEW OF ACCOUNTING STANDARD		
AS	***Deals with***	***Details***
AS 1	**Disclosure of Accounting Policies**	Accounting policies are the specific accounting principles and the methods of applying those principles adopted by an enterprise in the preparation and presentation of financial statements. All significant accounting policies should be disclosed. Such disclosure form part of financial statements. All disclosures should be made at one place. Specific disclosure for the adoption of fundamental accounting assumptions is not required. Disclosure of accounting policies cannot remedy a wrong or inappropriate treatment of the item in the accounts.
AS 2	**Valuation of Inventories**	A primary issue in accounting for inventories is the determination of the value at which inventories are carried in the financial statements until the related revenues are recognized. This Standard deals with the determination of such value, including the ascertainment of cost of inventories and any write-down thereof to net realizable value.

		Inventories should be valued at the lower of cost and net realizable value. The cost of inventories should comprise- All costs of purchase (a) Costs of conversion (b) Other costs incurred in bringing the inventories to their present location and condition.
AS 3	**Cash Flow Statements**	The Standard deals with the provision of information about the historical changes in cash and cash equivalents of an enterprise by means of a cash flow statement which classifies cash flows during the period from operating, investing and financing activities. An enterprise should prepare a cash flow statement and should present it for each period for which financial statements are presented. Cash Flows are inflows and outflows of cash and cash equivalents. Cash Flow Statement represents the cash flows during the specified period by operating, investing and financing activities.
AS 4	**Contingencies and Events Occurring After the Balance Sheet Date**	This Standard deals with the treatment in financial statements of: (a) contingencies, and (b) Events occurring after the balance sheet date. A contingency is a condition or situation, the ultimate outcome of which, gain or loss, will be known or determined only on the occurrence, or non-occurrence, of one or more uncertain future events. Events occurring after the balance sheet date are those significant events, both favourable and unfavourable, that occur between the balance sheet date and the date on which the financial statements are approved by the Board of Directors in the case of a company, and, by the corresponding approving authority in the case of any other entity.
AS 5	**Net Profit or Loss for the Period, Prior Period Items and Changes in Accounting Policies**	The objective of this Standard is to prescribe the classification and disclosure of certain items in the statement of profit and loss so that all enterprises prepare and present such a statement on a uniform basis. This enhances the comparability of the financial statements of an enterprise over time and with the financial statements of other enterprises. Accordingly, this Standard requires the classification and disclosure of extraordinary and prior period items, and the disclosure of certain items within profit or loss from ordinary activities. It also specifies the accounting treatment for changes in accounting estimates and the disclosures to be made in the financial statements regarding changes in accounting policies. This Standard should be applied by an enterprise in presenting profit or loss from ordinary activities, extraordinary items and prior period items in the statement of profit and loss, in accounting for changes in accounting estimates, and in disclosure of changes in accounting policies.

AS 7	**Construction Contracts**	The objective of this Standard is to prescribe the accounting treatment of revenue and costs associated with construction contracts. Because of the nature of the activity undertaken in construction contracts, the date at which the contract activity is entered into and the date when the activity is completed usually fall into different accounting periods. Therefore, the primary issue in accounting for construction contracts is the allocation of contract revenue and contract costs to the accounting periods in which construction work is performed. This Standard uses the recognition criteria established in the Framework for the Preparation and Presentation of Financial Statements to determine when contract revenue and contract costs should be recognised as revenue and expenses in the statement of profit and loss. It also provides practical guidance on the application of these criteria. This Standard should be applied in accounting for construction contracts in the financial statements of contractors. A construction contract is a contract specifically negotiated for the construction of an asset or a combination of assets that are closely interrelated or interdependent in terms of their design, technology and function or their ultimate purpose or use.
AS 9	**Revenue Recognition**	This Standard deals with the bases for recognition of revenue in the statement of profit and loss of an enterprise. The Standard is concerned with the recognition of revenue arising in the course of the ordinary activities of the enterprise from: (a) the sale of goods, (b) the rendering of services, and (c) the use by others of enterprise resources yielding interest, royalties and dividends.
		Revenue is the gross inflow of cash, receivables or other consideration arising in the course of the ordinary activities of an enterprise from the sale of goods, from the rendering of services, and from the use by others of enterprise resources yielding interest, royalties and dividends. Revenue is measured by the charges made to customers or clients for goods supplied and services rendered to them and by the charges and rewards arising from the use of resources by them. In an agency relationship, the revenue is the amount of commission and not the gross inflow of cash, receivables or other consideration.
AS 10	**Property, Plant and Equipment**	Property, plant and equipment are tangible items that are held for use in the production or supply of goods or services, for rental to other or for administrative services. The objective of this AS is to prescribe the accounting treatment for property, plant and equipment. The principal issues in accounting for property, plant and equipment are the recognition of the assets, determination of their carrying amounts and

		depreciation charges and recognition of impairment losses in relation to them. Under this AS, property, plant and equipment are initially recognized at cost, subsequently measured by using either cost model or revaluation model and depreciated so that its depreciable amount is allocated on a systematic basis over its useful life.
AS 11	**The Effects of Changes in Foreign Exchange Rates**	An enterprise may carry on activities involving foreign exchange in two ways. It may have transactions in foreign currencies or it may have foreign operations. In order to include foreign currency transactions and foreign operations in the financial statements of an enterprise, transactions must be expressed in the enterprise's reporting currency and the financial statements of foreign operations must be translated into the enterprise's reporting currency. This Standard should be applied: (a) in accounting for transactions in foreign currencies; and (b) in translating the financial statements of foreign operations
AS 12	**Accounting for Government Grants**	This Standard deals with accounting for Government Grants. Government grants are sometimes called by other names such as subsidies, cash incentives, duty drawbacks, etc. Government grants are assistance by government in cash or kind to an enterprise for past or future compliance with certain conditions. They exclude those forms of government assistance which cannot reasonably have a value placed upon them and transactions with government which cannot be distinguished from the normal trading transactions of the enterprise. The receipt of government grants by an enterprise is significant for preparation of the financial statements for two reasons. Firstly, if a government grant has been received, an appropriate method of accounting therefor is necessary. Secondly, it is desirable to give an indication of the extent to which the enterprise has benefited from such grant during the reporting period. This facilitates comparison of an enterprise's financial statements with those of prior periods and with those of other enterprises.
AS 13	**Accounting for Investments**	This Standard deals with accounting for investments in the financial statements of enterprises and related disclosure requirements. Investments are assets held by an enterprise for earning income by way of dividends, interest, and rentals, for capital appreciation, or for other benefits to the investing enterprise. Assets held as stock-in-trade are not 'investments'. Enterprises hold investments for diverse reasons. For some enterprises, investment activity is a significant element of operations, and assessment of the performance of the enterprise may largely, or solely, depend on the reported results of this activity.

		An enterprise should disclose current investments and long term investments distinctly in its financial statements. Further classification of current and long-term investments should be as specified in the statute governing the enterprise. In the absence of a statutory requirement, such further classification should disclose, where applicable, investments in: (a) Government or Trust securities (b) Shares, debentures or bonds (c) Investment properties (d) Others-specifying nature.
AS 14	**Accounting for Amalgamations**	This standard deals with accounting for amalgamations and the treatment of any resultant goodwill or reserves. This standard is directed principally to companies although some of its requirements also apply to financial statements of other enterprises. According to this Standard, amalgamation means an amalgamation pursuant to the provisions of the Companies Act, 2013 or any other statute which may be applicable to companies. An amalgamation may be either – (a) an amalgamation in the nature of merger, or (b) an amalgamation in the nature of purchase.
AS 15	**Employee Benefits**	The objective of this Standard is to prescribe the accounting and disclosure for employee benefits. The Standard requires an enterprise to recognise: ● a liability when an employee has provided service in exchange for employee benefits to be paid in the future; and ● an expense when the enterprise consumes the economic benefit arising from service provided by an employee in exchange for employee benefits. Employee benefits are all forms of consideration given by an enterprise in exchange for service rendered by employees.
AS 16	**Borrowing Costs**	The objective of this Standard is to prescribe the accounting treatment for borrowing costs. Borrowing costs are interest and other costs incurred by an enterprise in connection with the borrowing of funds. Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset should be capitalised as part of the cost of that asset. The amount of borrowing costs eligible for capitalisation should be determined in accordance with this Standard. Other borrowing costs should be recognised as an expense in the period in which they are incurred. The financial statements should disclose: (a) the accounting policy adopted for borrowing costs; and (b) the amount of borrowing costs capitalised during the period.

AS 17	**Segment Reporting**	The objective of this Standard is to establish principles for reporting financial information, about the different types of products and services an enterprise produces and the different geographical areas in which it operates. Such information helps users of financial statements: ● better understand the performance of the enterprise; ● better assess the risks and returns of the enterprise; and ● make more informed judgements about the enterprise as a whole. If a single financial report contains both consolidated financial statements and the separate financial statements of the parent, segment information need be presented only on the basis of the consolidated financial statements. In the context of reporting of segment information in consolidated financial statements, the references in this Standard to any financial statement items should construed to be the relevant item as appearing in the consolidated financial statements.
AS 18	**Related Party Disclosures**	The objective of this Standard is to establish requirements for disclosure of: ● related party relationships; and ● transactions between a reporting enterprise and its related parties. This Standard should be applied in reporting related party relationships and transactions between a reporting enterprise and its related parties. The requirements of this Standard apply to the financial statements of each reporting enterprise as also to consolidated financial statements presented by a holding company.
AS 19	**Leases**	The objective of this Standard is to prescribe, for lessees and lessors, the appropriate accounting policies and disclosures in relation to finance leases and operating leases. This Standard should be applied in accounting for all leases other than: ● lease agreements to explore for or use natural resources, such as oil, gas, timber, metals and other mineral rights; ● licensing agreements for items such as motion picture films, video recordings, plays, manuscripts, patents and copyrights; and ● lease agreements to use lands.

AS 20	**Earnings per Share**	The objective of this Standard is to prescribe principles for the determination and presentation of earnings per share which will improve comparison of performance among different enterprises for the same period and among different accounting periods for the same enterprise. The focus of this Standard is on the denominator of the earnings per share calculation. Even though earnings per share data has limitations because of different accounting policies used for determining 'earnings', a consistently determined denominator enhances the quality of financial reporting. This Standard should be applied by all companies. However, a Small and Medium Sized Company, as defined in the Notification may not disclose diluted earnings per share (both including and excluding extraordinary items). In consolidated financial statements, the information required by this Statement should be presented on the basis of consolidated information.
AS 21	**Consolidated Financial Statements**	The objective of this Standard is to lay down principles and procedures for preparation and presentation of consolidated financial statements. Consolidated financial statements are presented by a parent (also known as holding enterprise) to provide financial information about the economic activities of its group. These statements are intended to present financial information about a parent and its subsidiary (ies) as a single economic entity to show the economic resources controlled by the group, the obligations of the group and results the group achieves with its resources. This Standard should be applied in the preparation and presentation of consolidated financial statements for a group of enterprises under the control of a parent. This Standard should also be applied in accounting for investments in subsidiaries in the separate financial statements of a parent.
AS 22	**Accounting for Taxes on Income**	The objective of this Standard is to prescribe accounting treatment for taxes on income. Taxes on income is one of the significant items in the statement of profit and loss of an enterprise. In accordance with the matching concept, taxes on income are accrued in the same period as the revenue and expenses to which they relate. Matching of such taxes against revenue for a period poses special problems arising from the fact that in a number of cases, taxable income may be significantly different from the accounting income. This divergence between taxable income and accounting income arises due to two main reasons. Firstly, there are differences between items of revenue and expenses as appearing in the statement of profit and loss and the items which are considered as revenue, expenses or deductions for tax purposes. Secondly, there are differences between the amount in respect of a particular item of revenue or expense as recognised in the statement of profit and loss.

		This Standard should be applied in accounting for taxes on income. This includes the determination of the amount of the expense or saving related to taxes on income in respect of an accounting period and the disclosure of such an amount in the financial statements.
AS 23	**Accounting for Investments in Associates in Consolidated Financial Statements**	The objective of this Standard is to set out principles and procedures for recognising, in the consolidated financial statements, the effects of the investments in associates on the financial position and operating results of a group. This Standard should be applied in accounting for investments in associates in the preparation and presentation of consolidated financial statements by an investor.
AS 24	**Discontinuing Operations**	The objective of this Standard is to establish principles for reporting information about discontinuing operations, thereby enhancing the ability of users of financial statements to make projections of an enterprise's cash flows, earnings-generating capacity, and financial position by segregating information about discontinuing operations from information about continuing operations. This Standard applies to all discontinuing operations of an enterprise. The requirements related to cash flow statement contained in this Standard are applicable where an enterprise prepares and presents a cash flow statement.
AS 25	**Interim Financial Reporting**	The objective of this Standard is to prescribe the minimum content of an interim financial report and to prescribe the principles for recognition and measurement in complete or condensed financial statements for an interim period. Timely and reliable interim financial reporting improves the ability of investors, creditors, and others to understand an enterprise's capacity to generate earnings and cash flows, its financial condition and liquidity.
		This Standard does not mandate which enterprises should be required to present interim financial reports, how frequently, or how soon after the end of an interim period. If an enterprise is required or elects to prepare and present an interim financial report, it should comply with this Standard.
AS 26	**Intangible Assets**	The objective of this Standard is to prescribe the accounting treatment for intangible assets that are not dealt with specifically in another Accounting Standard. This Standard requires an enterprise to recognise an intangible asset if, and only if, certain criteria are met. The Standard also specifies how to measure the carrying amount of intangible assets and requires certain disclosures about intangible assets. This Standard should be applied by all enterprises in accounting for intangible assets, except: (a) intangible assets that are covered by another Accounting Standard;

		(b) financial assets; (c) mineral rights and expenditure on the exploration for, or development and extraction of, minerals, oil, natural gas and similar non-regenerative resources; and (d) intangible assets arising in insurance enterprises from contracts with policyholders. An intangible asset should be recognised if, and only if: (a) it is probable that the future economic benefits that are attributable to the asset will flow to the enterprise; and (b) the cost of the asset can be measured reliably. An enterprise should assess the probability of future economic benefits using reasonable and supportable assumptions that represent best estimate of the set of economic conditions that will exist over the useful life of the asset.
AS 27	**Financial Reporting of Interests in Joint Ventures**	The objective of this Standard is to set out principles and procedures for accounting for interests in joint ventures and reporting of joint venture assets, liabilities, income and expenses in the financial statements of venturers and investors. This Standard should be applied in accounting for interests in joint ventures and the reporting of joint venture assets, liabilities, income and expenses in the financial statements of venturers and investors, regardless of the structures or forms under which the joint venture activities take place.
AS 28	**Impairment of Assets**	The objective of this Standard is to prescribe the procedures that an enterprise applies to ensure that its assets are carried at no more than their recoverable amount. An asset is carried at more than its recoverable amount if its carrying amount exceeds the amount to be recovered through use or sale of the asset. If this is the case, the asset is described as impaired and this Standard requires the enterprise to recognise an impairment loss. This Standard also specifies when an enterprise should reverse an impairment loss and it prescribes certain disclosures for impaired assets. This Standard should be applied in accounting for the impairment of all assets, other than: (a) inventories (see AS 2, Valuation of Inventories); (b) assets arising from construction contracts (see AS 7, Construction Contracts); (c) financial assets, including investments that are included in the scope of AS 13, Accounting for Investments; and deferred tax assets (see AS 22, Accounting for Taxes on Income).

AS 29	**Provisions, Contingent Liabilities and Contingent Assets**	The objective of this Standard is to ensure that appropriate recognition criteria and measurement bases are applied to provisions and contingent liabilities and that sufficient information is disclosed in the notes to the financial statements to enable users to understand their nature, timing and amount. The objective of this Standard is also to lay down appropriate accounting for contingent assets. This Standard should be applied in accounting for provisions and contingent liabilities and in dealing with contingent assets, except: (a) those resulting from financial instruments1 that are carried at fair value; (b) those resulting from executory contracts, except where the contract is onerous; (c) those arising in insurance enterprises from contracts with policyholders; and (d) those covered by another Accounting Standard.

At present, there are two sets of Accounting Standards under Companies Act as under:

1. Accounting Standards (ASs) as notified by the Companies (Accounting Standards) Rules, 2006. These are from AS-1 to AS-5, AS-7 and AS-9 to AS-29, as amended by notification dated 30th March, 2016.

2. Indian Accounting Standards (Ind AS) as notified by the Companies (Indian Accounting Standards) Rules, 2015. These are from Ind AS-1 to Ind AS-41 and Ind AS-101 to Ind AS-116 as amended by Companies (Ind AS) Amendment Rules, 2016 dated 30th March, 2016.

   Indian Accounting Standards (Ind AS) are another set of accounting standards notified by the Ministry of Corporate Affairs, Government of India which are converged with International Financial Reporting Standards (IFRS). These accounting standards are formulated by Accounting Standards Board of Institute of Chartered Accountants of India (ICAI). The Ind ASs are named and numbered in the same way as the corresponding IFRS. The Ministry of Corporate Affairs (MCA) has notified 41 Ind ASs as Companies (Indian Accounting Standards) Rules, 2015 as amended by Companies (Indian Accounting Standards) Amendments Rules, 2016.

NEED FOR CONVERGENCE WITH GLOBAL STANDARDS

The last decade has witnessed a sea change in the global economic scenario. The emergence of transnational corporations in search of money, not only for fuelling growth, but to sustain ongoing activities has necessitated raising of capital from all parts of the world, cutting across frontiers.

Each country has its own set of rules and regulations for accounting and financial reporting. Therefore, when an enterprise decides to raise capital from the markets other than the country in which it is located, the rules and regulations of that other country apply, and this, in turn, will require that the enterprise is in a position to understand the differences between the rules governing financial reporting in the foreign country as compared to its own country of origin. Therefore, translation and re-instatements are of utmost importance in a world that is rapidly globalizing in all ways. In themselves also, the Accounting Standards and principle need to be robust so that the larger society develops degree of confidence in the financial statements, which are put forward by organizations.

International analysts and investors would like to compare financial statements based on similar Accounting Standards, and this has led to the growing support for an internationally accepted set of Accounting Standards

for cross-border filings. The harmonization of financial reporting around the world will help to raise confidence of investors generally in the information they are using to make their decisions and assess their risks.

Also a strong need was felt by legislation to bring about uniformity, rationalization, comparability, transparency and adaptability in financial statements. Having a multiplicity of Accounting Standards around the world is against the public interest. If accounting for the same events and information produces different reported numbers, depending on the system of standards that are being used, it is self-evident that accounting will be increasingly discredited in the eyes of those using the numbers. It creates confusion, encourages error and facilitates fraud. The cure for these ills is to have a single set of global standards, of the highest quality, set in the interest of public. Global Standards facilitate cross-border flow of money, global listing in different bourses and comparability of financial statements.

The convergence of financial reporting and Accounting Standards is a valuable process that contributes to the free flow of global investment and achieves substantial benefits for all capital market stakeholders. It improves the ability of investors to compare investments on a global basis and thus lowers their risk of errors of judgment. It facilitates accounting and reporting for companies with global operations and eliminates some costly requirements reinstatement of financial statements. It has the potential to create a new standard of accountability and greater transparency, which are values of great significance to all market participants, including regulators. It reduces operational challenges for accounting firms and focuses their value and expertise around an increasingly unified set of standards. It creates an unprecedented opportunity for standard setters and other stakeholders to improve the reporting model. For the companies with joint listings in both domestic and foreign country, the convergence is very much significant.

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) AS GLOBAL STANDARDS

With a view of achieving these objectives, the London-based group namely the International Accounting Standards Committee (IASC), responsible for developing International Accounting Standards, was established in June, 1973. It is presently known as International Accounting Standards Board (IASB). The IASC comprises the professional accountancy bodies of over 75 countries (including the Institute of Chartered Accountants of India). Primarily, the IASC was established, in the public interest, to formulate and publish, International Accounting Standards to be followed in the presentation of audited financial statements. International Accounting Standards were issued to promote acceptance and observance of International Accounting Standards worldwide. The members of IASC have undertaken a responsibility to support the standards promulgated by IASC and to propagate those standards in their respective countries.

Between 1973 and 2001, the International Accounting Standards Committee (IASC) released International Accounting Standards. Between 1997 and 1999, the IASC restructured their organization, which resulted in the formation of International Accounting Standards Board (IASB). These changes came into effect on 1st April, 2001. Subsequently, IASB issued statements about current and future standards: IASB publishes its Standards in a series of pronouncements called International Financial Reporting Standards (IFRS). However, IASB has not rejected the standards issued by the IASC. Those pronouncements continue to be designated as “International Accounting Standards” (IAS). The IASB approved IASB Resolution on IASC Standards at their meeting in April, 2001, in which it confirmed the status of all IASC Standards and SIC Interpretations in would come into effect on 1st April, 2001.

The term IFRS comprises IFRS issued by IASB, IAS issued by International Accounting Standards Committee (IASC), and Interpretations issued by the Standard Interpretations Committee (SIC) and the International Financial Reporting Interpretations Committee (IFRIC) of the IASB. Every major nation is moving towards adopting IFRS to some extent. Large number of authorities requires public companies to use IFRS for stock- exchange listing purposes, and in addition, banks, insurance companies and stock exchanges may use them for their statutorily required reports. The increased use of IFRS is not limited to public-company listing requirements or statutory reporting. Many lenders and regulatory and government bodies are looking to IFRS to fulfil local financial reporting obligations related to financing or licensing.

Total 16 International Financial Reporting Standards (IFRS) issued after 2001 by IASB.

Total 24 International Accounting Standards (IAS) issued before 2001 by IASC which are still valid.

Total 12 Interpretations issued by International Financial Reporting Interpretations Committee (IFRIC) after 2001.

Total 4 Interpretations issued by Standing Interpretations Committee (SIC) before 2001.

Following are some of the advantages of IFRS:

- It would facilitate increased comparability of financial information among companies operating in different countries.
- The financial reporting process would become more transparent.
- The standardization of accounting methodology provides creditors and investors with the ability to analyze businesses around the world using the same financial methods.
- It would also permit international capital to flow more freely.
- It would give investors a better understanding to the financial statements and assess the investment opportunities in other countries.
- It would also benefit the accounting professionals as they will be able to sell their services in the different parts of the world.

All these benefits of IFRS have prompted many countries to pursue convergence of national Accounting Standards with IFRS. India has also decided to facilitate the convergence of the Indian Accounting Standards with IFRS and in this direction all existing Accounting Standards are being revised and converged with corresponding IAS/ IFRS. Convergence of entire world towards IFRS would benefit the corporate sector, investors, regulators and facilitate economic growth as a whole.

CONVERGENCE OF ACCOUNTING STANDARD WITH IFRS IN INDIA

WHY IFRS?

The IFRSs are important because of their following features:

a. Single set of Accounting Standards would enable internationally to standardize and assure better quality on a global screen.

b. It would also permit international capital to flow more freely, enabling companies to develop consistent global practices on accounting problems.

c. It would be beneficial to the regulators too, as the complexity associated with needing to understand various reporting regimes would be reduced.

d. For investors, it gives a better understanding to the financial statements and assess the investment opportunities other than their Home Country.

e. It also benefits the accounting professionals in a way that they will be able to sell their services in the different parts of world.

LIST OF IFRS

- IFRS 1-First time Adoption of International Financial Reporting Standards
- IFRS 2-Share Based Payments
- IFRS 3-Business Combinations
- IFRS 4-Insurance Contracts
- IFRS 5-Non-current Assets Held for Sale and Discontinued operations
- IFRS 6-Exploration for and Evaluation of Mineral Resources
- IFRS 7-Financial Instruments: Disclosures
- IFRS 8-Operating Segments
- IFRS 9-Financial Instruments
- IFRS 10-Consolidated Financial Statements
- IFRS 11-Joint Arrangements
- IFRS 12-Disclosure of Interests in other Entities
- IFRS 13-Fair Value Measurement
- IFRS 14-Regulatory Deferral Accounts
- IFRS 15-Revenue from Contracts with Customers
- IFRS 16-Leases
- IAS-1-Presentation of Financial Statements
- IAS-2- Inventories
- IAS-7- Statement of Cash Flows
- IAS-8- Accounting Policies, Change in Accounting estimates and Errors
- IAS-10- Events after balance sheet date
- IAS-12- Income Taxes
- IAS-16-Property, Plant and Equipments
- IAS-19- Employee Benefits
- IAs-20-Accounting for Govt. Grant and Disclosure of Govt. Assistance
- IAS-21- The Effect of Changes in Forex Rates
- IAS-23-BorrowingCosts
- IAS-24- Related Party Disclosures
- IAS-26- Accounting and reporting by retirement benefit plans

- IAS-27- Separate Financial Statements
- IAS-28- Investment in Associates and Joint Ventures
- IAS-29- Financial Reporting in Hyper inflationary Conditions
- IAS-32- Financial Instruments- Presentation
- IAS-33- Earnings Per Share
- IAS-34- Interim Financial Reporting
- IAS-36- Impairment of Assets
- IAS-37- Provisions, Contingent Liabilities and Contingent Assets
- IAS-38- Intangible Assets
- IAS-40-Investment Property
- IAS-41-Agriculture

APPLICABILITY OF INDIAN ACCOUNTING STANDARDS [IND AS]

The Ministry of Corporate Affairs (MCA), in 2015, had notified the Companies (Indian Accounting Standards (IND AS) Rules 2015, which stipulated the adoption and applicability of Ind AS in a phased manner beginning from the Accounting period 2016-17. The MCA has issued Amendment Rules in the year 2016, 2017, 2018 and 2019 to amend the 2015 rules.

(a) For companies other than Banking companies, Non-banking Financial Companies (NBFCs) and Insurance companies:

(i) *For the Accounting period beginning on or after 1st April, 2016*: The following companies were Adoption, Convergence and Interpretation of IFRS and Accounting Standards in India required to prepare their financial statements by adopting Indian Accounting Standards (Ind ASs):

(a) Companies whose equity or debt securities are listed or are in the process of listing on any stock exchange either in India or out of India and having the net worth of Rs. 500 crore or more;

(b) Unlisted companies having the net worth of Rs. 500 crore or more; and

(c) Holding companies, subsidiary companies, joint venture or associate companies of the companies mentioned at (a) or (b) above.

Comparatives for the above periods shall be for the period ending on 31st March, 2016 or thereafter.

(ii) *For the Accounting period ending on or after 1st April, 2017* : The following companies were required to prepare their financial statements by adopting Indian Accounting Standards (Ind ASs):

(a) Listed companies having net worth of less than Rs. 500 crores;

(b) Unlisted companies having net worth of Rs. 250 crore or more but less than Rs. 500 crores; and

(c) Holding, subsidiary, joint venture and associate companies of the companies mentioned at or (b) above.

Comparatives for the above periods shall be for the period ending on 31st March, 2017 or thereafter.

Once a company starts applying Indian Accounting Standards (Ind ASs) for the preparation of the financial statements based on the mandatory criteria specified above, it will have to prepare the financial statements

in compliance with the Indian Accounting Standards (Ind ASs) for all the subsequent years even if the criterion later on does not apply to it. A company may voluntarily apply the Indian Accounting Standards (Ind ASs) for the preparation of the financial statements for the accounting period starting on or after 1st April, 2015. However, such a company cannot subsequently revert back to the preparation of financial statements by adopting the Accounting Standards specified under the Companies (Accounting Standards) Rules, 2006.

It may be noted that the net worth of the company will be considered based on the audited financial statements of the company concerned as at 31st March, 2014 or based on the first audited financial statements of the company concerned as at any date after 31st March, 2014.

Once the Indian Accounting standards (Ind ASs) are required to be applied in the preparation of the financial statements by a company, the same will apply to both the stand-alone financial statements and consolidated financial statements.

Companies whose securities are listed or are in the process of being listed on SME Exchanges will continue to apply the existing Accounting Standards specified under the Companies (Accounting Standards) Rules, 2006.

Companies which are not required to mandatorily follow Indian Accounting Standards (Ind ASs) are required to follow the existing Accounting Standards specified under the Companies (Accounting Standards) Rules, 2006 unless they voluntarily choose to apply Indian Accounting Standards (Ind ASs).

For Non-banking Financial Companies (NBFCs):

(i) For the Accounting period beginning on or after 1st April, 2018: The following NBFCs will be required to adopt Ind ASs:

  (a) NBFCs having net worth of Rs. 500 crore or more; and

  (b) Holding, subsidiary, joint venture and associate companies of the above companies.

  The comparatives will be for the period ending on 31st March, 2018 or thereafter.

(ii) For the Accounting period beginning on or after 1st April, 2019: The following NBFCs will be required to follow Ind ASs:

  (a) Listed NBFCs having net worth of less than Rs. 500 crores;

  (b) Unlisted NBFCS with net worth of Rs.250 crore or more but with net worth of less than Rs. 500 crores; and

  (c) Holding, subsidiary, joint venture and associate companies of the above companies.

  The comparatives will be for the period ending on 31st march, 2019 or thereafter.

Note: The net worth for the above purpose will be computed as per the audited financial statements for the year ended 31st March, 2016 or the first audited financial statements thereafter.

For the Scheduled commercial banks (excluding regional rural banks) and insurance companies

The following will be required to apply Indian Accounting Standards (Ind ASs) for preparing their financial statements for the period ending beginning on or after 1st April, 2018:

(a) Scheduled Commercial banks (excluding regional rural banks);

(b) All India term lending refinancing institutions (i.e. Exim Bank, NHB, NABARD, SIDBI);

(c) Insurers/insurance companies; and

(d) Holding, subsidiary, joint venture and associate companies of the above companies.

The comparatives will be given for the period ending on 31st March, 2018 or thereafter.

OVERVIEW OF IND AS

Ind AS	*Deals with*	*Details*
Ind AS 101	**First-time Adoption of Indian Accounting Standards**	The objective of this Indian Accounting Standard (Ind AS) is to ensure that an entity's first Ind-AS financial statements, and its interim financial reports for part of the period covered by those financial statements,contain high quality information that: a) is transparent for users and comparable over all periods presented; b) provides a suitable starting point for accounting in accordance with Ind ASs; and c) can be generated at a cost that does not exceed the benefits. An entity shall apply this Ind-AS in: a) its first Ind-AS financial statements, and b) each interim financial report, if any, that it presents in accordance with Ind AS 34 Interim Financial Reporting for part of the period covered by its first Ind-AS financial statements. An entity's first Ind AS financial statements are the first annual financial statements in which the entity adopts Ind ASs according to the Ind ASs notified under the Companies Act, 2013 and makes an explicit and unreserved statement in those financial statements of compliance with Ind ASs.
Ind AS 102	**Share-based Payment**	The objective of this Standard is to specify the financial reporting by an entity when it undertakes a share- based payment transaction. In particular, it requires an entity to reflect in its profit or loss and financial position the effects of share-based payment transactions, including expenses associated with transactions in which share options are granted to employees. An entity shall apply this Standard in accounting for all share-based payment transactions, whether or not the entity can identify specifically some or all of the goods or services received, including: ● equity-settled share-based payment transactions, ● cash-settled share-based payment transactions, and ● Transactions in which the entity receives or acquires goods or services and the terms of the arrangement provide either the entity or the supplier of those goods or services with a choice of whether the entity settles the transaction in cash (or other assets) or by issuing equity instruments. A share based payment arrangement is an agreement between the entity (or another group entity or any shareholder of any group entity) and another party (including an employee) that entitles the other party to receive: a) cash or other assets of the entity for amounts that are based on the price(or value) of equity instruments (including share or share options) of the entity or another group entity, or

Ind AS	*Deals with*	*Details*
		b) equity instruments(including shares or share options) of the entity or another group entity. Provided that specified vesting conditions, if any, are met. A share-based payment transaction is a transaction in which the entity: a) receives goods or services from the supplier of those goods or services(including an employee) in a share based payment arrangement, or b) Incurs an obligation to settle the transaction with the supplier in a share based payment arrangement when another group entity receives those goods or services.
Ind AS 103	**Business Combinations**	The objective of this Indian Accounting Standard is to improve the relevance, reliability and comparabilityof the information that a reporting entity provides in its financial statements about a business combination and its effects. To accomplish that, this Indian Accounting Standard establishes principles and requirements for how the acquirer: (a) recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquiree; (b) recognizes and measures the goodwill acquired in the business combination or a gain from a bargainpurchase; and (c) determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of the business combination. This Indian Accounting Standard applies to a transaction or other event that meets the definition of a business combination. This Indian Accounting Standard does not apply to: (a) the formation of a joint venture. (b) the acquisition of an asset or a group of assets that does not constitute a business. In such cases the acquirer shall identify and recognize the individual identifiable assets acquired (including those assets that meet the definition of, and recognition criteria for, intangible assets in Ind AS 38 Intangible Assets) and liabilities assumed. The cost of the group shall be allocated to the individual identifiable assets and liabilities on the basis of their relative fair values at the date of purchase. Such a transaction or event does not give rise to goodwill. (c) Appendix C deals with accounting for combination of entities or businesses under common control. A business combination is a transaction or other event in which an acquirer obtains control of one or more businesses. Transactions sometimes referred to as 'true mergers' or 'mergers of equals' are also referred to as business combinations as that term is used in this Ind AS.

Ind AS	*Deals with*	*Details*
Ind AS 104	**Insurance Contracts**	The objective of this Indian Accounting Standard is to specify the financial reporting for insurance contracts by any entity that issues such contracts (described in this Indian Accounting Standard as an insurer). In particular, this Indian Accounting Standard requires: a) Limited improvements to accounting by insurers for insurance contracts. b) Disclosure that identifies and explains the amounts in an insurer's financial statements arising from insurance contracts and helps users of those financial statements understand the amount, timing and uncertainty of future cash flows from insurance contracts. An entity shall apply this Indian Accounting Standard to: a) Insurance contracts (including reinsurance contracts) that it issues, and reinsurance contracts that it holds. b) Financial instruments that it issues with a discretionary participation feature. Ind AS 107 Financial Instruments: Disclosures requires disclosure about financial instruments, including financial instruments that contain such features. An insurance contract is a contract under which one party (the insurer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified future event (the insured event) adversely affects the policyholder.
Ind AS 105	**Non-Current Assets Held for Sale and Discontinued Operations**	The objective of this Indian Accounting Standard is to specify the accounting for assets held for sale, and the presentation and disclosure of discontinued operations. In particular, the Indian Accounting Standard requires: (a) assets that meet the criteria to be classified as held for sale to be measured at the lower of carrying amount and fair value less costs to sell, and depreciation on such assets to cease; and (b) assets that meet the criteria to be classified as held for sale to be presented separately in the balance sheet and the results of discontinued operations to be presented separately in the statement of profit and loss. A discontinued operation is a component of an entity that either has been disposed of or is classified as held for sale and: (a) represents a separate major line of business or geographical area of operations, or (b) is part of a single co-ordinated plan to dispose of a separate major line of business or geographical area of operations, or (c) is a subsidiary acquired exclusively with a view to sale.

Ind AS	*Deals with*	*Details*
Ind AS 106	**Exploration for and Evaluation of Mineral Resources**	The objective of this Indian Accounting Standard is to specify the financial reporting for the exploration for and evaluation of mineral resources. In particular, the Indian Accounting Standard requires: (a) limited improvements to existing accounting practices for exploration and evaluation expenditures. (b) entities that recognize exploration and evaluation assets to assess such assets for impairment in accordance with this Indian Accounting Standard and measure any impairment in accordance with Ind AS 36 Impairment of Assets. (c) disclosures that identify and explain the amounts in the entity's financial statements arising from the exploration for and evaluation of mineral resources and help users of those financial statements understand the amount, timing and certainty of future cash flows from any exploration and evaluation assets recognized. Exploration for and evaluation of mineral resources is the search for mineral resources, including minerals, oil, natural gas and similar non-regenerative resources after the entity has obtained legal rights to explore in a specific area as well as the determination of the technical feasibility and commercial viability of extracting the mineral resources.
Ind AS 107	**Financial Instruments: Disclosures**	The objective of this Indian Accounting Standard is to require entities to provide disclosures in their financial statements that enable users to evaluate: (a) the significance of financial instruments for the entity's financial position and performance; and (b) the nature and extent of risks arising from financial instruments to which the entity is exposed during the period and at the end of the reporting period, and how the entity manages those risks. The principles in this Indian Accounting Standard complement the principles for recognizing, measuring and presenting financial assets and financial liabilities in Ind AS 39 Financial Instruments: Recognition and Measurement and Ind AS 32 Financial Instruments: Presentation.
Ind AS 108	**Operating Segments**	An entity shall disclose information to enable users of its financial statements to evaluate the nature and financial effects of the business activities in which it engages and the economic environments in which it operates. This Accounting Standard shall apply to companies to which Indian Accounting Standards (Ind AS) notified under the Companies Act apply. If an entity that is not required to apply this Indian Accounting Standard chooses to disclose information about segments that does not comply with this Indian Accounting Standard, it shall not describe the information as segment information.

Ind AS	*Deals with*	*Details*
		If a financial report contains both the consolidated financial statements of a parent that is within the scope of this Indian Accounting Standard as well as the parent's separate financial statements, segment information is required only in the consolidated financial statements. An operating segment is a component of an entity: (a) that engages in business activities for which it may earn revenues and incur expenses(including revenues and expenses relating to transactions with other components of the same entity), (b) whose operating results are regularly reviewed by the chief operating decision-maker to make decisions about resources to be allocated to the segment and assess its performance, and (c) for which discrete financial information is available.
Ind AS 109	**Financial Instruments**	The objective of this Standard is to establish principles for the financial reporting of financial assets and financial liabilities that will present relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of an entity's future cash flows.
Ind AS 110	**Consolidated Financial Statements**	The objective of this Indian Accounting Standard (Ind AS) is to establish principles for the presentation and preparation of consolidated financial statements when an entity controls one or more other entities. Consolidated financial statements are the financial statements of a group in which the assets, liabilities, equity, expenses, income and cash flows of the parents and its subsidiaries are presented as those of a single economic entity.
Ind AS 111	**Joint Arrangements**	The objective of this Indian Accounting Standard (Ind AS) is to establish principles for financial reporting by entities that have an interest in arrangements that are controlled jointly (i.e. joint arrangements). To meet the objective, this Ind AS defines joint control and requires an entity that is a party to a joint arrangement to determine the type of joint arrangement in which it is involved by assessing its rights and obligations and to account for those rights and obligations in accordance with that type of joint arrangement. This Ind AS shall be applied by all entities that are a party to a joint arrangement. A joint arrangement is an arrangement is an arrangement of which two or more parties have joint control. A joint arrangement has the following characteristics: (a) The parties are bound by a contractual arrangement. (b) The contractual arrangement gives two or more of those parties joint control of the arrangement. A joint arrangement is either a joint operation or a joint venture.

Ind AS	*Deals with*	*Details*
Ind AS 112	**Disclosure of Interests in Other Entities**	The objective of this Indian Accounting Standard (Ind AS) is to require an entity to disclose information that enables users of its financial statements to evaluate: (a) the nature of, and risks associated with, its interests in other entities; and (b) the effects of those interests on its financial position, financial performance and cash flows. Interest in another entity refers to contractual and non-contractual involvement that exposes an entity to variability of returns from the performance of the other entity. An interest in another entity can be evidenced by, but is not limited to, the holding of equity or debt instruments as well as other forms of involvement such as provision of funding, liquidity support, credit enhancement and guarantees. It includes other means by which the entity has control or joint control of, or significant influence over another entity. An entity does not necessarily have an interest in another entity solely because of a typical customer supplier relationship.
Ind AS 113	**Fair Value Measurement**	This Ind AS: (a) defines fair value; (b) sets out in a single Ind AS a framework for measuring fair value; and (c) requires disclosures about fair value measurements. Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available. For other assets and liabilities, observable market transactions and market information might not be available. However, the objective of a fair value measurement in both cases is the same - to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions (i.e. an exit price at the measurement date from the perspective of a market participant that holds the asset or owes the liability). Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between the market participants at the measurement date.
Ind AS 114	**Regulatory Deferral Accounts**	The objective of this Standard is to specify the financial reporting requirements for regulatory deferral account balances that arise when an entity provides goods or services to customers at a price or rate that is subject to rate regulation.

Ind AS	*Deals with*	*Details*
		An entity is permitted to apply the requirements of this Standard in its first Ind AS financial statements if and only if it: (a) conducts rate-regulated activities; and (b) recognised amounts that qualify as regulatory deferral account balances in its financial statements in accordance with its previous GAAP. A regulatory deferral account balance is a regulatory asset or a regulatory liability as defined in the Guidance Note on Accounting for Rate regulated activities. Rate regulated activities are the entity's activities that are subject to rate regulation.
Ind AS 115	**Revenue from Contracts with Customers**	The objective of this Standard is to establish the principles that an entity shall apply to report useful information to users of financial statements about the nature, amount, timing and uncertainty of revenue and cash flows arising from a contract with a customer. A contract is an agreement between two or more parties that creates enforceable rights and obligations. Revenue is the income arising in the course of an entity's ordinary activities. Income is increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than the contributions from equity participants.
Ind AS 116	**Leases**	The objective of this Ind AS is to set out the principles for recognition, measurement, presentation of disclosure of leases so that the lessees and lessors provide the relevant information in a manner that faithfully represent those transactions. This information gives a basis for users of financial statements to assess the effect that leases have on the financial position, financial performance and cash flows of an entity. To apply this standard, an entity shall consider the terms and conditions of contracts and all relevant facts and circumstances. An entity shall apply this Standard consistently to contracts with similar characteristics and in similar circumstances. A lease is a contract, or part of a contract that conveys the right to use an asset (the underlying asset) for a period of time in exchange for consideration.
Ind AS 1	**Presentation of Financial Statements**	This Standard prescribes the basis for presentation of general purpose financial statements to ensure comparability both with the entity's financial statements of previous periods and with the financial statements of other entities. It sets out overall requirements for the presentation of financial statements, guidelines for their structure and minimum requirements for their contents.

Ind AS	*Deals with*	*Details*
		An entity shall apply this Standard in preparing and presenting general purpose financial Statements in accordance with Ind AS. General purpose financial statements are those financial statements that are intended to meet the needs of users who are not in a position to require an entity to prepare reports tailored to their particular information needs.
Ind AS 2	**Inventories**	The objective of this Standard is to prescribe the accounting treatment for inventories. A primary issue in accounting for inventories is the amount of cost to be recognized as an asset and carried forward until the related revenues are recognized. This Standard deals with the determination of cost and its subsequent recognition as an expense, including any write-down to net realizable value. It also deals with the cost formulas that are used to assign costs to inventories. Inventories are assets: (a) held for sale in the ordinary course of business; (b) in the process of production for such sale; or (c) in the form of materials or supplies to be consumed in the production process or in the rendering of services.
Ind AS 7	**Statement of Cash Flows**	Information about the cash flows of an entity is useful in providing users of financial statements with a basis to assess the ability of the entity to generate cash and cash equivalents and the needs of the entity to utilize those cash flows. The economic decisions that are taken by users require an evaluation of the ability of an entity to generate cash and cash equivalents and the timing and certainty of their generation. The objective of this Standard is to require the provision of information about the historical changes in cash and cash equivalents of an entity by means of a statement of cash flows which classifies cash flows during the period from operating, investing and financing activities. An entity shall prepare a statement of cash flows in accordance with the requirements of this Standard and shall present it as an integral part of its financial statements for each period for which financial statements are presented. A statement showing cash flows is called a Statement of Cash Flows. Cash flows are the inflows and outflows of cash and cash equivalents. Cash comprises cash on hand and demand deposits. Cash equivalents are short term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

Ind AS	*Deals with*	*Details*
Ind AS 8	**Accounting Policies, Changes in Accounting Estimates and Errors**	The objective of this Standard is to prescribe the criteria for selecting and changing accounting policies, together with the accounting treatment and disclosure of changes in accounting policies, changes in accounting estimates and corrections of errors. The Standard is intended to enhance the relevance and reliability of an entity's financial statements and the comparability of those financial statements over time and with the financial statements of other entities. Disclosure requirements for accounting policies, except those for changes in accounting policies, are set out in Ind AS 1 Presentation of Financial Statements. This Standard shall be applied in selecting and applying accounting policies, and accounting for changes in accounting policies, changes in accounting estimates and corrections of prior period errors. Accounting policies are the specific principles, bases, conventions, rules and practices applied by an entity in preparing and presenting financial statements. A change in an accounting estimate is the adjustment in the carrying amount of an asset or a liability, or the amount of the periodic consumption of an asset that results from the assessment of the present status of, and expected future benefits and obligations with the asset or liability. Changes in accounting estimates result from new estimates or new developments, and accordingly are not correction of errors.
Ind AS 10	**Events after the Reporting Period**	The objective of this Standard is to prescribe: (a) When an entity should adjust its financial statements for events after the reporting period; and (b) the disclosures that an entity should give about the date when the financial statements were approved for issue and about events after the reporting period. The Standard also requires that an entity should not prepare its financial statements on a going concern basis if events after the reporting period indicate that the going concern assumption is not appropriate. This Standard shall be applied in the accounting for, and disclosure of, events after the reporting period. Events after the reporting period are those events, favourbale and unfavourable, that occurs between the end of the reporting period and that date when the financial statements are approved by the Board of directors in the case of a company and by the corresponding approving authority in the case of any other entity for issue.
Ind AS 12	**Income Taxes**	The objective of this Standard is to prescribe the accounting treatment for income tax. The principal issue in accounting for income tax is how to account for the current and future tax consequences of: (a) the future recovery (settlement) of the carrying amount of assets (liabilities) that are recognized in an entity's balance sheet; and (b) transactions and other events of the current period that are recognized in an entity's financial statements.

Ind AS	*Deals with*	*Details*
		It is inherent in the recognition of an asset or liability that the reporting entity expects to recover or settle the carrying amount of that asset or liability. If it is probable that recovery or settlement of that carrying amount will make future tax payments larger (smaller) than they would be if such recovery or settlement were to have no tax consequences. This Standard requires an entity to recognize a deferred tax liability (deferred tax asset), with certain limited exceptions.
Ind AS 16	**Property, Plant and Equipment**	The objective of this Standard is to prescribe the accounting treatment for property, plant and equipment so that users of the financial statements can discern information about an entity's investment in its property, plant and equipment and the changes in such investment. The principal issues in accounting for property, plant and equipment are the recognition of the assets, the determination of their carrying amounts, and the depreciation charges and impairment losses to be recognized in relation to them. This Standard shall be applied in accounting for property, plant and equipment except when another Standard requires or permits a different accounting treatment. Property, plant and equipment are tangible items that: (a) are held for use in the production or supply of goods or services, for rental to others or for administrative purposes; and (b) are expected to be used during more than one period.
Ind AS 19	**Employee Benefits**	The objective of this Standard is to prescribe the accounting and disclosure for employee benefits. The Standard requires an entity to recognize: (a) a liability when an employee has provided service in exchange for employee benefits to be paid in the future; and (b) an expense when the entity consumes the economic benefit arising from the service provided by an employee in exchange for employee benefits. Employee benefits are all forms of consideration given by an entity in exchange for service rendered by employees or for the termination of employment.
Ind AS 20	**Accounting for Government Grants and Disclosure of Government Assistance**	This Standard shall be applied in accounting for, and in the disclosure of, government grants and in the disclosure of other forms of government assistance. This Standard does not deal with: (a) the special problems arising in accounting for government grants in financial statements reflecting the effects of changing prices or in supplementary information of a similar nature.

Ind AS	*Deals with*	*Details*
		(b) Government assistance that is provided for an entity in the form of benefits that are available in determining taxable profit or tax loss, or are determined or limited on the basis of income tax liability. Examples of such benefits are income tax holidays, investment tax credits, accelerated depreciation. (c) Government participation in the ownership of the entity. (d) Government grants covered by Ind AS-41, Agriculture. (e) Government assistance is action by government designed to provide an economic benefit specific to an entity or range of entities qualifying under certain criteria. Government assistance does not include benefits provided only indirectly through actions affecting general trading conditions, such as the provision of infrastructure in development areas or the imposition of trading constraints on the competitors. Government grants are assistance by government in the form of transfer of resources to an entity in return for past or future compliance with certain conditions relating to the operating activities of the entity. Government grants exclude those forms of government assistance which cannot reasonably have a value placed upon them and transactions with the government which cannot be distinguished from the trading transactions of the entity.
Ind AS 21	**The Effects of Changes in Foreign Exchange Rates**	An entity may carry on foreign activities in two ways. It may have transactions in foreign currencies or it may have foreign operations. In addition, an entity may present its financial statements in a foreign currency. The objective of this Standard is to prescribe how to include foreign currency transactions and foreign operations in the financial statements of an entity and how to translate financial statements into a presentation currency. The principal issues are which exchange rate(s) to use and how to report the effects of changes in exchange rates in the financial statements.
Ind AS 23	**Borrowing Costs**	Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset form part of the cost of that asset. Other borrowing costs are recognized as an expense. An entity shall apply this Standard in accounting for borrowing costs. The Standard does not deal with the actual or imputed cost of equity, including preferred capital not classified as a liability. An entity is not required to apply the Standard to borrowing costs directly attributable to the acquisition, construction or production of: (a) a qualifying asset measured at a fair value, for example, a biological asset; or (b) Inventories that are manufactured or otherwise produced, in large quantities on a repetitive basis.

Ind AS	*Deals with*	*Details*
Ind AS 24	**Related Party Disclosures**	The objective of this Standard is to ensure that an entity's financial statements contain the disclosures necessary to draw attention to the possibility that its financial position and profit or loss may have been affected by the existence of related parties and by transactions and outstanding balances, including commitments, with such parties. This Standard shall be applied in: (a) identifying related party relationships and transactions; (b) identifying outstanding balances, including commitments, between an entity and its related parties; (c) identifying the circumstances in which disclosure of the items in (a) and (b) is required; and (d) determining the disclosures to be made about those items. A related party is a person or entity that is related to the entity preparing its financial statements. A related party transaction is a transfer of resources, services or obligations between a reporting entity and a related party regardless of whether the price is charged.
Ind AS 27	**Separate Financial Statements**	The objective of this Standard is to prescribe the accounting and disclosure requirements for investments in subsidiaries, joint ventures and associates when an entity prepares separate financial statements. This Standard shall be applied in accounting for investments in subsidiaries, joint ventures and associates when an entity elects, or is required by law, to present separate financial statements. This Standard does not mandate which entities produce separate financial statements. It applies when an entity prepares separate financial statements that comply with Indian Accounting Standards. Separate financial statements are those presented by a parent (i.e. an investor with control of a subsidiary) or an investor with joint control of, or significant influence over, an investee, in which the investments are accounted for at cost or as per Ind AS 9 "Financial Instruments".
Ind AS 28	**Investments in Associates and Joint Ventures**	The objective of this Standard is to prescribe the accounting for investments in associates and to set out the requirements for the application of the equity method when accounting for investments in associates and joint ventures. This Standard shall be applied by all entities that are investors with joint control of, or significant influence over, an investee. An associate is an entity over which the investor has significant influence. A joint venture is a joint arrangement whereby the parties that have the joint control of the arrangement has rights to the net assets of the arrangement.

Ind AS	*Deals with*	*Details*
Ind AS 29	**Financial Reporting in Hyperinflationary Economies**	This Standard shall be applied to the financial statements, including the consolidated financial statements, of any entity whose functional currency is the currency of a hyperinflationary economy. In a hyperinflationary economy, reporting of operating results and financial position in the local currency without restatement is not useful. Money loses purchasing power at such a rate that comparison of amounts from transactions and other events that have occurred at different times, even within the same accounting period, is misleading.
Ind AS 32	**Financial Instruments: Presentation**	The objective of this Standard is to establish principles for presenting financial instruments as liabilities or equity and for offsetting financial assets and financial liabilities. It applies to the classification of financial instruments, from the perspective of the issuer, into financial assets, financial liabilities and equity instruments; the classification of related interest, dividends, losses and gains; and the circumstances in which financial assets and financial liabilities should be offset. The principles in this Standard complement the principles for recognising and measuring financial assets and financial liabilities in Ind AS 39 Financial Instruments: Recognition and Measurement, and for disclosing information about them in Ind AS 107 Financial Instruments: Disclosures. A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or an equity instrument of another entity.
Ind AS 33	**Earnings per Share**	The objective of this Standard is to prescribe principles for the determination and presentation of earnings per share, so as to improve performance comparisons between different entities in the same reporting period and between different reporting periods for the same entity. Even though earnings per share data have limitations because of the different accounting policies that may be used form determining 'earnings', a consistently determined denominator enhances financial reporting. The focus of this Standard is on the denominator of the earnings per share calculation. An entity shall calculate basic earnings per share amounts for profit or loss attributable to the ordinary equity holders of the parent entity and, if presented, profit or loss from continuing operations attributable to those equity holders. Basic earnings per share shall be calculated by dividing profit or loss attributable to the ordinary equity holders of the parent entity by the weighted average number of ordinary shares outstanding during the period. An entity shall calculate diluted earnings per share amounts for profit or loss attributable to the ordinary equity holders of the parent entity and, if presented, profit or loss from continuing operations attributable to those equity holders. For the purpose of calculating diluted earnings per share, an entity shall adjust profit or loss attributable to the ordinary equity holders of the parent entity and weighted average number of ordinary shares outstanding during the period, from the effects of all dilutive potential ordinary shares.

Ind AS	*Deals with*	*Details*
Ind AS 34	**Interim Financial Reporting**	The objective of this Standard is to prescribe the minimum content of an interim financial report and to prescribe the principles for recognition and measurement in complete or condensed financial statements for an interim period. Timely and reliable interim financial reporting improves the ability of investors, creditors, and others to understand an entity's capacity to generate earnings and cash flow and its financial condition and liquidity. Interim financial report is a financial report containing either a complete set of financial statements or a set of condensed financial statements for an interim period. An interim period is a financial reporting period shorter than a full financial year.
Ind AS 36	**Impairment of Assets**	The objective of this Standard is to prescribe the procedures that an entity applies to ensure that its assets are carried at no more than their recoverable amount. An asset is carried at more than its recoverable amount if its carrying amount exceeds the amount to be recovered through use or sale of the asset. If this is the case, the asset is described as impaired and the Standard requires the entity to recognize an impairment loss. The Standard also specifies when an entity should reverse an impairment loss and prescribes disclosures. An impairment loss is the amount by which the carrying amount of an asset or a cash generating unit exceeds its recoverable amount. Carrying amount is the amount at which an asset is reocgnized after deducting any accumulated depreciation (amortization) and any accumulated impairment losses thereon. A cash generating unit is the smallest identifiable group of assets that generates cash flows that are largely independent of the cash inflows from other assets or group of assets.
Ind AS 37	**Provisions, Contingent Liabilities and Contingent Assets**	The objective of this Standard is to ensure that appropriate recognition criteria and measurement bases are applied to provisions, contingent liabilities and contingent assets and that sufficient information is disclosed in the notes to enable users to understand their nature, timing and amount. A provision is a liability of uncertain timing or amount. A contingent liability is: a) a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain events not wholly within the control of the entity; or b) a present obligation that arises from past events but is not reocgnized because: i. it is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation; or ii. the amount of obligation cannot be measured with sufficient reliability. A contingent asset is a possible asset that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain events not wholly within the control of the entity.

Ind AS	*Deals with*	*Details*
Ind AS 38	**Intangible Assets**	The objective of this Standard is to prescribe the accounting treatment for intangible assets that are not dealt with specifically in another Standard. This Standard requires an entity to recognize an intangible asset if, and only if, specified criteria are met. The Standard also specifies how to measure the carrying amount of intangible assets and requires specified disclosures about intangible assets. An intangible asset is an identifiable non-monetary asset without physical substance. Monetary assets are money held and assets to be received in fixed or determinable amount of money. An intangible asset to be identifiable should be distinguishable from goodwill. An asset is identifiable if it either: a) is separable, i.e., is capable of being separated or dividend from the entity and sold, transferred, licensed, rented or exchanged either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so; or b) arises from contractual or other legal rights, regardless of whether those rights are transferrable or separable form the entity or from other rights and obligations.
Ind AS 40	**Investment Property**	The objective of this Standard is to prescribe the accounting treatment for investment property and related disclosure requirements. This Standard shall be applied in the recognition, measurement and disclosure of investment property. Among other things, this Standard applies to the measurement in a lessee's financial statements of investment property interests held under a lease accounted for as a finance lease and to the measurement in a lessor's financial statements of investment property provided to a lessee under an operating lease. This Standard does not deal with matters covered in Ind AS 17 Leases, including: a) classification of leases as finance leases or operating leases; b) recognition of lease income from investment property (see also Ind AS 18 Revenue); c) measurement in a lessee's financial statements of property interests held under a lease accounted for as an operating lease; d) Measurement in a lessor's financial statements of its net investment; e) accounting for sale and lease back transactions; and f) disclosure about finance leases and operating leases. Investment property is a property (i.e. land or a building or part of a building or both) held (by the owner or a lessee as a right of use asset) to earn rentals, or for capital appreciation, or both rather than for: a) use in the production or supply of goods or serviced or for administrative purposes; or b) sale in the ordinary course of business.

Ind AS	*Deals with*	*Details*
Ind AS 41	**Agriculture**	The objective of this Standard is to prescribe the accounting treatment and disclosures related to agricultural activity. This Standard shall be applied to account for the following when they relate to agricultural activity: a) biological assets; b) agricultural produce at the point of harvest; and c) Government grants covered by paragraphs 34 and 35. Agricultural activity is the management by an entity of the biological transformation and harvest of biological assets for sale or for conversion into agricultural produce or into additional biological assets. Agricultural produce is the harvested produce of the entity's biological asset. A biological asset is a living animal or plant. Biological transformation comprises the processes of growth, degeneration, production, and procreation that cause qualitative or quantitative changes in a biological asset.

IFRS VS IGAAP

Indian GAAP is a set of accounting standards that are specifically designed for the Indian context. GAAP stands for Generally Accepted Accounting Principles. Most Indian companies follow Indian GAAP while preparing their accounting records. When a company follows IFRS, it needs to provide a disclosure in the form of a note that it is complying with the IFRS. But for Indian GAAP, the disclosure of the statement isn't mandatory. When a company is said to follow the Indian GAAP, it's assumed that they're complying with the Indian GAAP to portray the true and fair view of their financial affairs.

Basis	*IFRS*	*IGAAP*
First time adoption	Full retrospective application of IFRS to P&L Account and Balance Sheet. Reconciliation of P&L Account and Balance Sheet with respect of last year's reported numbers under previous GAAP.	No needs to prepare reconciliation on first time adoption.
Components of Financial Statements	Comprises of Balance Sheet, Profit and Loss A/c. Cash Flow Statement, changes in equity and accounting policy and notes to Accounts.	Comprises of Balance Sheet, Profit and Loss A/c. Cash Flow Statement (if applicable), and Notes to Accounts.
Balance Sheet	No particular format, a current/non current presentation of assets and liabilities is used.	As per Format Prescribed in Schedule III for Companies, adherence to Banking Regulation for Banks, etc.
Income Statement	No particular format prescribed (IAS-1).	As per Format Prescribed in Schedule III (AS-1).

Basis	***IFRS***	***IGAAP***
Cash Flow Statements	Mandatory for all entities (IAS-7).	Level 3 entities are exempted (AS- 3).
Dividends	Liability to be recognized in the period when dividend is declared. (IAS- 10).	Recognized as an appropriation against the profit, and recorded as liability at BS date even if declared subsequent to reporting period but before the approval of Financial statements (AS-4).
Cost of major repairs and overhaul expenditure on fixed assets	Recognized in carrying amount of the assets (IAS-16).	Expensed off. Only expenses which increases the FEB are to be capitalized. (AS-10).
Re-evaluation	Re-evaluation (if done) to be updated periodically so that carrying amount does not differ from fair value at the end period. Re-evaluation to be done for entire class of assets (IAS-16).	No specific requirement for re-evaluation. Re-evaluation can be done on systematic basis like for one location leaving aside the assets of other location. (AS-10).
Change in the method of depreciation	Considered as a change in accounting estimate. To Be applied prospectively. (IAS-16 and IAS 8).	Considered as change in accounting policy, retrospective computation and excess or deficit is adjusted in same period. Required to be disclosed (AS- 6).
Earnings Per Share	Disclosure to be made in only consolidated financials of the parent Co. (IAS-33).	Disclosure of EPS in both consolidated and separate financials (AS-20) .
Component Accounting	Required each major part of No such requirement (AS-10). PPE with a cost that is significant in relation to total cost, should be depreciated separately (IAS-16).	No such requirement (AS-10).
Intangible Assets	Intangible assets can have indefinite useful life and hence such assets are tested for impairment and not amortized.	There is no concept of indefinite useful life. Assets have definite life (usually 10 years).
Reporting Currency	Requires the measurement of profit using the functional currency. Entities may, however, present financial state-ments in a different currency (IAS- 21).	Schedule III to the Companies Act, 2013 specifies Indian Rupees as the reporting currency (AS-11).
Key Management Personnel (KMP)	Includes Executive as well as non executive directors (IAS-24).	Excludes non-executive directors (AS-18).

Basis	*IFRS*	*IGAAP*
Compensation to KMP	Disclosure to be made for total compensation such as short term employee benefits and post employment benefits.	AS-18 does not require the break- up of compensation cost.
Fringe Benefits Tax	Included as part of related expense (fringe benefit) which gives rise to incurrence of the tax.	Disclosed as a separate item after profit before tax on the face of the income statement.
Uniform Accounting Policies	Prepared using uniform accounting policies across all entities in a group. (IAS-27)	Policies may differ due to impracticability. (AS-21)
Disclosure of extra ordinary items	Prohibits such disclosure (IAS-1). No such term in IFRS.	Disclosure to be made in notes (AS-5).

COMPARISON OF INDIAN GAAP AND IND AS

The significant difference between the Indian GAAP (current Indian Accounting Standards) converged Indian Accounting Standards (Ind AS) are discussed in detail in the following pages.

Comparison of Ind AS 1 with Existing Indian GAAP 1

Sr. No.	*Basis of Comparison*	*Ind AS 1* *Presentation of Financial Statements*	*AS 1* *Disclosure of Accounting Policies*
1.	Presentation of Extraordinary Item	Prohibits presentation of any item as extraordinary item in the statement of profit and loss or in the notes	Allows for extraordinary items to be disclosed separately.
2.	Disclosure of Critical Assumption	Requires disclosure of critical assumptions about the future and other sources of measurement uncertainty that can affect carrying amounts of assets and liabilities within next financial year.	Does not require any such disclosure.
3.	Classification of Expenses	Requires classification of expenses be presented on the basis of nature of expenses.	Does not require any such classification.
4.	Reclassification	Reclassification of items, nature, amount and reason for reclassification are disclosed in notes to financial statement.	No such nature, amount and reason for reclassification are required to be disclosed.
5.	Statement of changes in equity	Requires a statement of changes in equity including reconciliation between opening and closing balance for each component of equity.	Statement of changes in equity is not required.

Comparison of Ind AS 2 with Existing Indian GAAP 2

Sr. No.	Basis of Comparison	Ind AS 2 Inventories	AS 2 Inventories
1.	Reversal of Written down value to Net Realizable value	Provides for reversal of the write-down of inventories to net realizable value limited to the amount of original write-down, and requires recognition and disclosure thereof in the financial statements.	Does not provide any specific guidance on the same.
2.	Exclusion	Excludes from its scope inventories held by commodity broker traders (who measure their inventories at a fair value minus costs to sell), producers of agricultural and forest products, agricultural produce after harvest, and minerals and mineral products.	Excludes from its scope only the measurement of such inventories. Further Ind AS 2 defines fair value and provides an explanation in respect of distinction between net realizable value and fair value.
3.	Explanation	Provides explanation with regard to inventories of service providers	Does not contain such an explanation
4.	Formula	Requires only the use of consistent cost formulas for all inventories having a similar nature and use to the entity	Specifically requires that the formula used in determining the cost of an item of inventory should reflect the fairest possible approximation to the cost incurred in bringing the items of inventory to their present location and condition.

Comparison of Ind AS 7 with Existing Indian GAAP 3

S. No.	Bases of Comparison	Ind AS 7 "Statement of Cash Flows"	AS 3 "Cash Flow Statements"
1.	Bank overdraft repayable on demand	Specifically provides that the bank borrowings are generally classified as financing activities. However, bank overdraft repayable on demand is treated as part of cash and cash equivalents.	As 3 is silent on this aspect.
2.	Treatment of cash payments in specific cases	Provides for the treatment of cash payments to manufacture or acquire assets held for rental to others and subsequently held for sale in the ordinary c0urse of business as cash flows from operating activities. Further, treatment of cash receipts from rent and subsequent sale of such assets as cash flow from operating activities is also provided.	AS 3 does not contain such requirements.

S. No.	Bases of Comparison	Ind AS 7 "Statement of Cash Flows"	AS 3 "Cash Flow Statements"
3.	New examples of cash flows arising from financing activities	Ind AS 7 includes the following new examples of cash flows arising from financing activities: (a) Cash payments to owners to acquire or redeem the entity's shares; (b) cash proceeds from mortgages; (c) Cash payments by the lessee for the reduction of the outstanding liability relating to a finance lease.	AS 3 does not contain such examples.
4.	Adjustments of the profit or loss for the effects of undistributed profits of the associates and non-controlling interests	Ind AS 7 specifically requires the adjustment of the profit or loss for the effects of 'undistributed profits of associates and non-controlling interests' while determining the net cash flows from operating activities using the indirect method.	AS 3 does not contain such requirements.
5.	Cash flows associated with extraordinary activities	Ind AS 7 does not contain this requirement.	AS 3 requires cash flows associated with extraordinary activities to be separately classified as arising from, operating, investing and financing activities.
6.	Classification as investing activities	Ind AS 7 requires that only the expenditures results in a recognized asset in the balance sheet are eligible for classification as investing activities.	AS 3 does not contain such requirements.
7.	Disclosure of the amount of cash and cash equivalents in specific situations	Ind AS 7 requires and entity (except an investment entity) to disclose the amounts of cash and cash equivalents and other assets and liabilities in the subsidiaries or other businesses over which control is obtained or lost. It also requires to report the aggregate amount of cash paid or received as consideration for obtaining or losing control of such subsidiaries or other businesses in the Statement of Cash Flows, net of cash and cash equivalents acquired or disposed of as part of such transactions, events or changes in circumstances.	AS 3 does not contain such requirements.

S. No.	Bases of Comparison	Ind AS 7 "Statement of Cash Flows"	AS 3 "Cash Flow Statements"
8.	Cash flows arising from changes in ownership interest in subsidiaries	Ind AS 7 requires classifying cash flows arising from changes in ownership interest in subsidiaries that do not result in a loss of control as cash flows from financing activities.	AS 3 does not contain such requirements.
9.	Investments in subsidiaries associates and joint ventures (investees)	Ind AS 7 mentions the use of equity or cost method while accounting for an investment in an associate, joint venture or a subsidiary. It also specifically deals with the reporting of interest in an associate or a joint venture using equity method.	AS 3 does not contain such requirements.
10.	Use of different terminology and translation of cash flows of a foreign subsidiary	Ind AS uses the term 'functional currency instead of 'reporting currency' (as in AS 3). It also deals with the translation of cash flows of a foreign subsidiary.	AS 3 uses the term 'reporting currency'. AS 3 does not deal with the translation of cash flows of a foreign subsidiary.
11.	Disclosures	Ind AS 7 requires more disclosures as compared to AS 3.	As 3 requires less disclosures as compared to Ind AS 7.

Comparison of Ind AS 8 with existing Indian GAAP 5

S. No.	Bases of Comparison	Ind AS 8 "Accounting Policies Changes in Accounting Estimates and Errors"	AS 5 "Net Profit or loss for the period, prior period and Changes in Accounting Policies"
1.	Rectification of Prior period errors	Ind AS 8 requires rectification of prior period errors with retrospective effect subject to limited exceptions.	AS 5 requires the rectification of prior period items with prospective effect.
2.	Prior period items	Ind AS 8 defines the term errors as arising from a failure to use or misuse reliable information that was available when the financial statements of the prior periods were approved for issuance and could reasonably be expected to obtained and taken into account in the preparation and presentation of those financial statements..	Existing AS 5 defines prior period items as incomes or expenses which arise in the current period as a result of errors or omissions in the preparation of financial statements of one or more prior periods.

Comparison of Ind AS 12 with existing Indian GAAP 22

S. No.	Bases of Comparison	Ind AS 12 "Income Taxes"	AS 22 "Accounting for Taxes on Income"
1.	Approach	Ind AS 12, in contracts, is based on balance sheet approach and recognizes tax consequences of differences between the carrying amounts of assets and liabilities and their tax base.	Existing AS 22, based on income statement approach, recognizes tax consequences of differences between taxable income and accounting income.
2.	Recognizes	Ind AS 12 recognizes deferred tax assets for all deductible temporary difference to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilized.	Existing AS 22 recognizes and carries forward deferred tax assets only to the extent where there is a reasonable certainty that sufficient future taxable income will be available against which such deferred tax assets can be utilized.
3.	Recognize of Deferred Tax Assets in case of unused tax losses and unabsorbed depreciation	Under Ind AS 12, deferred tax assets in case of unused tax losses and unabsorbed depreciation are recognized only to the extent that the entity has sufficient taxable temporary differences, or there is convincing other evidence that sufficient taxable profit will be available against which the unused tax losses or unused tax credits can be utilized by the entity.	Under existing AS 22, deferred tax assets in case of unused tax losses and unabsorbed depreciation is recognized to the extent that there is virtual certainty supported by convincing evidence that sufficient future taxable income will be available against which such deferred tax assets can be realized.

Comparison of Ind AS 16 with existing Indian GAAP 10

S. No.	Bases of comparison	Ind AS 16 Property, Plant and Equipments	AS 10 Property, Plant and Equipments
1.	Property, plant and equipment retired from active use and held for sale	Ind AS 16 does not deal with the assets held for sale because the treatment of such assets is covered under Ind AS 105 "Non-current assets held for sale and Discontinued operations".	AS 10 deals with the accounting for items of fixed assets retired from active use and held for sale.
2.	Stripping costs in the production phase of a surface mine	Ind AS 16 provides guidance on measuring the stripping cost in the production phase of a surface mine.	AS 10 does not contain this guidance.

Comparison of Ind AS 116 with existing Indian GAAP 19

Bases of comparison	Ind AS 116 Leases	AS 19 Leases
Coverage	Ind AS 116 deals with specific provisions related to leases of land and building.	AS 19 does not deal with all types of leases.

Bases of comparison	***Ind AS 116 Leases***	***AS 19 Leases***
Residual value	Ind AS 116 does not define residual value.	AS 19 defines residual value.
Inception of lease and commencement of lease	Ind AS 116 defines and distinguishes between inception of lease and commencement of lease.	AS 19 neither defines nor distinguishes between the two.
Recognition of finance lease	As per Ind AS 116, lessee should recognize finance lease as assets and liabilities at the commencement of lease.	As per AS 19, the lessee should recognize the finance lease at the inception of lease.
Upward revision of unguaranteed residual value	Ind AS 116 permits the upward revision of unguaranteed residual value during the lease term.	AS 19 prohibits such upward revision.
Initial direct costs	Ind AS 116 provides that the initial direct costs incurred by the lessor in case of an operating lease should be included in the carrying amount of the leased asset and amortized as an expense over the lease term.	AS 19 provides that such costs should be charged off by the lessor or amortized over the lease term.
Sale and leaseback transactions in case of finance lease	Ind AS 116 also requires that the excess of sale proceeds over the carrying amount of the asset should be deferred and amortized but it does not specify the method of amortization.	AS 19 provides that the excess of sale proceeds over the carrying amount of the asset should be deferred and amortized over the lease term in proportion to depreciation of the leased asset.
Single lease accounting model for lessee	Ind AS 116 now has a single lease accounting model for the leassee by eliminating the difference between operating lease and finance lease i.e. the lessee has to recognize the lease liability with a corresponding 'right of use' asset.	As 19 prescribes for the lessee lease accounting depending on the type of lease i.e. operating lease and finance lease.

Comparison between Ind AS 115 with existing Indian GAAP AS 7 and AS 9

Bases of comparison	***Ind AS 115 Revenue from Contracts with Customer***	***AS 7 and AS 9 Construction Contracts and Revenue Recognition***
Framework of revenue recognition	Ind AS 115 gives a framework of revenue recognition within the standard. It specifies the core principle for revenue recognition which requires the revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.	AS 7 and AS 9 do not provide any such principle to fall upon in case of doubt.

Bases of comparison	***Ind AS 115 Revenue from Contracts with Customer***	***AS 7 and AS 9 Construction Contracts and Revenue Recognition***
Comprehensive guidance on recognition and measurement of multiple elements of contracts with a customer	Ind AS 115 provides comprehensive guidance on how to recognize and measure multiple elements of contracts with a customer.	AS 7 and AS 9 do not provide any such guidance on this aspect.
Coverage	Ind AS deals with all types of performance obligation contracts with customers. However, it does not deal with interest and dividend dealt with in the standard on financial instruments.	AS 7 deals only with the revenue from construction contracts which measures the revenue at the consideration received/ receivable. AS 9 deals with only the revenue from sale of goods, rendering of services and income form royalty, dividend and interests.
Measurement of Revenue	Ind AS 115 measures the revenue at the transaction price i.e. the consideration to which the entity expects to be entitled in exchange for the transfer of the promised goods or services, excluding the amounts collected on behalf of third parties.	AS 9 provides for the measurement of revenue at the amount of charges made to the customers or clients for the goods transferred or services supplied or the rewards arising from the use of resources by others. AS 7 measures the revenue at the consideration received or receivable.
Recognition of revenue	Ind AS 115 provides that the revenue is recognized when the control is transferred to the customer.	AS 9 provides that revenue is recognized upon the transfer of significant risk as and rewards of ownership to the clients. AS 7 provides that the revenue is recognized when the outcome of a construction contract can be reliably estimated.
Capitalization of costs	Ind AS 115 provides guidance on the recognition of costs to obtain and fulfill a contract as an asset.	AS 7 and AS 9 do not deal with capitalization of such costs.
Guidance on service concession arrangements	Ind AS 115 gives guidance on service concession arrangements and disclosures thereof.	ASs do not provide such guidance.

Bases of comparison	*Ind AS 115 Revenue from Contracts with Customer*	*AS 7 and AS 9 Construction Contracts and Revenue Recognition*
Disclosure requirements	Ind AS 115 contains more disclosure requirements as compared to AS 7 and AS 9.	AS 7 and AS9 contain very less disclosure requirements as compared to Ind AS 115.

Comparison of Ind AS 19 with existing Indian GAAP 15

Bases of comparison	*Ind AS 19 Employee Benefits*	*AS 15 Employee Benefits*
Constructive Obligation	Ind AS 19 covers employee benefits arising from constructive obligations.	Existing AS 15 is silent on the same.
Employee Includes	Ind AS 19 the term employee includes directors.	AS 15, the term employee includes whole time directors.
Scope Cover	Ind AS 19 in its scope covers situations of contractual agreement between a multi-employer plant and its participants that determines how the surplus in the plan will be distributed to the participants (or the deficit funded).	Existing AS 15 is silent on the same.
	Ind AS 19 defines the same as the total of (i) any cumulative unrecognized past service cost and (ii) the present value of economic benefits available in the form of refunds from the plan or reduction in future contributions to the plan.	Existing AS 15 defines the limit for asset ceiling as present value of economic benefits available in the form of refunds from the plant or reductions in future contributions to the plan.

Comparison of Ind AS 20 with existing Indian GAAP 12

Bases of comparison	*Ind AS 20 Accounting for Government Grants and Disclosure of Government Assistance*	*AS 12 Government Grants*
Government grants of the nature of promoters contribution	Ind AS 20 does not recognize government grants of such nature and accordingly recognize as income over the periods.	Existing AS 12 requires government grants of the nature of promoter's contribution to be credited directly to capital reserve and treated as a part of shareholders funds.
Non-Monetary Grants	Ind AS 20 value non-monetary grants at their fair value.	AS 12 which records it at nominal value.

Bases of comparison	*Ind AS 20 Accounting for Government Grants and Disclosure of Government Assistance*	*AS 12 Government Grants*
Presentation	Ind AS 20 requires such grants to be presented as deferred income only.	Under existing AS 12, grants related to assets (including non-monetary grants) can be presented as deferred income or by deducting the grant from the gross value of asset concerned in arriving at its bookvalue.

Comparison of Ind AS 21 with existing Indian GAAP 11

Bases of comparison	*Ind AS 21 Effects Of Change In Forex Rates*	*AS 11 Effects Of Change In Foreign Exchange Rates*
Forward exchange contracts and other similar financial instruments	Ind AS 21 excludes forward exchange contracts and other similar financial instruments (as it gets treated in accordance with Ind AS 39 Financial Instruments: Recognition and Measurement).	Existing AS 11 covers in its scope, forward exchange contracts and other similar financial instruments.
Approach	Ind AS 21 is based on functional currency approach.	AS 11 is based on reporting currency approach.
Presentation currency	Ind AS 21 allows for presentation currency to be different from local currency.	Existing AS 11 does not allow it.
Recognizing of exchange differences arising on translation of certain long-term monetary items from foreign currency to functional currency	Ind AS 21 allows recognizing of exchange differences arising on translation of certain long-term monetary items from foreign currency to functional currency directly in equity and transferring the same to profit or loss over the term of such items in an appropriate manner.	Existing AS 11 permits such an option for items not related to acquisition of fixed assets up to 31st March 2011, where such items are related to acquisition of fixed assets, the foreign exchange differences can be recognized as part of the cost of the asset.

Comparison of Ind AS 23 with existing Indian GAAP 16

Bases of comparison	*Ind AS 23 Borrowing Costs*	*AS 16 Borrowing Costs*
Borrowing cost exclusion	Ind AS 23 given an option to an entity to exclude from this standards, borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset measured at fair	The same is not exists in AS 16

Bases of comparison	Ind AS 23 Borrowing Costs	AS 16 Borrowing Costs
	value. Further it also excludes application of this standard to borrowing costs directly attributable to the acquisition, construction or production of inventories that are manufactured, otherwise produced, in large quantities on a repetitive basis.	

Comparison of Ind AS 24 with existing Indian GAAP 18

Bases of comparison	Ind AS 24 Related Party Disclosure	AS 18 Related Party Disclosure
Scope of Definition of Relatives and additional disclosure	Under Ind AS 24, the scope and definition of relatives (or close members of the family) government enterprises, key management personnel (KMP) and joint ventures have been expanded. Further, Ind AS 24 requiresadditional disclosures in case of government related enterprises and compensation of KMP under different categories.	-

Comparison of Ind AS 27 with existing Indian GAAP 21

Bases of comparison	Ind AS 27 Consolidated and Separate Financial Statements	AS 21 Consolidated Financial Statement
Mandatory	Under Ind AS 27 preparation of consolidated financial statements is mandatory for a parent company.	This does not mandate the same.
Guidance	Ind AS 27 contains guidance regarding accounting for investments in subsidiaries, jointly controlled entities and associates in preparing the separate financial statements.	Under existing AS 21 there is no guidance regarding accounting for investments in subsidiaries, jointly controlled entities and associates in preparing the separate financial statements.
Exemption	Ind AS 27 does not provide any such exemption from consolidation.	AS 21 provides for exclusion of subsidiary from consolidation under circumstances where control is intended to be temporary or when subsidiary operates under serve long term restrictions.

Bases of comparison	*Ind AS 27 Consolidated and Separate Financial Statements*	*AS 21 Consolidated Financial Statement*
Effect of potential voting rights	Ind AS 27 takes into account existence and effect of potential voting rights that are currently exercisable or convertible while assessing the control of entity over the subsidiary.	AS 21 does not take into account potential equity shares of the investee held by investor for considering share ownership.

Comparison of Ind AS 28 with existing Indian GAAP 23

Bases of comparison	*Ind AS 28 Investment in Associates and Joint Ventures*	*AS 23 Accounting for investment in Associates*
Scope	Ind AS 28 excludes them from its scope as the same is included in Ind AS 39 (Financial Instruments : Recognition and Measurement)	Existing AS 23 includes in its scope, investments in associates held by venture capital organizations, mutual funds, unit trusts and similar entities including investment linked insurance funds.
Potential voting rights	Ind AS 28 considers existence and effect of potential voting rights that are currently exercisable or convertible for assessing significant influence.	Existing AS 23 does not consider potential equity shares of the investee held by investor for determining significant influence.
Equity Method	Ind AS 28 requires application of equity method in financial statement, even if the entity does not have subsidiaries.	Existing AS 23 requires application of the equity method only in case of subsidiary consolidation.
Length of difference in the reporting dates of the investor and the parent	Ind AS 28, length of difference in the reporting dates of the investor and the parent should not be more than three months unless it is impractical.	Existing AS 23 specifies no maximum difference between the reporting date of the associate and that of the parent.
While both existing AS 23 and Ind AS 28 require uniform accounting policies for the preparation of investor's financial statements for a like transactions and events in similar circumstances, existing AS 23 provides exemption to the same, if it is not possible to make adjustments to the accounting policies of the associates. However, the fact needs to be disclosed along with a brief description of the differences between the accounting policies		

Comparison of Ind AS 33 with existing Indian GAAP 20

Bases of comparison	*Ind AS 33 Earnings Per Share*	*AS 20 Earnings Per Share*
Options held by the entity	Ind AS 33 specifically deals with options held by the entity on its share.	Existing AS 20 does not deal with the same.
Presentation of basic and diluted EPS from continuing and discontinued operations	Ind AS 33 requires presentation of basic and diluted EPS from continuing and discontinued operations separately.	Existing AS 20 does not require the same.
Presentation of EPS with and without extraordinary items	Ind AS 33 does not require the presentation of EPS with and without extraordinary items as Ind AS 1 (Presentation of Financial Statements) prohibits the disclosure of items as extraordinary.	Existing AS 20 requires the presentation of EPS with and without extraordinary items.

Comparison of Ind AS 34 with existing Indian GAAP 25

Bases of comparison	*Ind AS 34 Interim Financial Reporting*	*AS 25 Interim Financial Reporting*
Comply	Ind AS 34 requires such compliance only if the interim financial report is required to be prepared and presented in accordance with accounting standards.	Under existing AS 25, if an entity is required or elects to prepare and present an interim financial report, it should comply with that Standard.
Condensed statement of changes in equity	Ind AS 34, in addition, requires a condensed statement of changes in equity for the period in addition to above requirements.	Existing AS 25 requires at a minimum condensed balance sheet, a condensed statement of profit and loss, a condensed cash flow statement and selected explanatory notes in the contents of an interim financial report.
Preparation of both consolidated and separate financial statements, complete or condensed.	Ind AS 34 neither requires nor prohibits the inclusion of the parents' separate statements in the entity's interim report prepared on a consolidated basis.	AS 25 requires preparation of both consolidated and separate financial statements, complete or condensed.
Furnishing information of contingent liabilities and contingent assets	Ind AS 34 specifies that information, if significant, on both contingent liabilities and contingent assets is required to be furnished.	Existing AS 25 requires furnishing of information on contingent liabilities only.

Comparison of Ind AS 36 with existing Indian GAAP 28

Bases of comparison	*Ind AS 36 Impairment of Assets*	*AS 28 Impairment of Assets*
Frequency for Testing of Intangibles	Ind AS 36 requires goodwill and other intangible assets to be tested for impairment at last annually.	Existing AS 28 does not require goodwill to be tested for impairment annually unless there is an indication of impairment.
Reversal of impairment losses	Ind AS 36 prohibits reversal of impairment losses in a subsequent period.	Existing AS 28 allows for reversal of impairment losses on account of goodwill in a subsequent period if the loss was caused by a specific external event of an exceptional nature that is not expected to recur, and subsequent external events that would occur and reverse the effect of that event.
Bottom-up or top-down approach	Under Ind AS 36 there is no bottom-up or top- down approach for allocation of good will. Rather goodwill is allocated to CGUs that are expected to benefit from the synergies of the business combination from which it arose.	Existing AS 28 specifies bottom up or top-down approach for allocation of goodwill under which goodwill is tested for impairment by allocating its carrying amount to each CGU (cash generating unit) or the smallest CGU on a reasonable and consistent basis.

Comparison of Ind AS 37 with existing Indian GAAP 29

Bases of comparison	*Ind AS 37 Provisions, Contingent Liabilities and Contingent Assets*	*AS 29 Provisions, Contingent Liabilities and Contingent Assets*
Provisions for constructive obligations	Ind AS 37 requires creation of provisions in respect of constructive obligations.	Under existing AS 29 provisions are not recognized on constructive obligations. However, provisions may be created on account of obligations arising out of normal business practices, custom and a desire to maintain good business relations or to act in an equitable manner.
Discounting of Provision	Ind AS 37 requires discounting of the amount of provisions in cash effect of the time value of money is material.	The same is prohibited under AS 29.
Disclosure of Contingent Assets	Ind AS 37 requires disclosure of contingent assets, when the inflow of economic benefits is probable.	AS 29 does not require disclosure of contingent assets in the financial statements.

Comparison of Ind AS 38 with existing Indian GAAP 26

Bases of comparison	*Ind AS 38 Intangible Assets*	*AS 26 Intangible Assets*
Cost or Revaluation Model	Ind AS 38 permits revaluation model in addition to cost model.	Existing standard AS 26 allows for only the cost model as a part of accounting policy.
Useful life may be finite or indefinite	Ind AS 38 recognizes that useful life may be finite or indefinite subject towards fulfillment of certain conditions.	Under existing standard AS 26, useful life of an intangible asset is not always indefinite. It includes a rebuttable presumption that the useful life will not exceed ten years from the date the asset is available for use.
Recognize of Intangible Assets acquired in exchange of a non-monetary asset	Ind AS 38 requires such intangible asset to be recognized at the fair value of the asset given up unless (a) the exchange transaction lacks commercial substance, or (b) the fair value of neither the asset received nor the asset given is reliably measurable.	Under the existing standard AS 26, if an intangible asset is acquired in exchange of a non-monetary asset, its cost should be recognized with reference to the fair market value of the consideration given.
Deferment of payment	Ind AS 38 requires that in case of deferment of payment beyond normal credit terms in case of an intangible asset, the difference between this amount and the total payments is to be recognized as interest expense over the period of credit unless it is capitalized as per Ind AS 23.	Existing AS 26 is silent on this aspect.

Comparison of Ind AS 103 with existing Indian GAAP 14

Bases of comparison	*Ind AS 103 Business Combination*	*AS 14 Accounting for Amalgamation*
Scope	Ind AS 103 is much wider in scope as it deals with business combinations.	Existing AS 14 defines only amalgamations.
Method	Ind AS 103 allows for only acquisition method for each business combination.	Existing AS 14 allows pooling of interest method as well as purchase method for amalgamation.
Recognize at Book Value or Fair Value	Ind AS 103 requires the acquired identifiable assets liabilities and non-controlling interest to be recognized at a fair value under acquisition method.	Existing AS 14 requires that acquired assets and liabilities are recognized at their existing book value or at the fair value under the purchase method.

Bases of comparison	*Ind AS 103 Business Combination*	*AS 14 Accounting for Amalgamation*
Measure of Non-Controlling interest	Ind AS 103 requires that for each business combination, the acquirer shall measure any non-controlling interest in the acquired at either a) a fair value, or b) the present ownership instruments' proportionate share in the recognized amount of the acquiree's identifiable net assets.	Existing AS 14 defines that the minority interest is the amount of equity attributable to minorities at the date on which investment in a subsidiary is made, and it is shown outside as shareholders equity.
Testing for impairment of Goodwill	Ind AS 103 requires goodwill to be tested for impairment on an annual basis in accordance with Ind AS 36.	Existing AS 14 requires amortization of goodwill arising on amalgamation in the nature of purchase.
Guidance on accounting for reverse acquisitions.	Ind AS 103 specifically provides guidance on accounting for reverse acquisitions.	Existing AS 14 is silent on the same.
Treatment of excess amount	Ind AS 103 requires bargain purchase gain arising on business combination to be recognized as other comprehensive income on the acquisition date and accumulation of the same in equity as capital reserve.	Existing AS 14 treats the excess amount as capital reserve.

Comparison of Ind AS 105 with existing Indian GAAP 24

Bases of comparison	*Ind AS 105 Non-Current Assets Held for Sale and Discontinued Operations*	*AS 24 Discontinued Operations*
Dealt with non-current assets held for sale	Ind AS 105 specifically deals with accounting for non-current assets held for sale.	Under existing AS 24, same is not dealt with. Rather it falls under the ambit of existing AS 10 (Accounting for Fixed Assets).
Measure of non-current assets held for sale	Under Ind AS 105 non-current assets held for sale are measured lower than the carrying amount, and fair value minus costs to sell.	Existing AS 24 follows the principles set out in existing AS 10 which requires fixed assets retired from active uses and held for sale to be stated at the lower of their net book value and net realizable value.

Bases of comparison	*Ind AS 105 Non-Current Assets Held for Sale and Discontinued Operations*	*AS 24 Discontinued Operations*
Classification of discontinuing operation	Under Ind AS 105, an operation is classified as discontinued when either it has been disposed of, or is classified as held for sale.	Under AS 24, classification of discontinuing operation happens at the occurrence of one of the following : (a) the enterprise has entered into a binding sale agreement for substantially all of the assets attributable to the discontinuing operation ; or (b) the enterprise's Board of Directors or similar governing body has both (i) approved a detailed, formal plan for the discontinuance, and (ii) made an announcement of the plan.

Comparison of Ind AS 108 with existing Indian GAAP 17

Bases of comparison	*Ind AS 108 Operating Segment*	*AS 17 Segment Reporting*
Identification of Segment	Ind AS 108, on the contrary identifies segments based on internal reports regularly reviewed by the entity's chief operating decision maker so as to make decisions about resources to be allocated to the segment and assess its performance.	Existing AS 17 requires an enterprise to identify segments based on business products and geographical areas with internal financial reporting system serving only as the starting point for identifying those items that can be directly attributed, or reasonably allocated, to segments.
Measure of Segment	Ind AS 108 requires measurement basis for cash segment reported to be that used by the chief operating decision-maker for the purposes of making decisions about allocating resources to the segment and assessing its performance.	Under existing AS 17 segment information is prepared in conformity with the accounting policies adopted for preparing and presenting the financial statements.
Aggregation criteria	Ind AS 108 specifically requires aggregation criteria for aggregation of two or more segments.	AS 17 does not deal with the same.

Bases of comparison	*Ind AS 108 Operating Segment*	*AS 17 Segment Reporting*
Disclosure	Ind AS 108 requires disclosures of revenues from external customers for each product and service, or each group of similar products and services. With respect to geographical areas, disclosure is required for revenues from external customers (i) attributed to the entity's country of domicile and (ii) attributed to all foreign countries in total from which the entity derives revenue.	Existing AS 17 requires disclosures based on the classification of the segments as primary or secondary segments.

LESSON ROUND-UP

- Accounting Standards (ASs) are written policy documents issued by expert accounting body or by government or other regulatory body covering the aspects of recognition, measurement, presentation and disclosure of accounting transactions in the financial statements.
- The objective of general-purpose financial reporting is to provide financial information that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity.
- Two important characteristics of financial information relate to relevance and reliability
- Convergence of national Accounting Standards with International Financial Reporting Standards (IFRS) has gained worldwide momentum in recent years to ensure uniformity and transparency in reporting standards.
- India has started applying its Indian Accounting Standards (Ind AS) converged with IFRS in a phased manner beginning from April 1, 2016.
- Ind AS are basically standards that have been harmonized with IFRS to make reporting by Indian companies more globally assessable.

GLOSSARY

Accounting standards : Accounting standards may be defined as the written policy documents issued by an expert Accounting Body or Government or other regulatory bodies covering the aspects of recognition, measurement, presentation and disclosure of the transactions and other events in the financial statements.

Indian Accounting Standards (Ind AS) : Indian Accounting Standards (Ind AS) are another set of accounting standards notified by the Ministry of Corporate Affairs, Government of India which are converged with International Financial Reporting Standards (IFRS).

International Financial Reporting Standards (IFRSs) : International Financial Reporting Standards (IFRSs) are considered a "principles-based" set of standards. In fact, they establish broad rules rather than dictating specific treatments.

IGAAP : Indian GAAP is a set of accounting standards that are specifically designed for the Indian context. GAAP stands for Generally Accepted Accounting Principles.

TEST YOURSELF

1. What is the need for Standards?
2. What is the need for convergence with IFRS?
3. What are the differences between IGAAP & Ind AS?
4. Discuss the roadmap for implementation of Indian Accounting Standards (Ind AS) to achieve convergence with IFRS
5. Discuss the importance of relevance and reliability characteristics of financial information and the need for uniformity and transparency in reporting standards.

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Accounting for Share Capital

Lesson 4

KEY CONCEPTS

■ Share capital ■ Equity Share ■ Preference Share ■ Premium ■ Bonus shares ■ Rights issue ■ Capital Redemption Reserve

Learning Objectives

To understand:

- Meaning of share capital, types of shares, a company's capital structure and its disclosure in the balance sheet.
- Accounting procedure of issuing of shares at par / premium / discount
- Accounting treatment in case of forfeiture and re-issue of shares
- Nuances of redemption and concept of Capital Redemption Reserve
- Aspects of Sweat Equity Shares and Bonus Shares along with the accounting
- Accounting of buyback of shares.
- Steps for Underwriting and its methods
- Difference between marked applications and unmarked applications along with determining the liability of underwriters

Lesson Outline

- Share Capital- Meaning, Types
- Disclosure of Share Capital
- Issue of Share at PAR
- Issue of Share at Premium
- Issue of Share at Discount
- Subscription
- Calls-in-Advance
- Calls-in-Arrear
- Issue of Shares for consideration other than cash
- Forfeiture of Share
- Re-issue of Forfeiture Shares
- Buyback of Shares
- Issue of Bonus Shares
- Issue of Sweat Equity Shares
- Issue of Rights Shares
- Redemption of Preference Shares
- Capital Redemption Reserve Account
- Underwriting of Share
- Lesson Round-Up
- Test Yourself
- List of Further Readings

MEANING OF SHARES

A share may be understood as an individual part or a singular unit into which the total share capital of a company is divided. Shares are used to raise the capital of a company and each share constitutes a unit of ownership which is offered for sale. A share represents a part of the share capital of the company.

For example, Company ABC has a share capital of Rs. 50,00,000 divided into 5,00,000 shares of Rs.10 each and Mr. Naveen is in possession of 6,000 shares, then he has a share of Rs. 60,000 in the share capital of the company.

According to Section 2(84) of the Companies Act, 2013, "share" means a share in the share capital of a company and its stock.

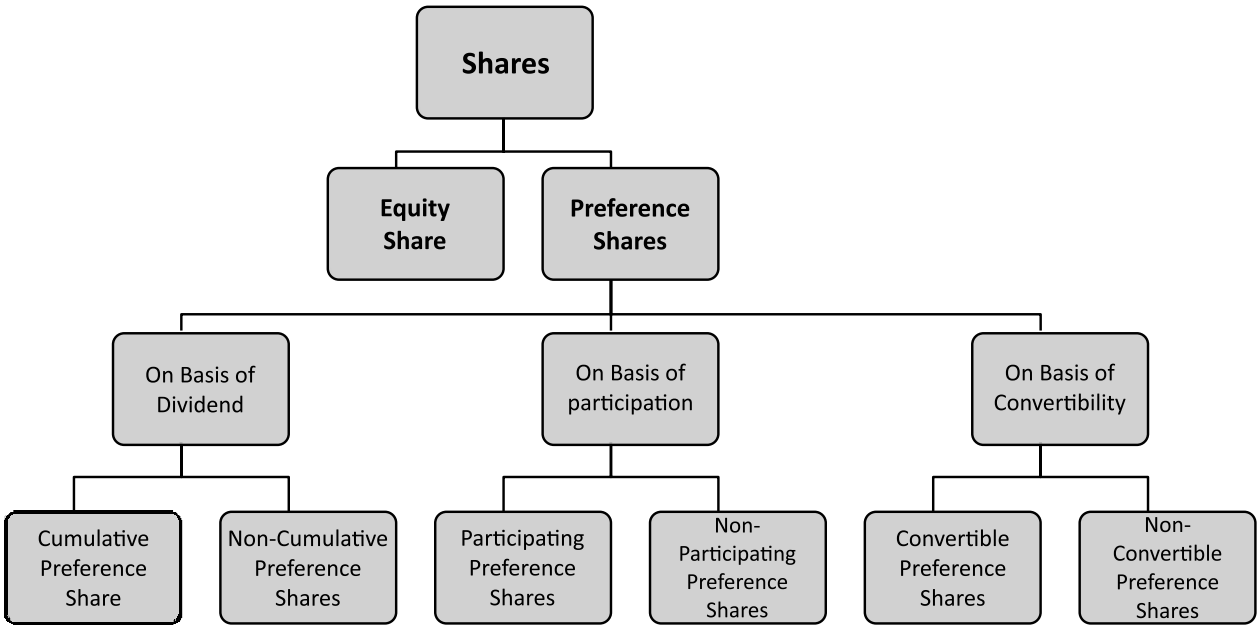
Meaning of Share Capital

A company, being an artificial person, cannot generate its own capital which has necessarily to be collected from several persons. These persons are known as shareholders and the amount contributed by them is called share capital. Since the number of shareholders is very large, a separate capital account cannot be opened for each one of them. Hence, innumerable streams of capital contribution merge their identities in a common capital account called as 'Share Capital Account'

A company raises its capital by issuing its issue of shares to finance and carry out its business. The Memorandum of Association, which lays down the foundation of the company contains the amount of capital with which the company decides to register and the number of shares into which it is to be divided. It constitutes the basis of the capital structure of a company. When total capital of a company is divided into shares, then it is called share capital.

Kinds of Share Capital

The share capital of a company limited by shares can constitute of two kinds of share capital under the Companies Act, 2013, as follows:



Equity Share Capital	Equity share capital with reference to any company limited by shares means all share capital that does not come under preference share capital. Equity share capital can further be divided into the following types: (i) with voting rights; or (ii) with differential rights regarding dividend or voting or any other such rights. In other words, shares which do not enjoy any preferential right in the payment of dividend or repayment of capital, are termed as equity/ordinary shares. The equity shareholders are entitled to share the distributable profits of the company after satisfying the dividend rights of the preference share holders.
Preference Share Capital	Preference, as the name suggests, with reference to any company limited by shares, refers to that share capital of the issued share capital of the company which would carry a preferential right with regard to payment of dividend and Repayment of capital.
Deemed preference share capital	The share capital is deemed to be preference share capital, notwithstanding that it is entitled to either or both of the following rights: ● that in respect of dividends, in addition to the preferential rights to the payment of dividend, it has a right to participate, whether fully or to a limited extent, with capital not entitled to the preferential right aforesaid; ● that in respect of capital, in addition to the preferential right to the repayment, in case of a winding up, it has a right to participate, whether fully or to a limited extent, with capital not entitled to that preferential right in any surplus which may remain after the entire capital has been repaid.

The following table summarizes the major distinctions between Equity Share Capital and Preference Share Capital:

Basis of Distinction	***Equity Shares***	***Preference shares***
Refund of Capital	On winding up, the equity share capital is paid after the preference share capital or equity shareholder receives residual amount	On winding up, the preference share capital is paid before the equity share capital is paid or preference shareholders have preference to get refund of capital over equity shareholders.
Right of Dividend	Dividend is paid on equity shares after payment of dividend on preference shares	Dividend is paid on preference shares before payment of dividend on equity shares.
Rate of Dividend	No fixed rate of dividend. It is decided by the board of directors everyyear and it varies periodically	Fixed rate of dividend is paid as prescribed on the face of preference shares, e.g., Issue at 12%, in that case prefer shares would have 12% rate of dividend.

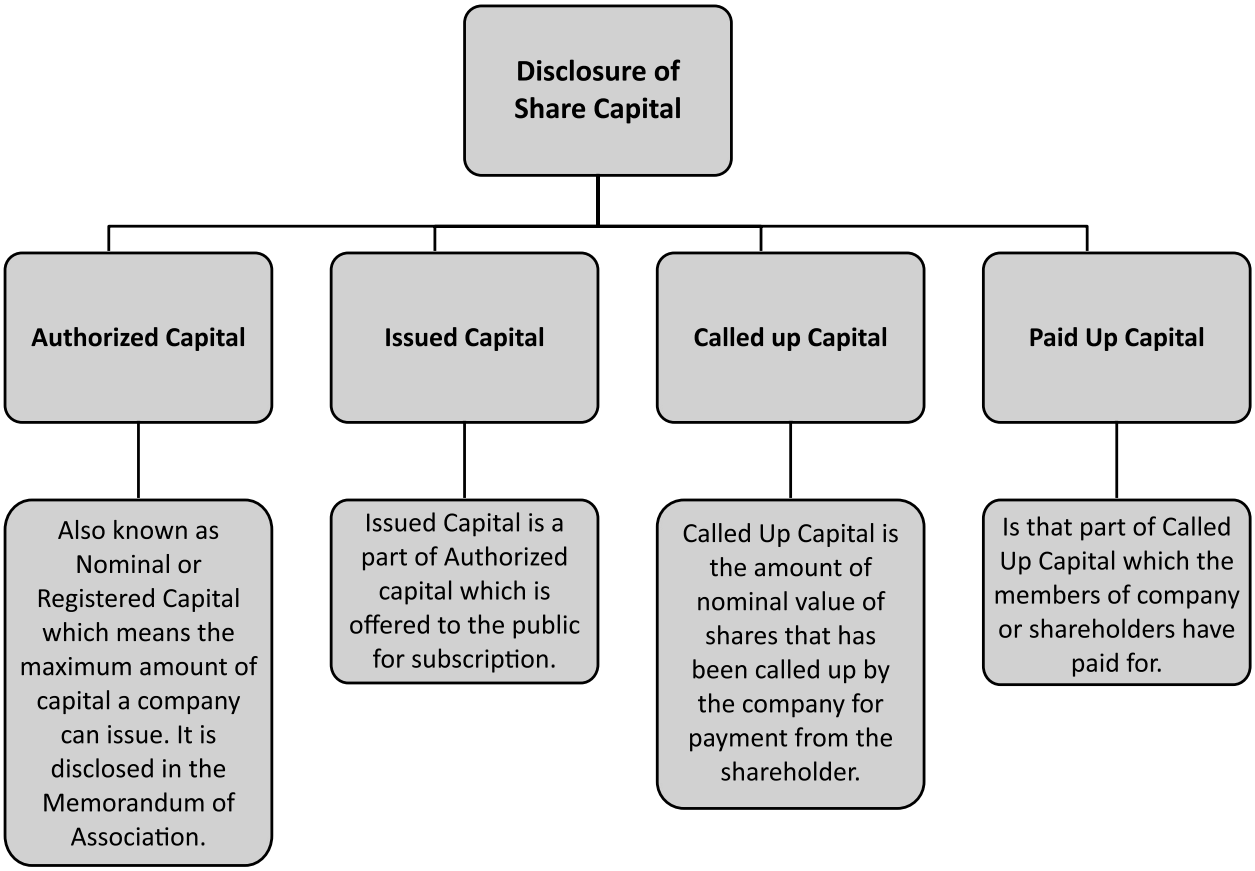
Basis of Distinction	*Equity Shares*	*Preference shares*
Right to Vote	Equity shareholders have the right to vote in a meeting of shareholders and they elect the director for managing the company	In normal course of business, preference shareholders do not enjoy the right to vote in the meetings of shareholders. But they may have the right to vote but only in special circumstances.
Redemption	Equity shares are not redeemable; however, a company may buy back its equity shares as conditions prescribed under Companies Act, 2013	Preference shares are always redeemable.

Types/Classes of Preference Shares

On basis of Dividend	*On basis of Participation*	*On basis of Convertibility*
Cumulative Preference Shares: Cumulative preference shares are the preference shares whose holders are entitled to receive arrears of dividend before any dividend is paid on equity shares	**Participating Preference Shares:** In addition to the fixed preference dividend, such shares carry a right to participate in the surplus profit, if any, after providing dividend at a stipulated rate to equity shareholders.	**Convertible Preference Shares:** They are preference shares with a right/option to get converted into equity shares.
Non-cumulative Preference Shares: Non-cumulative preference shares are the preference shares whose holders do not have the right to receive arrears of dividend. If no dividend is declared in any year due to any reason, they get nothing, nor can they claim unpaid dividend in any subsequent years.	**Non-Participating Preference Shares:** Such shares get only a fixed rate of dividend every year and do not have a right to participate in the surplus profit, if any.	**Non-Convertible Preference Shares:** These are preference shares which do not have the right/ option to get converted into equity shares.

DISCLOSURE OF SHARE CAPITAL

Capital refers to the amount which is invested in a business with the basic aim of generating revenue. Capital is raised from public and people who contribute to the share capital are known as shareholders.



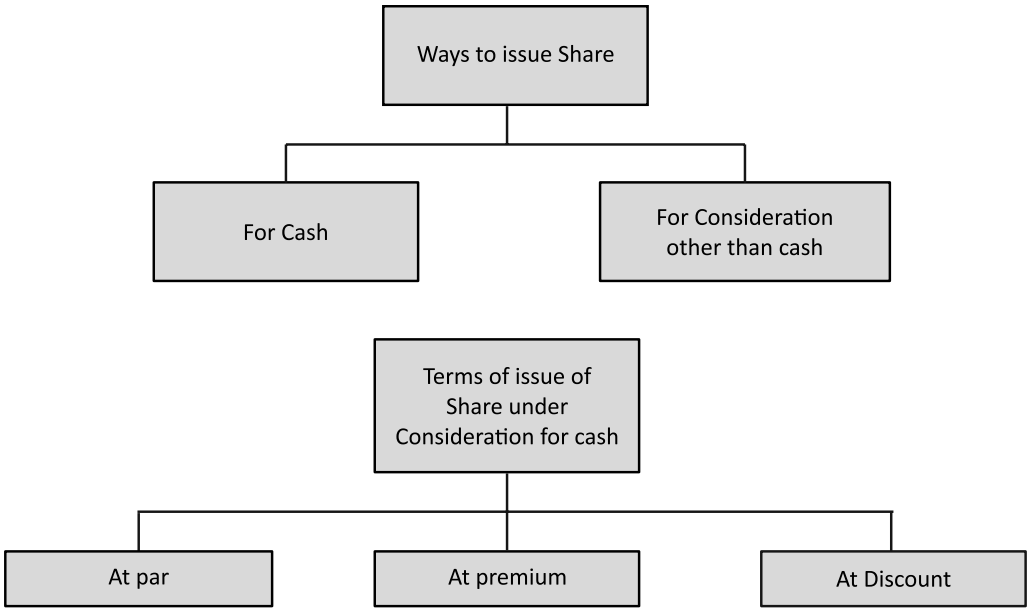
The following table describes the disclosure of Share Capital, as included in the Liabilities column of the Balance Sheet of a company:

Particulars	***Amount***
Equity and Liabilities	
Shareholders' Fund	
Share Capital:	
Authorized Capital: 2,00,000 shares of Rs. 10 each	20,00,000
Issued Capital: 1,50,000 shares of Rs. 10 each	15,00,000
Subscribed Capital: 1,00,000 shares of Rs. 10 each	10,00,000
Paid up Capital 1,00,000 shares of Rs. 10 each, Rs 5 paid up	5,00,000

The important steps in the procedure of share issue are:

- **Issue of Prospectus:** The Company first issues the prospectus to the public. Prospectus is an invitation to the public that a new company has come into existence and it needs funds for doing business. It contains complete information about the company and the manner in which the money is to be collected from the prospective investors.
- **Receipt of Applications:** When prospectus is issued to the public, prospective investors intending to subscribe the share capital of the company would make an application along with the application money and deposit the same with a scheduled bank as specified in the prospectus. The company has to get minimum subscription within 120 days from the date of the issue of the prospectus. If the company fails to receive the same within the said period, the company cannot proceed for the allotment of shares and application money should be returned within 130 days of the date of issue of prospectus.
- **Allotment of Shares:** If minimum subscription has been received, the company may proceed for the allotment of shares after fulfilling certain other legal formalities. Letters of allotment are sent to those whom the shares have been alloted, and letters of regret to those to whom no allotment has been made. When allotment is made, it results in a valid contract between the company and the applicants who now became the shareholders of the company.

Terms of Issue of Share



A. ISSUE OF SHARES AT PAR

Shares are said to be issued at par when the issue price is equal to the face value or nominal value of the shares i.e., when the issue price is Rs. 10 and face value is also Rs. 10. When the shares are issued, the company may ask for the payment of the shares either payable in lump sum/single instalment or in multiple installments.

(a) When shares are issued at par and are payable in full in a lump sum:

Accounting Treatment

(1) On receipt of application money -

Bank A/c Dr. (With the amount received on application)

To Share Application A/c

(Being application money received)

(2) On allotment of shares -

Share Application A/c Dr. (With the money received on the number of A/c shares allotted)

To Share Capital

(Being application money transferred to share capital)

Additional Points:

(i) Although shares may be of either kind, i.e., equity shares or preference shares, but if only the term shares is used it means equity shares.

(ii) Separate share application account will be opened for each class of shares, i.e., equity share application account/preference share application account and the like.

(iii) Unless shares are allotted by the company, the receipt of application money is simply an offer and cannot be credited to Share Capital Account.

(iv) Refund of application money: If the company fails to raise the minimum subscription, then no shares can be allotted and the application money has to be returned to the applicants. For this, the entry will be as follows:

Share Application and Allotment Dr. (With the application money received now refunded)

To Bank

(b) When shares are issued at par and the amount is payable in installments:

When shares are not payable in lump sum/single installment, they can be called in number of installments. After allotment, whenever the need arises, the company may require further installments from the shareholders towards payment of the value of shares subscribed by them. Such demands are termed as 'calls'. The different calls are distinguished from one another by their serial numbers, i.e., first call, second call, third call and so on. The last installment is also termed the final call along with the number of the last call.

1st installment	Application Money
2nd installment	Allotment Money
3rd installment	First Call Money
4th installment	Second Call Money
.....	.....
Last installment	Final Call Money

Accounting Treatment

(i) On receipt of application money with the total amount received on application

Bank A/c Dr.

To Share Application Account

(Being the application money received in respect of shares @ Rs. per share)

(ii) On allotment of shares: After receiving application within prescribed time, Board proceeds to allot shares.

Share Application Account Dr. (with the amount of application money on allotted)

To Share Capital Account

(Being the application money on allotted shares now transferred to share capital account)

(iii) On refund of application money on rejected applications

Share Application Account Dr. (with the amount actually repaid)

To Bank Account

(Being application money on shares refunded)

(iv) Allotment money becoming due and received (second installment)

Share Allotment Account Dr. (with the amount due on allotment)

To Share Capital Account

(Being the allotment money due in respect of allotment of shares @ Rs. ..... each)

(v) On receipt of allotment money is received the following journal entry is made.

Bank Account Dr. (with the actual amount received as allotment money)

To Share Allotment Account

(Being the amount received on shares @ Rs. ..... each)

(vi) On making the first call

Share First Call Account Dr. (with the amount due on first call)

To Share Capital Account

(Being the amount due on first call @ Rs. ..... per share on shares)

(vii) On receipt of first call money

Bank Account Dr. (with the amount received on first call)

To Share First Call Account

(Being the amount received in respect of first call @ Rs. ..... per share on ..... shares)

(viii) When second call is made

Share Second Call Account Dr. (with the amount due on second call)

To Share Capital Account

(Being the amount due on second call @ Rs. ..... per share on ..... shares)

(ix) On receipt of second call money:

Bank Account Dr. (with the amount actually received on second call)

To Share Second Call Account

(Being the amount received in respect of second call @ Rs. ..... per share on ..... shares)

(x) When the final call is made:

Share Final Call Account Dr. (with the amount due on final call)

To Share Capital Account

(Being the amount due on final call @ Rs. ..... per share on ..... shares)

(xi) On receipt of final call money:

Bank Account Dr. (with the amount actually received on final call)

To Share Final Call Account

(Being the amount received in respect of final call @ Rs. ..... per share on ..... shares)

Illustration 1

Mona Earth Mover Limited decided to issue 12,000 shares of Rs.100 each payable at Rs.30 on application, Rs.40 on allotment, Rs.20 on first call and balance on second and final call. Applications were received for 13,000 shares. The directors decided to reject application of 1,000 shares and their application money being refunded in full. The allotment money was duly received on all the shares, and all sums due on calls are received except on 100 shares. Record the transactions in the books of Mona Earth Movers Limited.

Solution:

Books of Mona Earth Mover Limited

Journal Entries

Date	*Particulars*	*L.F.*	*Debit Amount (Rs.)*	*Credit Amount (Rs.)*
	Bank A/c Dr. To Share Application A/c (Application money on 13,000 shares @ Rs.30 per share received)		3,90,000	3,90,000
	Share Application A/c Dr. To Share Capital A/c (Application money transferred to share capital)		3,60,000	3,60,000
	Share Application A/c Dr. To Bank A/c (Application money on 1,000 shares returned]		30,000	30,000

	Share Allotment A/c Dr. To Share Capital A/c (Money due on allotment of 12,000 shares @ Rs. 40 per share)		4,80,000	 4,80,000
	Bank A/c Dr. To Share Allotment A/c (Money received on 12,000 shares @ Rs. 40 per share on allotment)		4,80,000	 4,80,000
	Share First Call A/c Dr. To Share Capital A/c (Money due on 12,000 shares @ Rs. 20 per share on first Call)		2,40,000	 2,40,000
	Alternative-1 [Call in arrear not open] Bank A/c Dr. To Share First Call A/c (First Call money received except for 100 shares)		 2,38,000	 2,38,000
	Alternative-2 [Call in arrear open] Bank A/c Dr. Call in Arrear To Share First Call A/c		 2,38,000 2,000	 2,40,000
	Share Second and Final Call A/c Dr. To Share Capital A/c (Money due on 12,000 shares @ Rs. 10 per share on Second and final Call)		1,20,000	 1,20,000
	Alternative-1 [Call in arrear not open] Bank A/c Dr. To Share Second and Final Call A/c (Second and final call money received except for 100 shares)		 1,19,000	 1,19,000
	Alternative-2 [Call in arrear open] Bank A/c Dr. Call in Arrear To Share Second and First Call A/c		 1,19,000 1,000	 1,20,000

Practice Question:

A limited company was incorporated with an authorised capital of Rs. 40,000 divided into shares of Rs. 10 each. It offered to the public for subscription of 3,000 shares payable as follows:

On Application Rs. 3 per share

On Allotment Rs. 2 per share

On First Call (One month after allotment) Rs. 2.50 per share

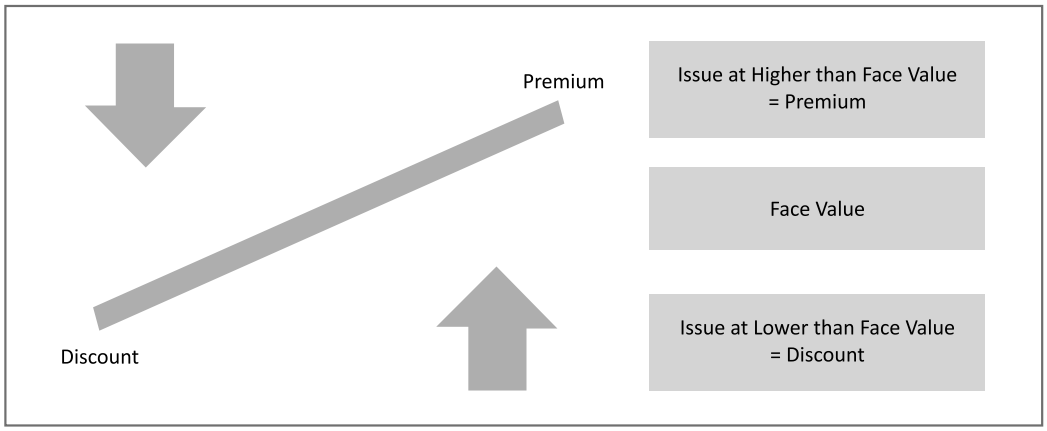
On Second and Final Call Rs. 2.50 per share

The shares were fully subscribed for by the public and application money duly received. The directors made the allotment. The Calls were paid by the shareholder. Pass necessary journal entries.

B. ISSUE OF SHARES AT PREMIUM

It is quite common for the shares of financially strong and well-managed companies to be issued at a premium, i.e. at an amount more than the nominal or par value of shares. Thus, when a share of the nominal value of Rs. 100 is issued at Rs. 105, it is said to have been issued at a premium of 5 per cent.

When the issue of shares is at a premium, the amount of premium may technically be called at any stage of the issue of shares. However, premium is generally called with the amount due on allotment, sometimes with the application money and rarely with the call money. The premium amount is credited to a separate account called 'Securities Premium Account' and is shown under the title 'Equity and Liabilities' of the company's balance sheet under the head 'Reserves and Surpluses'.



The premium on issue of shares is not to be treated as revenue profits. In fact it is considered as capital receipt. As per the Companies Act, 2013, when a company issues shares at a premium, whether for cash or otherwise, a sum equal to the aggregate amount of the premium collected on shares must be credited to a separate account called "Securities Premium Account". There are no restrictions in the Companies Act on the issue of shares at a premium, but there are certain restrictions at the time of its disposal. "Securities Premium Account" can be used only for the following five purposes:

(a) towards the issue of unissued shares of the company to the members of the company as fully paid bonus shares;

(b) in writing off the preliminary expenses of the company;

(c) in writing off the expenses of, or the commission paid or discount allowed on, any issue of shares or debentures of the company;

(d) in providing for the premium payable on the redemption of any redeemable preference shares or of any debentures of the company; or

(e) for the purchase of its own shares or other securities under section 68.

Disclosure

The Securities Premium Account must be shown as "Securities premium reserves" separately on the liabilities side of the balance sheet under the head "Reserves & Surplus".

It is to be noted here that utilization of the amount of Securities Premium Account except in any of the modes specified above, will attract the provisions relating to the reduction of share capital of a company under the Section 66 of the Companies Act, 2013.

Note: The premium is usually payable with the installment due on allotment. However, some companies may charge premium with share application money or partly with share application money and partly at the time of allotment of shares. It may be included in call money also.

Accounting treatment of the issue of Shares at Premium

Journal Entry

When allotment money becomes due:

Share Allotment A/c Dr. (with the money due on allotment including premium)

To Securities Premium A/c (with the premium amount)

To Share Capital A/c (with the share allotment amount)

(Being allotment money due on shares issued at premium)

Illustration 2

Jupiter Company Limited issued 35,000 equity shares of Rs. 10 each at a premium of Rs.2 payable as follows:

On Application Rs. 3

On Allotment Rs. 5 (including premium)

Balance on First and Final Call

The issue was fully subscribed. All the money was duly received. Record journal entries in the books of the Company.

Solution:

Books of Jupiter Company Limited

Journal Entry

Date	*Particulars*	*L.F.*	*Debit Amount (Rs.)*	*Credit Amount (Rs.)*
	Bank A/c Dr. To Equity Share Application A/c (Money received on applications for 35,000 shares @ Rs. 3 per share)		1,05,000	 1,05,000
	Equity Share Application A/c Dr. To Equity Share Capital A/c (Transfer of application money on allotment to share capital)		1,05,000	 1,05,000
	Equity Share Allotment A/c Dr. To Equity Share Capital A/c To Securities Premium A/c (Amount due on allotment of 35,000 shares @ Rs. 5 per share including premium)		1,75,000	 1,05,000 70,000

	Bank A/c Dr. To Equity Share Allotment A/c (Money received including premium)		1,75,000	 1,75,000
	Equity Share First and Final Call A/c Dr. To Equity Share Capital A/c (Amount due on First and Final Call of Rs. 4 per share on 35,000 shares)		1,40,000	 1,40,000
	Bank A/c Dr. To Equity Share First and Final Call A/c (Money received on First and Final Call)		1,40,000	 1,40,000

C. ISSUE OF SHARES AT DISCOUNT

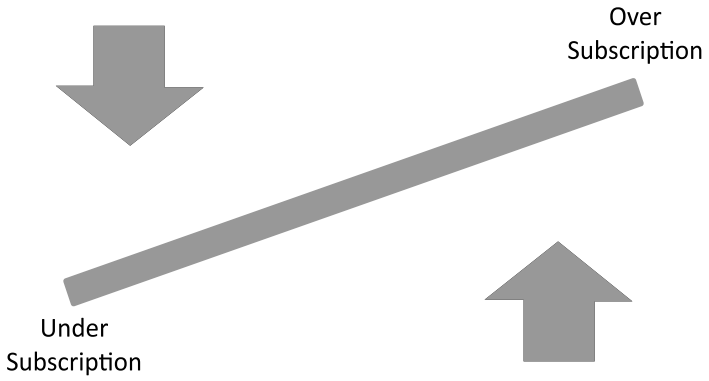
When the issue price of a share is less than its face value, it is said to have been issued at a discount. For example, if a company issues shares of Rs. 10 each at Rs. 9 each, the shares are said to be issued at a discount. The amount of discount would be to Rs. 1 per share (i.e. Rs. 10 – Rs. 9) in this case. Discount on shares is a loss to the company.

Prohibition on the issue of Shares on Discount: As per Section 53 of Companies Act, 2013, a company shall not issue shares at a discount except as provided in Section 54 for issue of sweat equity shares. Any share issued by a company at a discounted price shall be void.

Further Section 53(3) of Companies Act, 2013 mentions of the penalty provisions which reads as: Where any company fails to comply with the provisions of this section, such company and every officer who is in default shall be liable to a penalty which may extend to an amount equal to the amount raised through the issue of shares at a discount or five lakh rupees, whichever is less, and the company shall also be liable to refund all monies received with interest at the rate of 12% per annum from the date of issue of such shares to the persons to whom such shares have been issued.

SUBSCRIPTION

Minimum Subscription– It is the minimum amount which has been mentioned in the prospectus that must be subscribed by the public before an allotment of any security can be made. Any company does not receive application equal to the number of shares offered for subscription and there may be either of the following two situations:



Under Subscription	*Over Subscription*
The issue is said to have been under subscribed when the company receives applications for less number of shares than offered to the public for subscription. In this case company does not face any problem regarding allotment since every applicant will be allotted the shares applied for, and the company can proceed with allotment provided the minimum subscription for shares is met.	In case a company receives applications for more number of shares than the number of shares offered to the public for subscription, it is a case of over subscription. A company cannot allot more shares than what it has offered.

In case of over subscription company has the following options:

Option I

(i) Rejection of Excess Applications and Money Returned

The company may reject the applications for shares which are received in excess of the shares offered and a letter of rejection is sent to such applicants. In this case the application money received from these applicants is refunded to them in full.

The journal entry is as follows:

Journal Entry

Share Application A/c Dr. (with Excess application money)

To Bank A/c

(Application money on ... shares refunded to the applicants)

(ii) Excess application money adjusted towards sums due on allotment

Journal Entry

Share Application A/c Dr. (with Excess application money)

To Share Allotment A/c

(Excess application money adjusted towards sums due on allotment)

If the application money received on partially accepted applications is more than the amount required for adjustment towards allotment money, the excess money is refunded. However, if the Articles of the company so authorise, the directors may retain the excess money as calls in advance to be adjusted against the call/calls falling due at a later date. The consent of the applicant has to be taken either by a separate letter or by inserting a clause in the company's prospectus.

The company can retain the calls in advance at maximum to the amount as is sufficient to make the allotted shares fully paid up ultimately. The following entry is made:

Journal Entry

Share Application A/c Dr. (with Excess application money left over the amount due on application and allotment)

To Call-in-advance A/c

(The adjustment of excess share application money retained as call-in advance in respect of ... shares)

Option II

Partial acceptance of Applications (Pro-rata acceptance):

In some cases, the company accepts the applications for subscription partially. It means that the company does not allot the full number of shares that are applied for. The shares are accepted in a ratio, as determined, this is known as pro-rata acceptance.

For example, if an applicant has applied for 5000 shares and is allotted only 2000 shares, then his application is said to has been partially accepted. The company may evolve some formula of accepting applications partially or making proportionate allotment/ the Pro-rata allotment means that the applicants are allotted shares proportionately such that no applicant is refused of shares and no applicant allotted shares in full.

In such a case, the company adjusts the excess share money received on application towards share allotment money due on partially accepted applications.

The journal entry recording the adjustment of application money towards share allotment money, is as under:

Journal Entry

Share Application A/c Dr. (with Excess application money)

To Share Capital Account

(Share application money transferred to Share Allotment Account in respect of ... shares)

CALLS-IN-ADVANCE

Sometimes shareholders pay a part or the whole of the amount of the calls not yet made. The amount so received from the shareholders is known as "Calls in Advance". The amount received in advance is a liability of the company and should be credited to 'Call in Advance Account." The amount received will be adjusted towards the payment of calls as and when they becomes due. Table F of the Companies Act provides for the payment of interest on calls in advance at a rate not exceeding 12% per annum.

It is to be noted that no dividend can be paid on calls-in-advance.

Accounting Treatment

(i) On receipt of call money in advance:

Bank A/c Dr. (with the amount of call money received in advance)

To Call-in-Advance A/c

(Being the calls received in advance)

(ii) As and when calls are made:

Calls-in-Advance A/c Dr. (with the amount adjusted on relevant call becoming due)

To Relevant Call A/c

(iii) If Interest on Calls-in-Advance is paid in cash -

Interest on Calls-in-Advance A/c Dr. (with the amount of interest paid)

To Bank A/c

(Interest on Calls-in-Advance paid @ % p.a. on Rs...for...

(iv) If interest on Calls-in-Advance is not paid in cash - months)

Interest on Calls-in-Advance A/c Dr. (with the amount of interest payable)

To Sundry Shareholders A/c

(v) At the end of the year, when interest on Calls-in-Advance is transferred to Profit and Loss A/c -

Profit and Loss A/c Dr. (with the amount of interest)

To Interest on Calls-in-Advance A/c

Disclosure Treatment: The money received on calls-in-advance does not become part of the share capital. It is shown under a separate heading, namely 'calls-in-advance' on the liabilities side of the Balance Sheet. Further, the liability to sundry shareholders is to be treated as outstanding liability and should be shown under the head "Current Liabilities" in the balance sheet.

CALLS-IN-ARREAR

It may happen that shareholders do not pay the call amount on due date. When any shareholder fails to pay the amount due on allotment or on any of the calls, such amount is known as 'Calls in Arrears'/'Unpaid Calls'.

Interest on Calls-in-Arrear The interest is recoverable according to the provisions in this regard in Articles of the company. But if the Articles are silent, Table 'F' of Schedule I of the Companies Act, 2013, shall be applicable which prescribes that if a sum called in respect of shares is not paid before or on the day appointed for payment, the person who failed to pay shall pay thereof from the day appointed for payment to the time of actual payment at a rate not exceeding 10% per annum. However, the Directors have the right to waive the payment of interest on Calls-in- Arrear. The interest on Calls-on-Arrear Account is transferred to the Profit and Loss Account at the end of the year.

Journal Entries

(i) When call money is in arrear:

Calls-in-Arrear A/c Dr. (with the amount failed by the shareholders)

To Relevant Call A/c

(ii) Intent on Call-in-Arrear

Shareholder A/c Dr.

To Intent on Call-in-Arrear

(iii) On receipt of amount of Calls-in-Arrear with interest, on a subsequent date:

Bank A/c Dr. (with the amount received)

To Calls-in-Arrears A/c

To Shareholder A/c

(Being Amount due on allotment/ call remaining unpaid now received on.....)

ISSUE OF SHARES FOR CONSIDERATION OTHER THAN CASH

There are instances where a company enters into an arrangement with the vendors from whom it has purchased assets, whereby the latter agrees to accept, the payment in the form of fully paid shares of the company issued to them. Normally, no such cash is received for issue of shares. These shares can also be issued either at par, at premium or at discount, and the number of shares to be issued will depend upon the price at which the shares are issued and the amount payable to the vendor.

Case 1: In some cases, shares are issued to the promoters of the company in lieu of the services provided by them during the incorporation of the company. This would generate good will.

Journal Entries

(i) During incorporation of Company

Goodwill A/c	Dr.	(with the fair value of services, as agreed)
To Share Capital A/c		

Case 2: In case a company does not have sufficient funds for the purchase of fixed assets or for payment to creditors, it may offer and allot its shares to vendors/ creditors in lieu of cash. Such shares may be issued by the vendors either (i) at par, or (ii) at a premium.

Journal Entries

(i) When assets are acquired from the vendors -

Sundry Assets A/c (individually)	Dr.	(with the purchase price payable for the assets acquired)
To Vendors A/c		

(ii) When fully paid shares are issued to vendors at par -

Vendors A/c	Dr.	(with the nominal value of the shares allotted)
To Share Capital A/c		

(iii) When fully paid shares are issued to vendors at a premium -

Vendors	Dr.	(with the purchase price)
To Share Capital A/c		(with the nominal value of the shares allotted)
To Securities Premium A/c		(with the amount of premium)

Case 3: Shares are also issued/ exchanged during a business purchase or merger of the companies. In such a situation, following entries are to be passed:

Journal Entries

(i) When purchase consideration is more than net assets acquired -

Sundry Assets A/c (individually)	Dr.	(at agreed purchase price)
Goodwill A/c (B/F)	Dr.	(at purchase price less net assets acquired)
To Sundry Liabilities A/c		
To Vendor A/c		

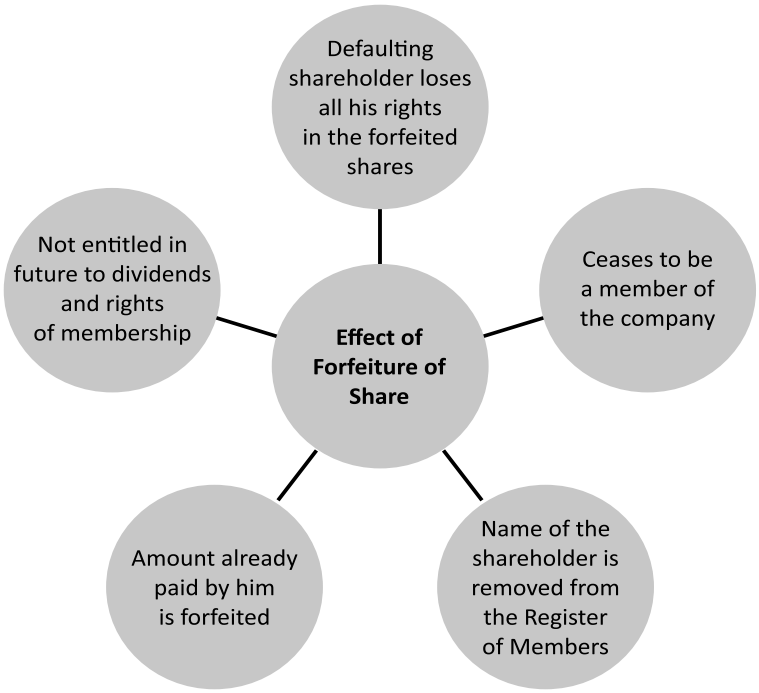
(ii) When purchase consideration is less than net assets acquired -

Sundry Assets A/c (individually)	Dr.	(at agreed price) To Sundry Liabilities A/c
To Vendor		(at agreed price)
To Capital Reserve (B/F)		(at difference of Purchase price &net assets acquired)

FORFEITURE OF SHARES

Meaning: In case where a shareholder fails to pay the allotment money and/or calls made on him, his shares are liable to be forfeited. Forfeiture of shares may be said to be the compulsory termination of his membership by way of penalty for non-payment of allotment and/or any call money. Articles of Association of the Company provide the authority to forfeit shares to the Board of Directors.

Illustration: S.K. Ltd. issued 100000 shares of Rs. 10 each payable as Rs. 2 on application, Rs. 2 on allotment, Rs. 3 on first call and Rs. 3 on second and final call. Mr. Harish, the allottee of 100 shares, fails to pay the second and final call money made by the company. In this case if the Board of Directors decides to forfeit his shares, his membership will be cancelled and the amount of Rs 700 paid by him (on 100 shares Rs. 2 on application, Rs. 2 on allotment and Rs.3 on first call per share) will be forfeited. Now Mr. Harish will no longer be the member of the company and the issued capital of the company will be reduced by Rs. 1000.



Procedure for Forfeiture of Shares

The Board has to give at least 14 days' notice to the defaulting members calling upon them to pay outstanding amount, with or without interest as the case may be, before the specified date.

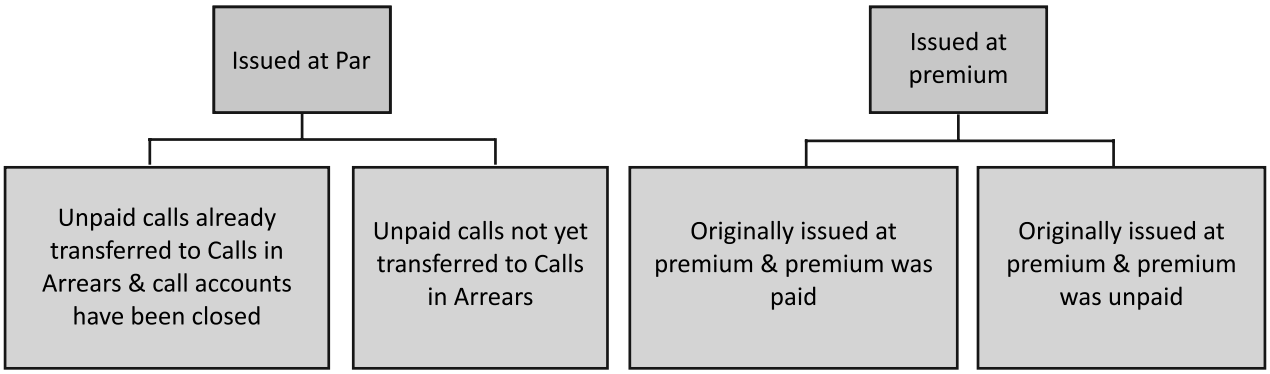
The notice must also state that if the shareholders fail to remit the amount mentioned therein within the stipulated period, their shares will be forfeited.

If they still fail to pay the amount within the specified period of time, the Board of Directors of the company may decide to forfeit such shares by passing a resolution.

The decision regarding the forfeiture of shares should be communicated to the concerned allottees.

Disclosure: Forfeited shares account is to be shown in the balance sheet by way of addition to the paid-upshare capital on the 'liabilities' side, until the concerned shares are reissued.

Accounting Treatment for Forfeiture of Share



A. Forfeiture of Shares issued at par

The forfeiture of shares can be recorded in following two ways:

1. Where the unpaid calls have already been transferred to Calls-in Arrear A/c and the respective call accounts have been closed:

Share Capital A/c	Dr.	(with the amount of called up value of shares forfeited i.e. no. of shares forfeited x the called up value per share.)
To Shares Forfeited A/c		(with the amount already paid-up by the shareholders on the shares forfeited.)
To Calls-in-Arrear A/c		(with the amount of unpaid calls.) OR

2. Where the unpaid calls have not been transferred to Calls-in-Arrear A/c and the respective call accounts are showing balances representing unpaid amounts:

Share Capital A/c	Dr.	(with the amount of called up value of shares forfeited i.e., no. of shares forfeited x the called up value per share.)
To Shares Forfeited A/c		(with the amount already paid up by the shareholders on the shares forfeited.)
To Share Allotment A/c		(with the amount failed on allotment, if any.)
To Share First Call A/c		(with the amount failed on first call, if any.)
To Share Final Call A/c		(with the amount failed on final call, if any.)

B. Forfeiture of Shares Issued at Premium

Case 1: Where shares to be forfeited were issued at a premium and the premium money remained unpaid: In such a case, the credit already given to the 'Securities Premium A/c' will be cancelled at the time of forfeiture of the shares by debiting the "Securities Premium A/c".

Journal Entries

Share Capital A/c	Dr.	with the amount of called up value of shares forfeited, i.e., no. of shares forfeited x called up value per share. (excluding premium).
Securities Premium A/c	Dr.	(with the amount of premium money remaining unpaid on shares forfeited.)
To Shares Forfeited A/c		(with the amount already paid by theshareholders on the shares forfeited.)
To Calls-in-Arrear A/c		(with the amount unpaid on calls.)
OR		
Share Capital A/c	Dr.	with the amount of called up value of shares for feited, i.e. no. of shares forfeited x called up value per share. (excluding premium).
Securities Premium A/c	Dr.	(with the amount of premium money remainingunpaid on shares forfeited.)
To Shares Forfeited A/c		(with the amount already paid by theshareholders on the shares forfeited.)
To Share Allotment A/c		(with the amount failed on allotment, if any.)
To Share First Call A/c		(with the amount failed on first call, if any.)
To Share Final Call A/c		(with the amount failed on final call, if any.)

Case 2: Where shares to be forfeited were issued at a premium and the premium money was duly received for the shares to be forfeited: If the amount of premium on shares forfeited has been received by the company prior to the forfeiture, Securities Premium Account shall not be affected. In this case, Securities Premium Account is already credited at the time of making the call and will not be cancelled when the shares are forfeited. In such a case, the accounting entry on forfeiture will be the same as the one passed in case of shares issued at par.

Journal Entry

Share Capital A/c	Dr.	(with the amount of called up value of shares forfeited i.e. no. of shares forfeited x the called up value per share.)
To Shares Forfeited A/c		(with the amount already paid-up by the shareholders on the shares forfeited.)
To Calls-in-Arrear A/c		(with the amount of unpaid calls.)

Illustration 3:

M/s Herbal Tea Plantations Ltd. was registered with a capital of Rs 1 crore divided into equity shares of Rs 100 each. The company offered to public 50000 shares at a premium of Rs 20 per share. The amount on shares was payable as:

- Rs 25 on application
- Rs 50 (including Rs 20 premium) on allotment
- Rs 20 on first call and Rs 25 on final call.

Applications were received for 75000 shares. Shares were alloted to the applicants on prorata basis. Kanti Bhai who was allotted 500 shares did not pay the allotment money. He also failed to pay the first call. His shares were forfeited. Sheetal was holding 200 shares did not pay the first call. Final call was not made.

Make journal entries in the books of the company.

Solution:

M/s Herbal Tea Plantations Ltd.

Journal

Date	*Particulars*	*Amount (Dr.)*	*Amount (Cr.)*
1	Bank A/c Dr.	18,75,000	
	To Share Application A/c		18,75,000
	(Being application money received on 75000 shares @Rs 25 per share)		
2	Share Application A/c Dr.	18,75,000	
	To Share Capital A/c		12,50,000
	To Share Allotment A/c		6,25,000
	(Application money of 50000 share transferred to share Capital A/c on their allotment and remaining adjusted towards shares allotment)		
3	Share Allotment A/c Dr.	25,00,000	
	To Share Capital A/c		15,00,000
	To Securities premium A/c		10,00,000
	(Allotment money due including premium)		
4	Bank A/c Dr.	18,56,250	
	Call in Arrear A/c Dr.	18,750	
	To Share Allotment A/c		18,75,000
	(Allotment money received)		

5	Share First Call A/c Dr.	10,00,000	
	To Share Capital A/c (First Call money due)		10,00,000
6	Bank A/c Dr.	9,86,000	
	Calls-in-Arrears Dr	4,000	
	To Share First Call A/c		9,90,000
	(First call money received of 49300 shares, and of 200 shares debited to Calls in Arrears)		
7	Share capital A/c Dr.	37,500	
	Securities premium A/c Dr.	10,000	
	To Call in Arrear A/c		28,750
	To Share Forfeited A/c		18,750
	(Forfeiture of 500 shares on non- payment of allotment and call money)		

Working Notes:

Shares applied for 75,000; Share Allotted 50,000 Ratio = 3 : 2

Kanti Bhai Number of shares holding = 500 Number of shares applied= 750

Excess application money received = 250 × 25 = Rs. 6,250 Share allotment money due = 500 × Rs. 50 = 25,000
Net Amount due after adjustment of excess application money= Rs. 25,000 – Rs. 6,250 = Rs. 18,750

Total allotment money due =	Rs. 25,00,000
Less excess application money adjusted	(Rs. 625,000)
Less Kanti Bhai's amount due on allotment	(Rs. 18,750)
Net Amount Received	**Rs. 18,56,250**

Illustration 4

Ganga Limited issued 10,000 equity shares of 100 each payable as follows: Rs. 20 on application, Rs. 30 on allotment, Rs. 20 on first call and Rs. 30 on second and final calls 10,000 shares were applied for and allotted.

All money due was received with the exception of both calls on 300 shares held by Supriya. These shares were forfeited. Give necessary journal entries relating to Forfeiture of Shares.

Solution:

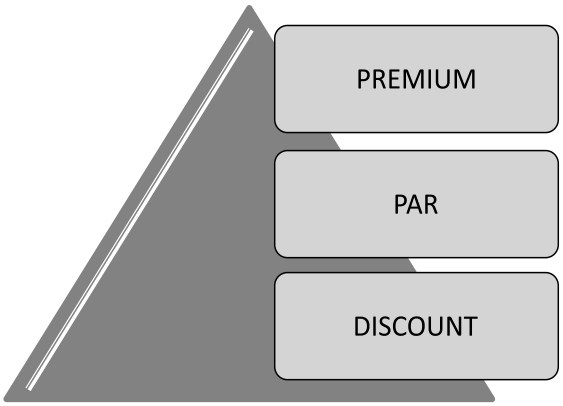
Books of Ganga Limited

Journal Entries

Date	*Particulars*		*Amount (Dr.)*	*Amount (Cr.)*
1	Alternative-1 [Call in Arrear not open]			
	Share Capital A/c	Dr.	30,000	
	To Equity Share First Call A/c			6,000
	To Equity Share Second and Final Call A/c			9,000
	To Share Forfeiture A/c			15,000
	(300 shares forfeited)			
2	Alternative-2 [Call in Arrear open]			
	Share Capital A/c	Dr.	30,000	
	To Call in Arrear			15,000
	To Share Forfeiture A/c			15,000
	(300 shares forfeited)			

REISSUE OF FORFEITED SHARES

The board of directors can either cancel or re-issue the forefeited shares. In most cases, they reissue such shares which may be at par, at premium or at a discount. Forfeited shares may be reissued as fully paid at a par, premium, discount. In this context, it may be noted that the amount of discount allowed cannot exceed the amount that had been received on forfeited shares at the time of initial issue, and that the discount allowed on reissue of forfeited shares should be debited to the 'Forfeited Share Account'. The balance, if any, left in the Share-Forfeited Account relating to reissued Shares, should be treated as capital profit and transferred to Capital Reserve Account.



RE-ISSUE OF FORFEITED SHARES - AT PAR: In one of the cases, forfeited shares can be re-issued at par. In such a case, the entire amount standing to the credit of Shares Forfeited Account for those shares would be treated as net gain and transferred to Capital Reserve Account.

Journal entries

1. On re-issue of shares:

Bank A/c	Dr.	(with the amount received on reissue i.e. no. of shares re-issued x amount received per share.)
To Share Capital A/c		

2. On transfer of Shares Forfeited Account to Capital Reserve Account:

Shares Forfeited A/c	Dr.	(with the forfeited amount on shares re-issued.)
To Capital Reserve A/c		

RE-ISSUE OF FORFEITED SHARES - AT A PREMIUM

If forfeited shares are re-issued at a premium, the amount of such premium should be credited to Securities Premium Account. Also, in such a case, the entire amount standing to the credit of Shares Forfeited Account would be treated as net gain and transferred to Capital Reserve Account.

Journal entries

1. On Re-issue of shares:

Bank A/c	Dr.	(with the total amount received on re-issue.)
To Share Capital A/c		(with nominal value or paid-up value of shares.)
To Securities Premium A/c		(with the premium amount received.)

2. On transfer of Shares Forfeited A/c to Capital Reserve A/c:

Shares Forfeited A/c	Dr.	(with the forfeited amount on shares re-issued)
To Capital Reserve A/c		

Note: There may arise a situation when only part of shares forfeited be re-issued. In such a case, only the respective proportionate amount which represents the net gain on shares that are re-issued shall be transferred to the Capital Reserve Account and the remaining amount (balance) which represents the amount that is received on the forfeited shares, not yet re-issued, must be left in Shares Forfeited Account itself.

Disclosure: This amount is disclosed as addition to the paid up share capital on liabilities side of the balance sheet.

Forfeiture and Re-issue of Shares Allotted on Pro-rata Basis in Case of Over-subscription

In case where the shares of a Company are oversubscribed, it is not possible for the company to satisfy the demand of all the applicants. In such a case allotment may be made on a pro-rata basis, i.e., proportionately.

If such shares are subsequently forfeited for non-payment of allotment money and/or call money, the entries shall remain the same, but it may involve some difficulty in calculation. In such a case, it is to be noted carefully that if there is any excess amount received along with the application and it is adjusted against the allotment money which is failed by the shareholder, such amount should be deducted from the amount due on allotment to arrive at the net amount defaulted by the shareholder.

Example: Company A allots 10,000 shares on pro-rata basis among the applicants for 12,000 shares. In this case, the ratio between allotment of shares and application for shares will be 10,000: 12,000 or 5: 6, i.e., those applying for every 6 shares will be allotted 5 shares. If shares are allotted on pro-rata basis, the excess application money received on shares allotted will be retained by the company and may be adjusted subsequently against allotment money and/or call money.

Illustration 5:

Arjun & Co. Ltd. issued a prospectus offering 2,00,000 shares of Rs.10 each on the following terms : On Application Rs. 1 per share

On Allotment Rs.3 per share (including premium of Rs. 2)

On First Call (three months after allotment) Rs.4 per share

On Second Call (three months after first call) Rs.4 per share

Subscriptions were received for 3,17,000 shares on 3rd April and the allotment was made on 30th April as under :

Shares Allotted

(i)	Allotment in full (two applicants paid in full on allotment In respect of 4,000 shares each)	38,000
(ii)	Allotment of two-thirds of shares applied for	1,60,000
(iii)	Allotment of one-fourth of shares applied for	2,000

Cash amounting to Rs. 31,000 (being application money received with applications for 31,000 shares upon which no allotments were made) was returned to the applicants on 5th May. The amounts due were received on the due dates with the exception of the final call on 100 shares. These Shares were forfeited on 15th November and re-issued to Aayan on the 16th November for payment of Rs.9 per share.

Show the Journal

Solution:

Journal

Date	*Particulars*		*Amount(Dr.)*	*Amount(Cr.)*
April 30	Share Application Account	Dr.	2,86,000	
	To Share Capital Account			2,00,000
	To Share Allotment Account			86,000
	(Being application money transferred to Share Capital Account on allotment of 2,00,000 shares and excess application money on 86,000 shares @ Rs. 1 per share utilized towards allotment)			
" 30	Share Allotment Account	Dr.	6,00,000	
	To Share Capital Account			2,00,000
	To Securities Premium Account			4,00,000
	(Being allotment money due on 2,00,000 shares @ Rs.3 per share including Rs.2 per share)			
July 31	Share first Call Account	Dr.	8,00,000	
	To Share Capital Account			8,00,000
	(Being amount due in respect of first call on 2,00,000 shares @ Rs.4 per share)			

July 31	Calls-in-Advance Account To Share First Call Account (Being first call money received on 8,000 shares @ Rs. 4 per share received in advance is debited to the Calls-in-Advance Account)	Dr.	32,000	 32,000
Oct 31	Share Second and final Call Account To Share Capital Account (Being amount due in respect of second and final call on 2,00,000 shares @ Rs.4 per share)	Dr.	8,00,000	 8,00,000
Oct 31	Calls-in-Advance Account To Share Second and Final Call Account (Being second call money received on 8,000 shares @ Rs. 4 per share received in advance is debited to the Calls-in-Advance Account)	Dr.	32,000	 32,000
Nov. 15	Share Capital Account To Share Second and final Call Account To Share Forfeited Account (Being forfeiture of 100 shares for non-payment of second and final call)	Dr.	1,000	 400 600
Nov. 16	Share Forfeited Account To Share Capital Account To Capital Reserve Account (Being discount allowed on re-issue of 100 forfeited shares @ Rs. 1 per share and profit on re-issue transferred to Capital Reserve Account)	Dr.	600	 100 500

Working notes:

Analysis of Application Money Received

Shares Applied	***Shares Allotted***	***Amount Received@ Rs.1 per share***	***Application Money***	***Adjusted as Allotment Money***	***Money Returnedto Applicants***
		Rs.	***Rs.***	***Rs.***	***Rs.***
38,000	38,000	38,000	38,000	-	-
2,40,000(160000 * 3/2)	1,60,000	2,40,000	1,60,000	80,000	-
8,000(2,000 * 4/1)	2,000	8,000	2,000	6,000	
(2,000 * 3)	-				
31,000	Nil	31,000	Nil	-	31,000
3,17,000	2,00,000	3,17,000	2,00,000	86,000	31,000

Illustration 6:

The board of director of Poly Plastic Limited resolved that 200 equity shares of Rs.100 each be forfeited for non-payment of the second and final call of Rs.30 per share. Out of these, 150 shares were re-issued at Rs.60 per share to Mohit. Show the necessary journal entries.

Solution:

Books of Poly Plastic Limited

Journal Entries

Date	*Particulars*		*Amount (Dr.)*	*Amount (Cr.)*
	Share Capital A/c Dr.		20,000	
	To Share Second and Final Call A/c / Call in Arrear			6,000
	To Shares Forfeiture A/c			14,000
	(200 shares forfeited for non-payment of final call at Rs.30 per share)			
	Bank A/c Dr.		9,000	
	Shares Forfeiture A/c Dr.		6,000	
	To Share Capital A/c			15,000
	(Reissue of 150 shares of Rs.100 each, issued as fully paid for Rs.60 each)			
	Shares Forfeiture A/c Dr.		4,500	
	To Capital Reserve A/c			4,500
	(Profit on reissue of 150 forfeited shares transferred to capital reserve)			

Working Notes:

Total amount forfeited on 200 shares = 14,000 (200 shares × Rs. 70)

Amount forfeited on 150 shares = 10,500 (150 shares × Rs. 70)

Amount of loss on reissue of 150 shares = 6,000 (150 shares × Rs. 40)

Amount of profit on reissued shares transferred to capital reserve = 4,500 (Rs. 10,500 – Rs. 6,000)

Amount forfeited on 50 shares = 3,500 (50 shares × Rs. 70)

Balance left in share forfeited account = 3,500 (Rs.14,000 – Rs. 6,000– Rs. 4,500)

(equal to amount forfeited on 50 shares)

BUY-BACK OF SHARES

Buy-Back of Shares means the purchase of its own shares by the Company. It is kind of a corporate financial strategy and is an imperative mode of capital restructuring. It is a practice which is prevalent globally with the underlying objectives of increasing Earnings per Share, averting hostile takeovers, improving returns to the stakeholders and realigning the capital structure.

Buy-Back is an alternative way of Reduction of Share Capital. When a company has substantial cash resources, it may like to buy its own shares from the market particularly when the prevailing rate of its shares in the market is much lower than the book value or what the company perceives to be its true value. Buy back of shares enables the company to go back to its shareholders and off to purchase from them the shares that they hold.

Free Reserves: 'Reserves which, as per latest audited Balance Sheet of the company are free for distribution as dividend and shall include balance to the credit of Security Premium A/c but shall not include Share Application Money'.

Advantages of Buy Back:

I. To improve the earnings per share;

II. To improve return on capital, return on net worth and to enhance the long-term value for shareholders;

III. To provide an additional exit route to shareholders when shares are undervalued or thinly traded;

IV. It is an alternative mode of reduction in capital without requiring approval of the Court/CLB (NCLT),

V. To enhance consolidation of stake in the company;

VI. To prevent unwelcome takeover bids;

VII. To return surplus cash to shareholders;

VIII. To achieve optimum capital structure;

IX. To support share price during periods of sluggish market conditions;

X. To serve the equity more efficiently.

Example: Improvement in EPS can be explained by below example:

Particulars	***Pre Buy – Back***	***Post Buy – Back***
Profit	100	100
Number of Shares	10	5
EPS	10	20

Further, given below is a table for relevant sections and their applicability:

For Unlisted Public and Private Companies	• Section 68, 69 and 70 of Companies Act, 2013 • Rule 17 of Companies (Share Capital and Debentures) Rules, 2014

For Listed Companies	• Section 68, 69 and 70 of Companies Act, 2013 • Rule 17 of Companies (Share Capital and Debentures) Rules, 2014 • Securities and Exchange Board of India (Buy-back of Securities) Regulations, 1998 and Securities and Exchange Board of India (Buy-back of Securities) (Amendment) Regulations, 2013

Relevant extracts for Sections 68, 69 and 70 of Companies Act, 2013 for Buy-Back of Shares

1. **Purchase can be made out of: According to section 68(1) of the Companies Act 2013, a company may purchase its own shares or other specified securities (referred to as buy-back) out of –**

   (a) its free reserves;

   (b) the securities premium account; or

   (c) the proceeds of the issue of any shares or other specified securities:

   However, no buy-back of any kind of shares or other specified securities shall be made out of the proceeds of an earlier issue of the same kind of shares or same kind of other specified securities.

2. **Preliminary Conditions for buy-back: According to section 68(2), following conditions must be satisfied in order to buy-back the shares:**

   (a) must be authorized by its articles;

   (b) a special resolution has been passed at a general meeting of a company authorizing the buy-back, but

   (c) the same is not required when:

      (i) the buy-back is 10% or less of the total paid-up equity capital and free reserves of the company; and

      (ii) such buy-back has been authorized by the Board by means of a resolution passed at its meeting;

   (d) the buy-back is 25% or less of the aggregate of paid-up capital and free reserves of the company. But in case of Equity Shares, the same shall be taken as 25% of paid up equity capital only;

   (e) debt equity ratio should be 2:1, where debt is the aggregate of secured and unsecured debts owed by the company after buy-back and Equity is the aggregate of the paid-up capital and its free reserves;

   Provided that the Central Government may, by order, notify a higher ratio of the debt to capital and free reserves for a class or classes of companies;

   (f) all the shares or other specified securities for buy-back are fully paid-up;

   (g) if shares or securities are listed, buy-back will be in accordance with the regulations made by the Securities and Exchange Board in this behalf; and

   (h) the buy-back in respect of unlisted shares or other specified securities is in accordance with such Rules as may be prescribed;

(i) no offer of buy-back shall be made within a period of one year from the date of the closure of the preceding offer of buy-back, if any.

3. **Explanatory Statement**

Section 68(3) spells out additional requirements that the notice of the meeting at which the special resolution is proposed to be passed shall be accompanied by an explanatory statement stating -

(a) a full and complete disclosure of all material facts;

(b) the necessity for the buy-back;

(c) the class of shares or securities intended to be purchased under the buy-back;

(d) the amount to be invested under the buy-back; and

(e) the time-limit for completion of buy-back.

As per the rules, following more details are to be included in the Explanatory Statement:

(a) the date of the board meeting at which the proposal for buy-back was approved by the board of directors of the company;

(b) the number of securities that the company proposes to buy-back;

(c) the method to be adopted for the buy-back;

(d) the price at which the buy-back of shares or other securities shall be made;

(e) the basis of arriving at the buy-back price;

(f) the maximum amount to be paid for the buy-back, and the sources of funds from which the buy-back would be financed;

(g) Shareholding:

(i) the aggregate shareholding of the promoters and directors, where the promoter is a company, and of the directors and key managerial personnel as on the date of the notice convening the general meeting;

(ii) the aggregate number of equity shares purchased or sold by persons mentioned in the sub-clause during a period of twelve months preceding the date of the board meeting at which the buy-back was approved and from that date till the date of notice convening the general meeting;

(iii) the maximum and minimum price at which purchases and sales referred to in sub-clause (ii) were made along with the relevant date.

(h) if the persons mentioned in l(i) intend to tender their shares for buy-back -

(i) the quantum of shares proposed to be tendered;

(ii) the details of their transactions and their holdings for the last twelve months prior to the date of the board meeting at which the buy-back was approved including information of number of shares acquired, the price and the date of acquisition.

(i) a confirmation that there are no defaults subsisting in repayment of deposits, interest payment thereon, redemption of debentures or payment of interest thereon, or redemption of preference shares or payment of dividend due to any shareholder, or repayment of any term loans, or interest payable thereon to any financial institution or banking company;

(j) a confirmation:

(i) that the Board of Directors have made a full enquiry into the affairs and prospects of the company and that they have formed the opinion- general meeting is convened that there shall be no grounds on which the company could be found unable to pay its debts;

(ii) that the company's prospect for the year immediately following that date and its financial resources be available to meet its liabilities as and when they fall due, and the company shall not be rendered insolvent within a period of one year from that date; and

(iii) the directors have already taken into account the liabilities(including prospective and contingent liabilities), as if the company were being wound up under the provisions of the Companies Act, 2013.

(k) a report addressed to the Board of Directors by the company's auditors stating that-

(i) they have inquired into the company's state of affairs;

(ii) the amount of permissible capital payment for the securities in question is in their view properly determined;

(iii) that the audited accounts on the basis of which calculation with reference to buy-back is done is not more than six months old from the date of offer document; and

(iv) the Board of Directors have formed the opinion as specified in point 'o' on reasonable grounds and that the company, with regard to its state of affairs, shall not be rendered insolvent within a period of one year from that date.

Transfer of Certain Sums to Capital Redemption Reserves Account [Section 69]

Capital Redemption Reserves: Where a company purchases its own shares out of free reserves or securities premium account, a sum equal to the nominal value of the shares so purchased shall be transferred to the capital redemption reserves account and details of such transfer shall be disclosed in the balance sheet.

Utilization: The capital redemption reserve account may be applied by the company, in paying up unissued shares of the company to be issued to its members as fully paid bonus shares.

Prohibition on Buy-Back in Following Circumstances [Section 70]

Restrictions on Buy-Back: No company shall directly or indirectly purchase its own shares or other specified securities

(a) through any subsidiary company including its own subsidiary companies;

(b) through any investment company or group of investment companies; or

(c) through a default made by the company in the repayment of deposits accepted either before or after the commencement of this Act, interest payment thereon, redemption of debentures or preference shares or payment of dividend to any shareholder, or repayment of any term loan or interest payable thereon to any financial institution or banking company, provided that the buy-back is not prohibited, if the default is remedied and a period of three years has lapsed after such default ceased to subsist.

Prohibitions: No company shall, directly or indirectly, purchase its own shares or other specified securities in case such company has not complied with the provisions of:

- Section 92: Annual Return
- Section 123: Declaration and Payment of Dividend
- Section 127: Failure to pay Dividend
- Section 129: Failure to give True and Fair Statement

Companies (Share Capital and Debentures) Rules, 2014 for Buy-Back

Rule 17: Buy-back of shares or other securities:

Unless stated otherwise, the following norms shall be complied with by the Private companies and Unlisted public companies for buy-back of their securities.

- Information disclosure in Explanatory Statement to be annexed with Special Resolution and Notice of General Meeting
- File letter of offer with ROC in Form SH-8
- File declaration of solvency in Form SH-9 along with Form SH-8
- Circulate among the shareholders in 20 days from filing with ROC
- Offer period between 15-30 days from the date of circulation
- Acceptance on proportionate basis
- Verification by the company
- Opening of separate bank account
- Make payment or return share certificates
- Other restrictions
- Maintain register of buy-back in Form SH-10
- File return of buy-back in Form SH-11
- File compliance certificate in Form SH-15 along with Form SH-11

Accounting Entries

1. In case investments are sold for buying back own shares

Bank A/c	Dr.	
To Investment A/c		

2. In case the proceeds of fresh issues are used for buy-back purpose

Bank A/c	Dr.	
To debentures/other Investment A/c		
To Securities Premium A/c (if any)		

3. For Buying back of shares:

Equity Shareholders A/c	Dr.	
To Bank A/c (With the amount paid)		

4. For cancellation of shares bought back:

Equity Share Capital A/c	Dr.	(with the nominal value of shares bought back)
Free reserves/Securities Premium A/c	Dr.	(with the excess amount/premium paid over nominal value)
To Equity Shareholders A/c		(with the amount payable)

5. In case the shares are bought back at discount:

Equity Share Capital A/c	Dr.	(with the nominal value)
To Equity shareholders A/c		(with the amount paid)
To Capital Reserves A/c		(with the amount of discount on buy-back)

6. For transfer of nominal value of shares purchased out of free reserves/securities premium to Capital Redemption Reserves Account:

Free Reserves A/c	Dr.	(with the amount transferred)
Securities Premium A/c	Dr.	(with the amount transferred)
To Capital Redemption Reserves A/c		(with the nominal value of shares bought back)

7. For expenses incurred in buy-back of shares:

Buy-back Expenses A/c	Dr.	(with the amount) To Bank A/c
To Bank A/c		

8. For transfer of buy-back expenses:

Profit and Loss A/c	Dr.	
To buy-back Expenses A/c		

Illustration 7:

ALLUWALIA Ltd.

Balance Sheet as at 31st March, 2023

I. EQUITIES AND LIABILITIES		
1. Shareholders' funds		
(a) Share Capital	1	10,00,000
(b) Reserve & Surplus	2	7,05,000
2. Non-Current Liability		
Long-term borrowings		4,00,000
3. Current Liability		
Trade payables	3	60,000
TOTAL		**21,65,000**
II. ASSETS		
1. Non-current assets		
(a) Fixed Assets		
(i) Tangible fixed assets	4	13,30,000
(b) Non-Current Investment		1,50,000
2. Current Assets		
Inventories	1,00,000	
Trade receivables	1,00,000	
Cash and cash equivalents Balance	4,85,000	6,85,000
TOTAL		**21,65,000**
Notes		
1. Share Capital		
Authorized Share Capital		
Issued, Subscribed Called-Up and Paid-Up Share Capital:-		
1,00,000 shares of Rs. 10 each fully paid-up		10,00,000
2. Reserve and Surplus		
Securities Premium	2,00,000	
General Reserve	5,05,000	7,05,000
3. Long-term borrowings		

14% Debentures		4,00,000
4. Tangible Fixed assets		
Land-building	9,30,000	
Plant and machinery	3,50,000	
Furniture and fitting	50,000	13,30,000

On 1st April, 2023 the shareholders of the company have approved the scheme of buy-back of equity shares as under:

(i) 5% of the equity shares would be bought back at Rs 15.

(ii) 12% Debentures to be issued for Rs 10,000 to finance for the buy-back, and balance from the General reserve may be utilized for this purpose.

(iii) Premium paid on buy-back of shares should be met from securities premium account.

(iv) Investments would be sold for Rs 275,000.

Pass journal entries to record the above transactions and prepare the balance sheet of the company immediately after the buy-back of shares.

Solution:

ALLUWALIA Ltd.

Journal Entries

Particulars		*Dr. (Rs)*	*Cr. (Rs)*
Bank A/c	Dr.	275,000	
To Investments A/c			150,000
To Profit and Loss A/c			125,000
(Sale of investments, the profit being transferred to profit and loss account as per shareholder's special resolution)			
Shareholders A/c	Dr.	75,000	
To Bank A/c			75000
(Purchase of 5,000 of own shares @ Rs 15 each)			
Equity Share Capital A/c	Dr.	50,000	
Securities Premium A/c	Dr.	25,000	
To Shareholders A/c			75,000
(Cancellation of 5,000 equity shares bought back, and securities premium utilized as per shareholders' special resolution)			
General Reserve A/c	Dr.	40,000	
To Capital Redemption Reserve A/c			40,000
(Transfer of general reserve utilized to the extent of nominal value of shares bought back)			

Bank A/c	Dr.	10,000	
To 12% Debentures A/c			10,000
(Issue of 12% Debentures to partly finance the buy-back)			

ALLUWALIA Ltd.

Balance Sheet (After Buy-back) as at 1st April, 2023

I. EQUITIES AND LIABILITIES		
1. Shareholders' funds		950,000
(a) Share Capital		
(b) Reserve & Surplus		805,000
2. Non-Current Liability (Long-term borrowings)		410,000
3. Current Liability (Trade payables)		60,000
TOTAL		**22,25,000**
II. ASSETS		
1. Non-current assets		
(a) Fixed assets		
(i) Tangible fixed assets		13,30,000
2. Current Assets (Stock)	1,00,000	
Sundry debtors	1,00,000	
Cash and Cash equivalents	6,95,000	8,95,000
TOTAL		**22,25,000**
Notes		
1. Share Capital		
Authorized Share Capital		
Issued, Subscribed Called Up and Paid-up Share Capital		
95,000 shares of Rs/ 10 each fully paid up		9,50,000
2. Reserve and Surplus		
Securities Premium	1,75,000	
General Reserve	4,65,000	
Capital Redemption Reserve	40,000	
Profit and Loss Account	1,25,000	8,05,000
3. Long-term borrowings		
14% Debentures –	400,000	
12%Debentures-	10,000	4,10,000

Note: The debt-equity ratio of the company after buy-back of shares:

Debt-equity ratio = Debt/ Equity (Capital and free reserves)

= (410000 + 60000) / (950,000 + 175,000 + 465,000 + 125,000)

= 0.274 : 1

The debt equity ratio is within the limit.

ISSUE OF BONUS SHARES [SECTION 63]

A company may issue fully paid up bonus shares to its members, in any manner out of –

- Its free reserves or
- Securities premium account or
- Capital redemption reserve account

However, no issue of bonus shares shall be made by capitalizing reserves created by the revaluation of assets.

No company shall capitalize its profits or reserves for the purpose of issuing fully paid up bonus shares under above, unless –

- it is authorized by its articles;
- it has, on the recommendation of the Board, been authorized in the general meeting of the company;
- it has not defaulted in payment of interest or principal in respect of fixed deposits or debt securities issued by it;
- it has not defaulted in respect of the payment of statutory dues of the employees, such as contribution to provident fund, gratuity and bonus;
- the partly paid up shares, if any outstanding on the date of allotment, are made fully paid up;
- The company which has once announced the decision of its Board recommending a bonus issue, shall not subsequently withdraw the same. [Rule 14 of Companies (Share Capital and Debentures) Rules, 2014]
- Note: The bonus shares shall not be issued in lieu of dividend.

Journal Entries for Issue of Bonus Shares

(A) On capitalization of reserve for the issue of shares

Profit & Loss A/c	Dr.
General Reserve A/c	Dr.
Capital Reserve A/c (realised in cash only)	Dr.
Securities Premium A/c	Dr.
Capital Redemption Reserve A/c	Dr.
To Bonus Shareholders A/c	

(B) On issue of Bonus share

Bonus to Shareholders A/c	Dr.
To Share Capital A/c.	

Note: If some shares are party paid up, first the shares are to be made fully paid up. Journal entries are as follows:

(C) Capitalization of Reserve for Issue of Shares

Profit & Loss A/c	Dr.
General Reserve A/c	Dr.
Capital Reserve Account (realized in cash only)	Dr.
To Bonus Shareholders A/c	

(D) On making the final call due

Share Final Call Account	Dr.
To Share Capital Account	

(E) On adjustment of final call

Bonus Shareholders A/c	Dr.
To Share Final Call A/c	

ISSUE OF SWEAT EQUITY SHARES (SECTION 54)

Sweat equity shares refer to equity shares which are given to the company's employees on favourable terms, in recognition of their work. Sweat equity shares are one of the modes of making share-based payments to employees. Sweat equity shares rewards the beneficiaries by giving them incentives in lieu of their contribution towards development of the company. Further, sweat equity shares facilitate greater employee stakes as well as interest in company's growth and encourages employees to add more value towards the company.

Sweat Equity Shares: As per Section 2(88) of the Companies Act, 2013 "sweat equity shares" means such equity shares as are issued by a company to its directors or employees at a discount or for consideration, other than cash, for providing their know-how or making available rights in the nature of intellectual property rights or value additions, by whatever name called.

"Employee" means- (a) a permanent employee of the company who has been working in India or outside India; or (b) a director of the company, whether a whole time director or not; or (c) an employee or a director as defined in sub-clauses (a) or (b) above of a subsidiary, in India oroutside India, or of a holding company of the company.	'**Value additions' means** actual or anticipated economic benefits derived or to be derived by the company from an expert or a professional for providing know-how or making available rights in the nature of intellectual property rights, by such person to whom sweat equity is being issued for which the consideration is not paid or included in the normal remuneration payable under the contract of employment, in the case of an employee.

Conditions for Issue of Sweat Equity Shares

- The issue is authorized by a special resolution passed by the company;
- The resolution specifies the number of shares, the current market price, consideration, if any, and the class or classes of directors or employees to whom such equity shares are to be issued;
- The special resolution authorizing the issue of sweat equity shares shall be valid for making the allotment within a period of not more than twelve months from the date of passing of the special resolution.
- The sweat equity shares issued to directors or employees shall be locked in/non-transferable for a period of three years from the date of allotment and the fact that the share certificates are under lock-in and the period of expiry of lock-in shall be stamped in bold or mentioned in any other prominent manner on the share certificate.
- Where the equity shares of the company are listed on a recognized stock exchange, the sweat equity shares are issued in accordance with the regulations made by the Securities and Exchange Board in this behalf and if they are not so listed, the sweat equity shares are issued in accordance with the Companies (Share Capital and Debentures) Rules, 2014.

Quantum of Sweat Equity Share

The company shall not issue sweat equity shares for more than fifteen percent of the existing paid up equity share capital in a year or shares of the issue value of rupees five crores, whichever is higher.

Provided that the issuance of sweat equity shares in the company shall not exceed twenty five percent, of the paid up equity capital of the company at any time.

Provided further that a startup company may issue sweat equity shares not exceeding fifty percent of its paid up capital upto five years from the date of its incorporation or registration.

Pricing of Sweat Equity Share

Price determined by a registered valuer as the fair price giving justification for such valuation.

The valuation of intellectual property rights or of know how or value additions for which sweat equity shares are to be issued, shall be carried out by a registered valuer, who shall provide a proper report addressed to the Board of Directors with justification for such valuation.

A copy of gist along with critical elements of the valuation report obtained under clause (1) and clause (2) shall be sent to the shareholders with the notice of the general meeting.

Disclosure in the Directors' report in respect of Sweat Equity Share

the class of director or employee to whom sweat equity shares were issued;

the class of shares issued as Sweat Equity Shares;

the number of sweat equity shares issued to the directors, key managerial personnel or other employees showing separately the number of such shares issued to them, if any, for consideration other than cash and the individual names of allottees holding one percent or more of the issued share capital;

the reasons or justification for the issue;

the principal terms and conditions for the issue of sweat equity shares, including pricing formula;

the total number of shares arising as a result of issuing of sweat equity shares; the percentage of the sweat equity shares of the total post issued and paid up share capital;

the consideration (including consideration other than cash) received or benefit accrued to the company from the issue of sweat equity shares;

the diluted Earnings Per Share (EPS) pursuant to issuance of sweat equity shares.

Accounting Treatment of Sweat Equity Share

(1) Where sweat equity shares are issued for a non-cash consideration on the basis of a valuation report in respect thereof obtained from the registered valuer, such non-cash consideration shall be treated in the following manner in the books of account of the company:

(a) where the non-cash consideration takes the form of a depreciable or amortizable asset, it shall be carried to the balance sheet of the company in accordance with the accounting standards; or

(b) where clause (a) is not applicable, it shall be expensed as provided in the accounting standards.

(2) The amount of sweat equity shares issued shall be treated as part of managerial remuneration for the purposes of sections 197 and 198 of the Act, if the following conditions are fulfilled:

(i) the sweat equity shares are issued to any director or manager; and

(ii) they are issued for consideration other than cash, which does not take the form of an asset which can be carried to the balance sheet of the company in accordance with the applicable accounting standards.

(3) In respect of sweat equity shares issued during an accounting period, the accounting value of sweat equity shares shall be treated as a form of compensation to the employee or the director in the financial statements of the company, if the sweat equity shares are not issued as pursuant to the acquisition of an asset.

(4) If the shares are issued as pursuant to the acquisition of an asset, the value of the asset, as determined by the valuation report, shall be carried in the balance sheet as per the Accounting Standards, and such amount of the accounting value of the sweat equity shares that is in excess of the value of the asset acquired, as per the valuation report, shall be treated as a form of compensation to the employee or the director in the financial statements of the company.

Explanation: Accounting value shall be the fair value of the sweat equity shares as determined by a registered valuer under Rule 8(6) of the Companies (Share Capital and Debentures) Rules, 2014.

ISSUE OF RIGHT SHARES

Meaning: Right issue means offering shares to existing members in proportion to their existing shareholding

(1) Where at any time, a company having a share capital proposes to increase its subscribed capital by the issuing further shares, such shares shall be offered –

(a) to persons who, at the date of the offer, are holders of equity shares of the company in proportion, as nearly as circumstances admit, to the paid up share capital on those shares by sending a letter of offer subject to the following conditions:

(i) the offer shall be made by notice specifying the number of shares offered and limiting a time not being less than fifteen days and not exceeding thirty days from the date of the offer within which the offer, if not accepted, shall be deemed to have been declined;

(ii) unless the articles of the company otherwise provide, the offer aforesaid shall be deemed to include a right exercisable by the person concerned to renounce the shares offered to him or any of them in favour of any other person; and the notice referred to in clause (i) shall contain a statement about this right;

(iii) after the expiry of the time specified in the notice aforesaid, or on receipt of earlier intimation from the person to whom such notice was given and he declined to accept the shares offered, the Board of Directors may dispose of them in such manner which is not disadvantageous to the shareholders and company;

(b) to employees under a scheme of employees' stock option, subject to special resolution passed by company and subject to such conditions as may be prescribed; or

(c) to any persons, if it is authorized by a special resolution, whether or not those persons include the persons referred to in clause (a) or clause (b), either for cash or for a consideration other than cash, if the price of such shares is determined by the valuation report of a registered valuer subject to such conditions as may be prescribed.

(2) The notice referred to in sub-clause 1(a)(i) above shall be dispatched through registered post or speed post or through electronic mode to all the existing shareholders at least three days before the opening of the issue.

(3) Nothing in this section shall apply to the increase of the subscribed capital of a company caused by the exercise of an option as a term attached to the debentures issued or loan raised by the company to convert such debentures or loans into shares in the company:

Provided that the terms of issue of such debentures or loans containing such an option have been approved before the issue of such debentures or the raising of loans by a special resolution passed by the company in the general body meeting.

REDEMPTION OF PREFERENCE SHARES

A company which is limited by shares, if the articles so authorize, can issue preference shares liable to be redeemed within a period not exceeding twenty years from the date of their issue under section 55 of the Companies Act, 2013. No company limited by shares shall issue any irredeemable preference shares.

A company may issue preference shares for a period exceeding 20 years but not beyond 30 years for infrastructure projects (Specified in Schedule VI). However, the redemption is subject to minimum 10% of such preference shares per year from the twenty-first year onwards or earlier, on proportionate basis, at the option of the preference shareholders.

The preference shares can be redeemed only when they are fully paid up -

- out of the profits of the company which would otherwise be available for dividend, or
- out of the proceeds of a fresh issue of shares made for the purposes of such redemption.

CAPITAL REDEMPTION RESERVE ACCOUNT

If preference shares are to be redeemed out of the profits of a company, a sum equal to nominal amount of shares that are to be redeemed, shall be transferred to a reserve called Capital Redemption Reserve Account out of profits of the company and provisions of this Act relating to reduction of share capital of a company shall apply as if the Capital Redemption Reserve Account were paid up share capital of the company.

The capital redemption reserve account may be used by the company, in paying up of unissued shares of the company to be issued to members of the company as fully paid bonus shares.

Premium on redemption of Preference Shares

(a) For the companies whose financial statements comply with the accounting standards as prescribed in section 133, the premium payable on redemption shall be provided out of the profits of the company, before the shares are redeemed.

(b) For redemption of any preference shares issued on or before the commencement of Companies Act, 2013, the premium payable on redemption shall be provided out of the profits of the company, or out of the company's securities premium account, before such shares are redeemed.

(c) For companies whose financial statements need not comply with the accounting standards as under section 133, the premium payable on redemption shall be provided out of the profits of the company, or out of the company's securities premium account, before such shares are redeemed.

Case 1: Redemption of preference shares out of the profits of the company which would otherwise be available for dividend.

In case redeemable preference shares are redeemed out of company profits, which are otherwise available for dividend, the "Capital Redemption Reserve Account" is to be created that will represent the redeemable preference shares in the balance sheet after redemption. This capital redemption reserve should be equivalent to the amount of Preference Shares which are to be redeemed. The profits available for dividend have to be transferred to Capital Redemption Reserve Account.

Journal Entries

1. Transfer profits available for dividend to Capital Redemption Reserve Account:

General Reserve Account	Dr.	as the case may be
Profit and Loss A/c	Dr.	
Dividend Equalization Account	Dr.	
To Capital Redemption Reserve A/c		with the nominal value of the shares to be redeemed

2. If current assets are realized to provide cash for redemption of preference shares:

Bank A/c	Dr.	
To Respective Assets Account		with the realized value of assets

3. On transfer of redeemable preference share-capital to be redeemed to Preference Shareholders Account:

Redeemable Preference Share-Capital A/c	Dr.	with the nominal value of the shares to be redeemed
To Preference Shareholders A/c		

4. If preference shares are redeemed at a premium:

Redeemable Preference Share-Capital A/c	Dr.	
Premium on Redemption of Preference Shares	Dr.	with the amount of premium payable
To Preference Shareholders A/c		

5. For providing premium on redemption of preference shares:

Profit and Loss A/c	Dr.	
To Premium on Redemption of Preference Shares Account		

6. On redemption of preference shares:

Preference Shareholders Account	Dr.	with the amount paid
To Bank A/c		

Illustration 8:

Hello Ltd. had an issue of 2,000, 10% Redeemable Preference Shares of Rs 100 each, repayable at a premium of 10%. These shares are to be redeemed out of the accumulated reserves, which are more than the necessary sum required for redemption. Show the necessary entries in the books of the company, assuming that the premium on redemption of shares has to be written off against the company's Securities Premium Reserves.

Solution:

Journal

Particulars		*Dr. (Rs.)*	*Cr. (Rs.)*
10% Redeemable Preference Share Capital A/c	Dr.	2,00,000	
Premium on Redemption of Preference Shares A/c	Dr.	20,000	
To Preference Shareholders A/c			2,20,000
(Amount payable to 10% preference shareholders on redemption of 10% preference shares at a premium of 10%)			
Profit & Loss A/c	Dr.	20,000	
To Premium on Redemption of Preference Share A/c			20,000
(Application of Securities Premium Account to write off premium on Redemption of Preference Shares)			
Preference Shareholders A/c	Dr.	2,20,000	
To Bank A/c			2,20,000
(Amount due to preference shareholders on redemption paid)			
General Reserve Account	Dr.	2,00,000	
To Capital Redemption Reserve A/c			2,00,000
(Transfer of reserves to Capital Redemption Reserve Account on Redemption of Redeemable Preference Shares)			

Note: Capital Redemption Reserve Account replaces the 10% Redeemable Preference Shares Capital Account and the capital structure of the company remains unchanged.

Case 2: If the redeemable preference shares are redeemed out of the proceeds of a fresh issue of shares made for the purpose of redemption:

In a case where redeemable preference shares are redeemed out of proceeds received from fresh issue of shares, the Share Capital Account raised by fresh issue shall take the place of Redeemable Preference Share Capital Account after redemption. Thus, in such a case, new Share Capital Account (Equity or Preference) must be equal to the redeemable preference shares redeemed.

First of all, entries for fresh issue of shares will be passed. Then entries for redemption passed as has been given in the previous case.

Illustration 9:

Diamond Ltd. has part of its share capital consisting of 20000, 12% Redeemable Preference Shares of Rs. 10 each, repayable at a premium of 5%. The shares have now become ready for redemption. It is decided that the whole amount will be redeemed out of a fresh issue of 20,000 equity shares of Rs. 10 each at Rs. 15 each. The whole amount is received in cash and the 12% preference shares are redeemed for the relevant portion.

Show the necessary journal entries in the books of the company.

Solution:

Journal

Particulars		***Dr. Rs)***	***Cr. (Rs)***
Bank	Dr.	3,00,000	
To Equity Share Application and Allotment A/c			3,00,000
(Application money on 20,000 equity shares @ Rs 15 per share including a premium of Rs 5 per share)			
Equity Share Application and Allotment A/c	Dr.	3,00,000	
To Equity Share Capital A/c			200,000
To Securities Premium A/c			100,000
(Allotment of 20,000 equity shares Rs 10 each issued at a premium of 5 per share as per Board's Resolution dated.)			
Redeemable Preference Share Capital A/c	Dr.	2,00,000	
Premium on Redemption of Preference Share A/c	Dr.	10,000	
To Preference Shareholders A/c			2,10,000
(Amount due to 12% preference shareholders on redemption of 8% preference shares at a premium of 5%)			
Profit & Loss A/c	Dr.	10,000	
To Premium on Redemption of Preference Shares A/c			10,000
(Application of Securities Premium Account to write off Premium on Redemption of Preference Shares)			
Preference Shareholders A/c	Dr.	2,10,000	
To Bank A/c			2,10,000
(Amount due to 12% preference shareholders on redemption paid)			

Case 3: If the redeemable preference shares are redeemed partly out of the profits of the company which would otherwise be available for dividend and partly out of the proceeds of a fresh issue of shares made for the purpose of redemption:

In such a case, the Capital Redemption Reserve Account and the new Share Capital Account taken together will replace the Redeemable Preference Share Capital redeemed.

Thus, Redeemable Preference Share Capital redeemed = Capital Redemption Reserve Account + New Share Capital Account (Equity or Preference).

Here, all the entries shown under Case (i) and Case (ii) have to be passed. But there are certain common entries which can be combined together.

Illustration 10:

Jumpers Ltd

Balance Sheet as at 31st March, 2022

I. EQUITY AND LIABILITIES			
1. Shareholders' funds			
(a) Share Capital	1		350,000
(b) Reserve & Surplus	2		64,000
2. Current Liabilities			
Trade Payable		23,700	
Short-term provisions		38,500	62,200
TOTAL			**4,76,200**
II. ASSETS			
1. Non-current assets			
(a) Property Planted Equipment			2,25,000
(b) Non-Current Investments			60,000
2. Current Assets			
Inventories		1,30,500	
Trade receivable		49,550	
Cash and cash equivalents		9,950	
Other current assets		1,200	1,91,200
TOTAL			**4,76,200**

Notes

1. Share capital

Authorized Share Capital	
40,000 equity shares of Rs 10 each fully paid up	4,00,000
1000, 8% preference shares of Rs 100 each	1,00,000
	5,00,000

	Issued, Subscribed Called Up And Paid up Share Capital	
	1000, 8% Preference shares of Rs 100 each fully paid up	1,00,000
	25,000 equity shares of Rs 10 each fully paid up	2,50,000
		3,50,000
2.	Reserve and Surplus	
	Securities Premium Reserves	9,000
	Surplus Account	55,000
		64,000

In order to redeem its preference shares, the company issued 5,000 equity shares of Rs.10 each at a Premium of 10% and sold its investment of Rs. 70,800. Preference shares were redeemed at a premium of 10%.

Show the necessary journal entries in the books of the company.

Solution:

Particulars	***Dr. (Rs)***	***Cr. (Rs)***
Bank A/c Dr.	55,000	
To Equity Share Application and Allotment A/c		55,000
(Application money received on 5,000 equity shares of Rs. 10 at a premium of 10%).		
Equity Share Application and Allotment A/c Dr.	55,000	
To Equity Share Capital A/c		50,000
To Securities Premium A/c		5,000
(Allotment of 5000 equity shares of Rs. 10 each issued at a premium of 10% as per Board's resolution dated.)		
Bank A/c Dr.	70,800	
To Investments A/c		60,000
To Surplus A/c		10,800
(Sale on Investments at a profit and transfer of profit on sale to Profit and Loss A/c)		
8% Redeemable Preference Share Capital A/c Dr.	1,00,000	
Premium on Redemption of Preference Shares A/c	10,000	
To Preference Shareholders A/c		1,10,000
(Amount due to preference shareholders on redemption)		

Surplus A/c Dr. To Premium on Redemption of Preference Shares A/c (Application of securities premium to write off premium on redemption of preference shares)	10,000	 10,000
Preference Shareholders A/c Dr. To Bank A/c (Amount due to Preference Shareholders on redemption paid)	1,10,000	 1,10,000
Surplus A/c Dr. To Capital Redemption Reserve A/c (Transfer of the balance amount of the nominal value preference shares to be redeemed not covered by fresh issue, i.e., Rs 1,00,000 - 50,000 on redemption to Capital Redemption Reserve A/c)	50,000	 50,000

Note: In the above example, the capital structure of the company remains unchanged, as seen by fact - the Equity Share Capital is issued at Rs 50,000 and Capital Redemption Reserve is at Rs 50,000, which jointly replaces 8% Redeemable Preference Share Capital Rs 1,00,000.

LESSON ROUND-UP

- Share represents a singular unit into which the total share capital of a company is divided.
- Share capital includes majorly the following two types of shares under the Companies Act, 2013:
  (a) Preference Shares and (b) Equity Shares.
- An equity share is the one which is not a preference share. Equity shares are also known for their risk-bearing. Preference shares are the shares that hold preferential rights as to the payment of dividend at a fixed rate; and the return of capital on winding up of the company.
- Shares may be issued for cash or for a consideration other than cash. When a company allots fully paid shares to promoters or to creditors or to any other party for the services rendered by them, it is known as issue of shares for consideration other than cash.
- Shares of a company may be issued at :
  a. Par – When shares are issued on a price equivalent to its face value.
  b. Premium – When shares are issued at a price higher than the face value.
  c. Discount – When shares are issued at a price lower than the face value.
- Restrictions on the usage of the Securities premium money received has been laid under section 52(2) of Companies Act 2013.
- When the number of shares applied for exceeds the number of shares issued, the shares are said to be oversubscribed. In such a case, some applications may be rejected; some applications are accepted in full; and allotment is made to the remaining applicants on pro-rata basis.

- Forfeiture of shares is considered as the compulsory termination of membership by way of penalty for non-payment of allotment and/or any call money.
- The forfeited shares may be reissued at:
    a. Par
    b. Premium
    c. Discount
- In case of reissue of forfeited shares at a premium, the entire amount standing to the credit of Shares Forfeited Account would be treated as net gain and transferred to Capital Reserve Account.
- In case the forfeited shares are reissued at a discount, the amount of discount can, in no case, exceed the amount credited to Shares Forfeited Account.
- As per Section 68, 69, 70 of the Companies Act, 2013, a company may purchase its own shares or other specified securities out of its free reserves and this is known as buy-back.
- A company is under a legal obligation to first offer the subsequent issue of shares to its existing equity shareholders. This right is called rights issue.
- Company may issue fully paid up bonus shares to its members, in any manner out of (i) its free reserves; (ii) the securities premium account; or (iii) the capital redemption reserve account.
- Sweat equity shares refers to equity shares given to the company's employees/ directors on favourable terms in recognition of their work at a discount or consideration other than cash
- Underwriting is known as a guarantee given by the underwriters to the company that the shares or debentures offered to the public will be subscribed for in full. An underwriting agreement may be:
    a. Complete Underwriting
    b. Partial Underwriting. Firm Underwriting.

TEST YOURSELF

1. Distinguish between Equity shares and Preference shares.
2. Discuss the classes of shares on the basis of participation.
3. Enumerate the restrictions on application of premium money received.
4. ABC Ltd. brought out an issue which was oversubscribed. What option does the company have in case of over subscription?
5. Describe the accounting treatment of Calls in advance.
6. What do you mean by share forfeiture?
7. Discuss the advantages of buy-back of shares.
8. Enumerate the procedure for issue of sweat equity shares.
9. Elaborate the types of underwriting options available to a company.
10. Describe the purposes for which a company can use the amount of Securities Premium.
11. Explain the terms 'Over subscription' and 'Under subscription'. How are they dealt with in accounting records?

Practical Questions

1. Girish Limited issued 30,000 equity shares of Rs.100 each payable at Rs.30 on application, Rs.50 on allotment and Rs.20 on Ist and final call. All money was duly received. Record these transactions in the journal of the company.
2. The Ashish Control Device Ltd. was registered with the authorised capital of Rs.3,00,000 divided into 30,000 shares of Rs.10 each, which were offered to the public. Amount payable as Rs.3 per share on application, Rs.4 per share on allotment and Rs.3 per share on first and final call. These shares were fully subscribed and all money was dully received. Prepare journal and Cash Book.
3. Tally Software Solution India Ltd. invited applications for 20,000 equity shares of Rs.100 each, payable Rs.40 on application, Rs.30 on allotment and Rs.30 on first and final call. The company received applications for 32,000 shares. Application for 2,000 shares were rejected and money returned to applicants. Applications for 10,000 shares were accepted in full and applicants for 20,000 shares allotted half of the number of shares applied and excess application money adjusted into allotment. All money due on allotment and call was received. Prepare journal and cash book.
4. Sushil Consulting Ltd. issued 10,000 shares of Rs.100 each payable Rs.20 per share on application, Rs.30 per share on allotment and balance in two calls of Rs.25 per share. The application and allotment money were duly received. On first call, all members paid their dues except one member holding 200 shares, while another member holding 500 shares paid for the balance due in full. Final call was not made. Give journal entries and prepare cash book.
5. Shashi Glass Ltd. issued 20,000 shares of Rs.100 each at Rs.110 per share, payable Rs.30 on application, Rs.40 on allotment (including Premium), Rs. 20 on first call and Rs.20 on final call. The applications were received for 24,000 shares and allotted 20,000 shares and rejected 4,000 shares and amount returned thereon. The money was duly received. Give journal entries.

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Accounting for Debentures

Lesson 5

KEY CONCEPTS

■ Debentures ■ Redemption of debentures ■ Collateral security ■ Debenture Interest ■ Conversion of Debenture into Share

Learning Objectives

To understand:

- State the meaning of debenture and explain the difference between debentures and shares
- Describe various types of debentures
- Record the journal entries for the issue of debentures at par, at a discount and at premium
- Explain the concept of debentures issued for consideration other than cash and the accounting thereof
- Explain the concept of issue of debentures as a collateral security and the accounting thereof
- Record the journal entries for issue of debentures with various terms of issue, terms of redemption
- Show the items relating to issue of debentures in company's balance sheet
- Describe the methods of writing-off discount/loss on issue of debentures
- Explain the methods of redemption of debentures and the accounting thereof

Lesson Outline

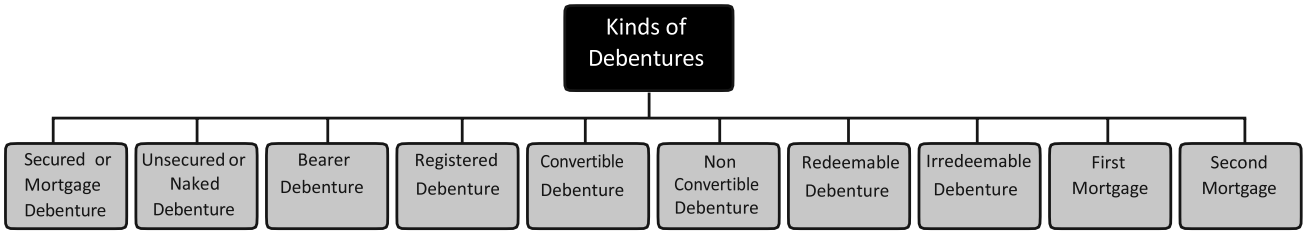
- Debenture
- Issue of Debentures at
  - Par
  - Premium
  - Discount
- Issue of Debentures for Consideration Other than Cash
- Issue of Debentures as Collateral Security
- Debenture Interest
- Accounting Treatment of Discount/loss on Issue of Debentures
- Redemption of Debentures
- Redemption of Debentures in Lumpsum
- Redemption of Debentures by Payment in installments
- Redemption of Debentures by Conversion
- Redemption of Debentures in the Open Market
- Purchase of debentures before the specified date of payment of interest
  - Par
  - Premium
  - Discount
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

DEBENTURES

The word 'debenture' has been derived from a Latin word 'debere' which means to borrow. Debenture is a written instrument acknowledging a debt under the common seal of the company. It contains a contract for repayment of principal after a specified period or at intervals or at the option of the company and for payment of interest at a fixed rate payable usually either half-yearly or yearly on fixed dates. Debentures are part of loan capital and the company is liable to pay interest thereon whether it earns profit or not.

According to section 2(30) of The Companies Act, 2013 'Debenture' includes Debenture Inventory, Bonds and any other securities of a company whether constituting a charge on the assets of the company or not.

Kinds of Debentures



Secured or Mortgage: When debentures are secured by a mortgage or charge on the property of the company, they are called secured or mortgage debentures.

Unsecured or Naked: When debentures are issued without any security, they are termed as unsecured or naked debentures.

Bearer: These debentures are payable to bearer and are transferable by mere delivery. Interest coupons are attached to each individual debenture. The interest and principal amount on such debentures is payable upon presentation and delivery of coupons and debentures.

Registered Debenture: Interest and principal amount is paid only to the person whose name is registered in the debenture ledger. Such debentures are transferable through a transfer deed.

Convertible Debentures may be convertible into preference or equity shares of the company on certain specified dates on the basis of an agreement between the company and the debenture holders.

Non-Convertible: Such debentures are paid into cash.

Redeemable Debenture: Such debentures are paid either at par or at a premium after the expiry of a particular period or under a system of periodical drawings.

Irredeemable or Perpetual Debenture: Such debentures are payable either on a happening of the contingency, or when the company winds its business up, or when the company decides to redeem, itself.

First Mortgage Debentures: Such debentures are paid on the basis of priority as compared to other debentures.

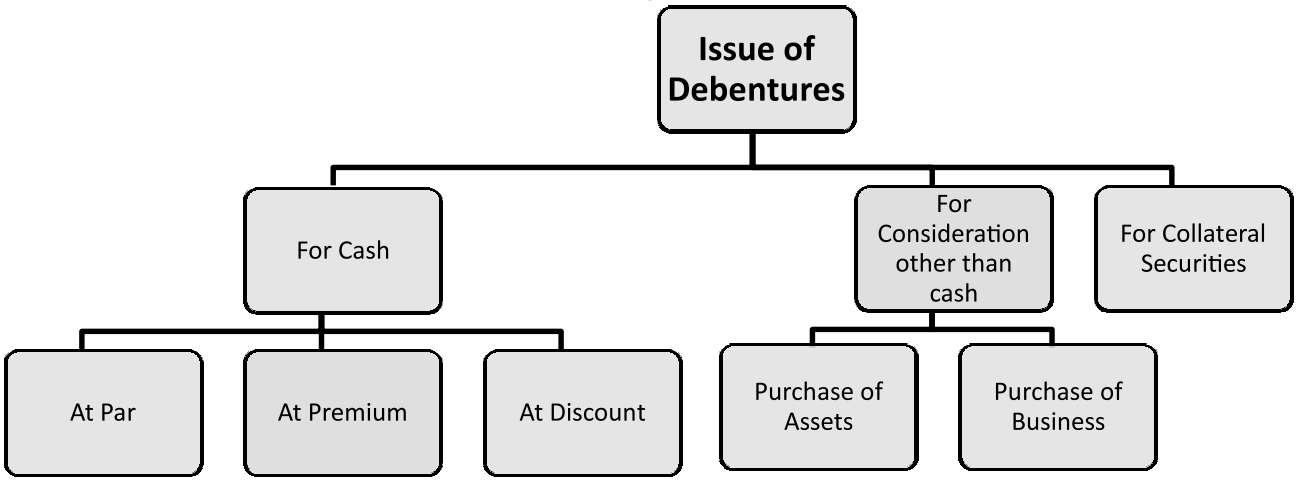
Second Mortgage Debentures: Such debentures are paid after the redemption of first mortgage debentures.

Difference between Shares and Debentures

Points	*Shares*	*Debentures*
Ownership	A 'share' represents ownership of the company. A share is a part of the owned capital	A 'debenture' is only acknowledgement of Debt. A debenture is a part of borrowed capital.
Return	The return on shares is known as dividend. The rate of return on shares may vary from year to year depending upon the profits of the company.	The return on debentures is called interest. The rate of interest on debentures is prefixed.
Repayment	Normally, the amount of shares is not returned during the life of the company.	Generally, the debentures are issued for a specified period and repayable on the expiry of that period.
Voting Rights	Shareholders enjoy voting rights.	Debenture holders do not normally enjoy any voting right.
Security	Shares are not secured by any charge.	Debentures are generally secured and carry a fixed or floating charge over the assets of the company.
Convertibility	Shares cannot be converted into debentures.	Debentures can be converted into shares if the terms of issue so provide, and in that case these are known as convertible debentures.

ISSUE OF DEBENTURES

The procedure for the issue of debentures is the same as that for the issue of shares. The intending investors apply for debentures on the basis of the prospectus issued by the company. The company may either ask for the entire amount to be paid on application or by means of instalments on application, on allotment and on various calls. Debentures can be issued at par, at a premium or at a discount. They can also be issued for consideration other than cash or as a collateral security.



Conditions for issue of debentures as per Companies Act, 2013

- Issue of Debentures by Special Resolution
- No Voting Rights
- Terms for the Issue of Secured Debentures
- Creation and Utilization of Debenture Redemption Reserve
- Debenture Trustee(s) to protect the interest of debenture holder

Issue of Debentures for Cash

Debentures may be issued for cash on a par, a premium or discount. When the debentures are issued for cash, the entire issue price may be received on application itself or the amount may be payable in installments, such as on application, on allotment and balance in calls. Any premium or discount on the issue of debentures is generally recorded at the time of making allotment.

Issue of Debentures at Par

Accounting treatment

(a) When the full issue price is payable in lumpsum along with application

(1) On receipt of application money:

Bank A/c Dr. (with the money received on application)
To Debentures Application and Allotment A/c

(2) On allotment:

Debentures Application and Allotment A/c Dr. (with the money received on debentures allotment)
To Debentures A/c

(b) When the amount is payable in installments

(1) On receipt of application money:

Bank A/c Dr. (with the money received on application)
To Debenture Application A/c

(2) On Allotment of debentures:

Debenture Application A/c Dr. (with the application money on debentures allotted)
To Debentures A/c

(3) On allotment money due

Debenture allotment A/c Dr. (with the allotment money due)
To Debenture A/c

(4) On receipt of allotment money:

Bank A/c Dr. (with the money received on allotment)
To Debenture Allotment A/c

(5) On making calls:

Debenture Calls A/c Dr. (with the money due on respective calls)

To Debenture A/c

(6) On receipt of call money:

Bank A/c Dr. (with the money received on respective calls)

To Debenture Calls A/c

Over subscription: The excess application money may be retained for adjustment towards allotment and particular calls similar to share application money. But money received from applicants to whom no debenture has been allotted will be refunded to them. The following journal entry is made in this regard:

Debenture Application A/c Dr

To Bank A/c

Illustration 1

ABC Ltd. made an issue of 50,000 12% Debentures of Rs 100 each, payable as follows: Rs. 25 on Application Rs. 50 on Allotment

Rs. 25 on First and Final Call.

Applications were received for 52,000 debentures and the directors allotted 50,000 debentures rejecting applications for 2,000 debentures. The application money received for 2,000 rejected debentures was duly refunded. All the calls were made and the moneys duly received.

Show the Journal Entries to record the above transactions and prepare the Balance Sheet of the company.

Solution:

ABC Ltd.
Journal Entries

S. No.	*Particulars*	*Debit (Rs.)*	*Credit (Rs.)*
(i)	Bank A/c Dr To 12% Debenture Application A/c (Being application money of Rs 25 each on 52,000 debenturesreceived)	13,00,000	 13,00,000
(ii)	12% Debenture Application A/c Dr To 12% Debentures A/c To Bank A/c (Being allotment of 50,000 debentures as per board's resolutiondated and 2,000 debentures rejected and refunded)	13,00,000	 12,50,000 50,000
(iii)	12% Debenture Allotment A/c Dr To 12% Debentures A/c (Being allotment money due on 50,000 debentures @ Rs 50 each)	25,00,000	 25,00,000

(iv)	Bank A/c Dr To 12% Debenture Allotment A/c (Being allotment money received)	25,00,000	 25,00,000
(v)	12% Debenture First and Final call A/c Dr To 12% Debentures A/c (Being call money due on 50,000 debentures @ Rs 25 each)	12,50,000	 12,50,000
(vi)	Bank A/c To 12% Debenture First and Final call A/c (Being the call money received)	12,50,000	 12,50,000

ABC Ltd.
Balance Sheet as on .....

Particulars	*Note*	*Rs.*
EQUITYAND LIABILITIES		
Non Current Liabilities Long Term Borrowings	1	50,00,000
ASSETS		
Cash and cash equivalent		50,00,000

Notes to Account

	Particulars	*Note*	*Rs.*
1.	Long Term Borrowings		
	12% Debentures	1	50,00,000
2	Cash and Cash Equivalent		
	Cash at Bank		50,00,000

Issue of Debentures at Premium

When the debentures are issued for cash at premium, the amount of premium is recorded at the time of making entries for allotment money. The entries for receipt of application money and transfer of application money to debenture account are same as issue at par.

Accounting Treatment

(i) When allotment money becomes due

Debenture Allotment A/c Dr
To Debenture A/c
To Securities Premium A/c

(ii) When allotment money is received

Bank A/c Dr
To Debenture Allotment A/c

And for calls the entries are same as for issue at par.

Illustration 2

Z Ltd. issued 2,500, 10% Debentures of Rs.100 each, a premium of 10% payable as Rs. 20 on application, Rs.50 on allotment (including the premium) and the balance on first & final call. The public applied for 3,500 debentures. Applications for 2,250 debentures were accepted in full, applicants for 500 were allotted 250 debentures, and remaining applications were rejected. All money was duly received.

Journalize these transactions.

Solution:

Z Ltd.

Journal Entries

	Particulars	***Debit (Rs.)***	***Credit (Rs.)***
(i)	Bank A/c Dr.	70,000	
	To Debenture Application A/c		70,000
	(Being application money received on 3,500 debentures)		
(ii)	Debentures Application A/c Dr.	70,000	
	To 10% Debentures A/c		50,000
	To Debentures Allotment A/c		5,000
	To Bank A/c		15,000
	(Being the application money adjusted and the surplus refunded)		
(iii)	Debenture Allotment A/c Dr.	1,25,000	
	To 10% Debentures A/c		1,00,000
	To Securities Premium A/c		25,000
	(Being the Amount due on allotment @ Rs. 50 on 2,500 debentures)		
(iv)	Bank A/c Dr.	1,20,000	
	To Debentures Allotment A/c		1,20,000
	(Being the Balance of the amount due on allotment received)		
(v)	Debentures Call A/c Dr.	1,00,000	
	To 10% Debentures A/c		1,00,000
	(Being the Amount due on Call @ Rs. 40 on 2,500 debentures)		
(vi)	Bank A/c Dr.	1,00,000	
	To Debentures Call A/c		1,00,000
	(Being the Amount due on call received)		

Issue of Debentures at Discount

If the debentures are issued at a price lower than the nominal value of the debentures, the debentures are said to be issued at a discount. The difference between the nominal value and the issue price is regarded as the discount. Such a discount on the issue of debentures may either be written off against revenue profit or capital profits of the company.

When debentures are issued at a discount, the Debentures Account should be credited with the nominal value of the debentures and the discount allowed on issue of debentures. It being a capital loss should be debited to "Discount on Issue of Debentures Account".

Accounting Treatment

Debentures Allotment A/c	Dr.	(with the amount due on allotment)
Discount on issue of Debentures A/c	Dr.	(with the amount of discount)
To Debentures A/c (with the total)		

Illustration 3

Z Ltd. issued 5,000, 14% debentures of Rs 100 each at a discount of 5%, the discount being adjustable on allotment. The debentures were payable as follows:

On Application - Rs. 20

On Allotment - Rs. 25

On First and Final Call - Rs. 50

The debentures were fully subscribed and the money was duly received.

Show the cash book and journal entries and prepare the balance sheet of the company.

Solution:

Dr. **Cash Book (Bank Column)** **Cr.**

Particulars	*Amount (Rs.)*	*Particulars*	*Amount (Rs.)*
To 14% Debenture Application A/c	1,00,000	By Balance c/d	4,75,000
(Application money on 5,000 debentures @ Rs 20 per debenture)			
To 14% Debenture Allotment A/c	1,25,000		
(Allotment money on 5,000 debentures @ Rs.25 per debenture)			
To 14% Debenture First and FinalCall A/c	2,50,000		
(First and final call money on 5,000debentures @ Rs.50 per debenture)			
	4,75,000		4,75,000

Z Ltd.

Journal Entries

S. No	Particulars		Debit (Rs.)	Credit (Rs.)
(i)	14% Debenture Application A/c	Dr.	1,00,000	
	14% Debenture Allotment A/c	Dr.	1,25,000	
	Discount on Issue of Debentures A/c	Dr.	25,000	
	To 14% Debentures A/c			2,50,000
	(Allotment of 5,000 14% debentures of Rs. 100 each issued at a discount of 5% and allotment money due on 5,000 debentures @ Rs 25 per debenture as per Board's resolution dated)			
(ii)	14% Debenture First and Final Call A/c	Dr.	2,50,000	
	To 14% Debentures A/c			2,50,000
	(First and final call money due on 5,000 debentures @ Rs 50 perdebentures as per Board's resolution dated.)			

Z Ltd.

Balance Sheet as on .....

Particulars	Note	Rs.
EQUITY AND LIABILITIES		
Non-Current Liabilities		
Long-Term Borrowings	1	5,00,000
ASSETS	2	
Non-current assets		
Other non-current assets		25,000
Current Assets		
Cash and cash equivalent		4,75,000

Notes to Account

1	Long-Term Borrowings		
	14% Debentures	1	5,00,000
2	Other non-current assets		
	Discount on the issue of debentures	2	25,000

Over Subscription

When the number of debentures applied for is more than the number of debentures offered to the public, the issue is said to be over subscribed. A company, however, cannot allot more debentures than it has invited for subscription. The excess money received on over subscription may, however, be retained for adjustment towards allotment and the respective calls to be made. But the money received from applicants to whom no debentures have been allotted, will be refunded to them.

Illustration 4

X Limited Issued 10,000, 12% debentures of Rs. 100 each payable Rs. 40 on application and Rs. 60 on allotment. The public applied for 14,000 debentures. Applications for 9,000 debentures were accepted in full; applications for 2,000 debentures were allotted 1,000 debentures and the remaining applications, were rejected. All money was duly received. Journalise the transactions.

Solution:

Books of X Limited

Journal Entries

S. No.	*Particulars*	*Debit (Rs.)*	*Credit (Rs.)*
	Bank A/c Dr.	5,60,000	
	To 12% Debenture Application A/c		5,60,000
	(Receipt of application money on 14,000 debentures)		
	12% Debenture Application A/c Dr.	5,60,000	
	To 12% Debentures A/c		4,00,000
	To Debentures Allotment A/c		40,000
	To Bank A/c		1,20,000
	(Debenture Application money transferred to Debenture A/c, Excess application money credited to Debenture Allotment account and money refunded on rejected application)		
	12% Debenture Allotment A/c Dr.	6,00,000	
	To 12% Debentures A/c		6,00,000
	(Amount due on allotment on 10,000 debentures)		
	Bank A/c Dr.	5,60,000	
	To Debenture Allotment A/c		5,60,000
	(Allotment money received)		

Issue of Debentures for Consideration other than Cash

Sometimes a company may allot debentures (on a par, premium or discount) to vendors as a payment for the purchase price of the assets. The issue of debentures is then for consideration other than cash. In such a case, the following journal entries are made:

(1) For acquisition of assets:

Sundry Assets (Individually) A/c Dr. (with the value of assets)

To Vendors A/c

(with the purchase price)

Notes:

(i) If the value of debentures allotted is more than the agreed purchase price, the difference is debited to Goodwill Account.

(ii) Similarly, if the value of debentures allotted is less than the agreed purchase price, it is credited to Capital Reserve Account.

2. (a)

On allotment of debentures (at par)

Vendors A/c Dr. (with the value of debentures)

To Debentures A/c

(b)

On allotment of debentures (at premium)

Vendors A/c Dr. (with the purchase price)

To Debentures A/c (with the nominal value)

To Securities Premium A/c (with the amount of premium)

(c)

On allotment of debentures (at a discount)

Vendors A/c Dr. (with the amount of purchase)

Discount on Issue of Debentures A/c Dr. (with the amount of discount)

To Debentures A/c (with the nominal value)

Illustration 5

Radha Ltd. purchased machinery worth Rs.1,20,000 and building worth Rs. 2,00,000 from Deepa Ltd. for an agreed purchase consideration of Rs. 3,00,000 to be satisfied by the issue of 3,000, 12% debentures of Rs. 100 each. Show the necessary journal entries in the books of Radha Ltd.

Solution:

Radha Ltd.
Journal Entries

S. No.	*Particulars*		*Debit (Rs.)*	*Credit (Rs.)*
1	Building A/c	Dr.	2,00,000	
	Plant and Machinery A/c	Dr.	1,20,000	
	To Deepa Ltd.			3,00,000
	To Capital Reserve A/c			20,000
	(Purchase of sundry assets and transfer of capital profits asper agreement with the vendor dated.)			

2	Deepa Ltd. Dr. To 12% Debentures A/c (Being 3,000, 12% Debenturesof Rs 100 each allotted tovendors for consideration other than cash as per Board's resolution dated.)	3,00,000	 3,00,000

Illustration 6

Rai Company purchased assets of the book value of Rs. 2,20,000 from another company and agreed to make the payment of purchase consideration by issuing 2,000, 10% debentures of Rs. 100 each at a premium of 10%.

Record necessary journal entries.

Solution:

Books of Rai Company Limited

Journal Entries

S.No	*Particulars*	*Debit (Rs.)*	*Credit (Rs.)*
1	Sundry Assets A/c Dr. To Vendors (Assets purchased from vendors)	2,20,000	 2,20,000
2	Vendors Dr. To 10% Debentures A/c To Securities Premium Reserve A/c (Allotment of 2,000 debentures of Rs. 100 each at a premium of 10% as purchase consideration)	2,20,000	 2,00,000 20,000

DEBENTURES ISSUED AS A COLLATERAL SECURITY

A collateral security may be defined as a subsidiary or secondary or additional security besides the primary security when a company obtains a loan or overdraft from a bank or any other financial Institution. It may pledge or mortgage some assets as a secured loan against the said loan. But the lending institutions may insist on additional assets as collateral security so that the amount of loan can be realised in full with the help of collateral security in case the amount from the sale of principal security falls short of the loan money. In such situation, the company may issue its own debentures to the lenders in addition to some other assets already pledged. Such an issue of debentures is known as 'Debentures issued as Collateral Security'.

If the company fails to repay the loan along with interest, the lender is free to receive his money from the sale of primary security and if the realisable value of the primary security falls short to cover the entire amount, the lender has the right to invoke the benefit of collateral security whereby debentures may either be presented for redemption or sold in the open market.

Accounting Treatment

Debentures issued as collateral security can be dealt within two ways in the books of the company:

FIRST METHOD

No accounting entry is required to be shown in the books of account at the time of issue of such debentures because there is no immediate liability created by the company. But the existence of such debentures issued as collateral security has to be mentioned by way of a note on the Balance Sheet under the specific loan account.

Illustration 7

B Ltd. secured an overdraft of Rs. 80,000 from the bank by issuing 900, 12% Debentures of Rs. 100 each as collateral security. Prepare the Balance Sheet of the Company.

Solution

Balance Sheet of Z Ltd. as at.....

Particulars	*Note*	*Amount (Rs.)*
EQUITY AND LIABILITIES		
Current liability		
Short-term borrowings	1	80,000

Notes to Account

	Particulars	*Amount*
1	Short-term borrowings Bank Overdraft	
	(Secured by the issue of 900, 12% Debentures of Rs.100 each as collateral security)	80,000

SECOND METHOD

If it is desired that such an issue of debentures as collateral security is to be recorded in the books of account, the accounting entries will be as follows:

(i) On issue of debentures as collateral security

Debentures Suspense A/c Dr. (with the nominal value of the debentures issued)

To Debentures A/c

In this case, Debentures Suspense Account will appear on the asset side of the balance sheet under the heading Miscellaneous Expenditure. Debentures Account will appear as a liability on the liabilities side of the Balance Sheet.

(ii) On repayment of the loan and release of debentures

Debentures A/c Dr. (with the nominal value of the debentures released)

To Debentures Suspense A/c

Note: The net effect of the above two entries is nil. Both the Debentures Suspense Account and the Debentures Account are cancelled on repayment of the loan. As such, this method is rarely followed in practice.

Illustration 8

B Ltd. secured an overdraft of Rs. 80,000 from the bank by issuing 900, 12% Debentures of Rs.100 each as collateral security. Prepare the Balance Sheet of the Company.

Solution

Journal Entries

Debentures Suspense A/c	Dr.	90,000	
To Debentures A/c			90,000

(Issue of 900, 12% Debentures of Rs.100 each as collateral security for a bank overdraft of Rs. 80,000 as per Board's resolution dated)

Balance Sheet of Z Ltd. as at.....

Particulars	*Note*	*Amount (Rs.)*
EQUITY AND LIABILITIES		
Non-current liabilities		
Long-term borrowings	1	90,000
Current liability		
Short-term borrowings	2	80,000
ASSETS		
Non-Current Assets		
Other non-current assets	3	90,000

Notes to Account

	Particulars	*Amount*
1	Long-term borrowings 900, 12% Debentures of Rs.100 each (Issued as collateral security as per contra)	90,000
2	Short-term borrowings Bank Overdraft (Secured by the issue of 900, 12% Debentures of Rs.100 each as collateral security)	80,000
3	Other non-current assets Debentures Suspense Account (Issued as collateral security as per contra)	90,000

DEBENTURE INTEREST

When a company issues debentures, it is under an obligation to pay interest thereon at fixed percentage (half yearly) periodically until debentures are repaid. This percentage is usually as part of the name of debentures like 8% debentures, 10% debentures, etc., and interest payable is calculated at the nominal value of debentures. Interest on debenture is a charge against the profit of the company and must be paid whether the company has earned any profit or not.

According to Income Tax Act, 1961, a company must deduct income tax at a prescribed rate from the interest payable on debentures if it exceeds the prescribed limit. It is called Tax Deducted at Source (TDS) and is to be deposited with the tax authorities. Of course, the debenture holders can adjust this amount against the tax due from them.

Accounting Treatment

(i) On interest becoming due

Debenture Interest A/c	Dr.	(with the gross interest due) To Income-tax Payable A/c or
Tax Deducted at Source		(with the amount of Income-tax to be deducted at source)
To Debenture holders' A/c		(with the net amount payable after deduction of income-tax)

(ii) On payment of interest to the debenture holders

Debenture holders' A/c	Dr.	(with the net amount of paid interest)
To Bank A/c		

(iii) On payment of income-tax to the Government

Income-tax Payable A/c	Dr.	(with the amount of income-tax deducted at source and deposited with the Government)
To Bank A/c		

(iv) On transfer of Debenture Interest to Profit and Loss Account at the end of the year

Profit and Loss A/c	Dr.	(with the gross amount of interest on debentures)
To Debenture Interest A/c		

Illustration 9

M Ltd. had issued Rs. 5,00,000, 10% debentures on which interest was payable half-yearly on 30th September and 31st March. Show the necessary journal entries relating to debenture interest for the year ended 31st March, 2022 assuming that all moneys were duly paid by the company. Tax deducted at source is 10%.

Solution:

M Ltd.

Journal Entries

Date	*Particulars*	*Debit (Rs.)*	*Credit (Rs.)*
2021	Debenture Interest A/c Dr.	25,000	
Sep, 30	To Income-tax Payable A/c		2,500
	To Debenture-holders A/c		22,500
	(Interest due on Rs 5,00,000, 10% debentures for 6 months and income-tax deducted at source thereon @ 10%)		

Sep,30	Debenture-holders' A/c Dr. To Bank A/c (Payment of interest to debenture-holders)	22,500	 22,500
Sep,30	Income-tax Payable A/c Dr. To Bank A/c (Deposit of income-tax deducted at source from Debenture Interest with the Government)	2,500	 2,500
March, 31	Debenture Interest A/c Dr. To Income-tax Payable A/c To Debenture-holders A/c (Interest due on Rs 5,00,000, 10% debentures for 6 months and income-tax deducted at source thereon @ 10%)	25,000	 2,500 22,500
2022 March,31	Debenture-holders' A/c Dr. To Bank A/c (Payment of interest to debenture-holders)	22,500	 22,500
March,31	Income-tax Payable A/c Dr. To Bank A/c (Deposit of income-tax deducted at source from Debenture Interest with the Government)	2,500	 2,500
March,31	Profit and Loss A/c Dr. To Debenture Interest A/c (Transfer of Debenture Interest to Profit and Loss A/c)	50,000	 50,000

Interest accrued and due (outstanding interest)	Interest accrued but not due (accrued interest)
Interest on debentures is paid periodically. Suppose a company pays interest on 30th September and 31st March on Rs. 5,00,000, 14% Debentures. The company will pay Rs. 35,000 in every six months. The debenture- holders cannot demand interest before these specified due dates. Assuming that the accounting period ends on31st March and the interest from 1st October to 31st March remains unpaid. In that case the debenture interestis accrued and due and it is technically termed as outstanding interest and will be recorded as under:	While preparing final accounts, interest upto closing date must be taken into account, though the same is simplyaccrued but not payable. For example, if the debenture interest is paid on 30th June and 31st December and the company closes its bookson 31st March. After the payment of interest on 31st December, the next payment will be made on 30th June in next accounting period. But for proper accounting, interest from 1st January to 31st March must be accounted for. It is called interest accrued but not due or simply accrued interest and will be recorded as:

Debenture Interest A/c To outstanding debenture interest A/c The liability of outstanding debenture interest will be shown as "other current liability" in Balance sheet	Debenture interest A/c To Accrued debenture interest A/c Accrued debenture interest will be shown as "other current liability" in Balance sheet.

Terms of Issue of Debentures

When a company issues debentures, it usually mentions the terms on which they will be redeemed on their maturity. Redemption of debentures means discharge of liability on account of debentures by repayment made to the debenture holders. Debentures can be redeemed either at par or at a premium. Depending upon the terms and conditions of issue and redemption of debentures, the following six situations are commonly found in practice.

- Issued at par and redeemable at par
- Issued at discount and redeemable at par
- Issued at a premium and redeemable at par
- Issued at par and redeemable at a premium
- Issued at a discount and redeemable at a premium
- Issued at a premium and redeemable at a premium

In all the above six cases, the following journal entries will be passed:

(i) Issued at par and redeemable at par:

Bank Account	Dr.	(with the nominal value of debentures)
To Debentures Account		

(ii) Issued at discount and redeemable at par:

Bank Account	Dr.	(with the amount received)
Discount on Issue of Debentures Account	Dr.	(with the amount of discount)
To Debentures Account		(with the nominal value)

(iii) Issued at premium and redeemable at par:

Bank Account	Dr.	(with the amount received)
To Debentures Account		(with the nominal value)
To Securities Premium Account		(with the amount of premium)

(iv) Issued at par and redeemable at premium:

Bank Account	Dr.	(with the amount received)
Loss on issue of Debentures Account	Dr.	(with the amount of premium on redemption)

To Debentures Account		(with the nominal value)
To Premium on Redemption of Debentures Account		(with the premium on redemption)

(v) Issued at discount, and redeemable at premium

Bank Account	Dr.	(with the amount received)
Discount on Issue of Debentures Account	Dr	(with the discount allowed on issue)
Loss on Issue of Debentures Account	Dr.	(with the premium payable on redemption)
To Debentures Account		(with the nominal value)
To Premium on Redemption of Debentures Account		(with the premium on redemption)

(vi) Issued at a premium and redeemable at premium

Bank Account	Dr.	(with the amount received)
Loss on issue of Debentures Account	Dr.	(with the amount of premium on redemption)
To Debentures Account		(with the nominal value)
To Premium on Redemption of Debentures Account		(with the premium on redemption)
To Securities Premium Reserve A/c		(with the premium on issue)

Note:

1. When debentures are redeemable at a premium, the premium payable on redemption is debited to 'Loss on Issue of Debentures A/c'. It may be noted that when debentures are issued at a discount and are redeemable at a premium, the amount of discount on issue is also debited to 'Loss on Issue of Debentures'. It may be noted that when the debentures are issued at a discount and are redeemable at par, the amount debited to 'Discount on Issue of Debentures A/c' as usual.
2. Premium on redemption is a liability of a company payable in future. It is a provision and is shown under the head Non-current liabilities under subhead 'Long-term Borrowings' until debentures are redeemed.

Illustration 10

Journalize the following transactions.

Issue of 12%, 1,00,000 debentures of Rs. 100 each

1. at par and redeemable at par.
2. at 10% discount and redeemable at par.
3. at 10% premium and redeemable at par.
4. at 10% premium and redeemable at a premium of 5%.
5. at par and redeemable at a premium of 5%.
6. at 10% discount and redeemable at a premium of 5%.

Solution: **Journal Entries** **(in '000)**

S. No.	Particulars		Debit (Rs.)	Credit (Rs.)
(i)	Bank Account	Dr.	10,000	
	To 12% Debentures Account			10,000
	(Being 12% Debentures issued at par)			
(ii)	Bank Account	Dr.	9,000	
	Discount on Issue of Debentures Account	Dr.	1,000	
	To 12% Debentures Account			10,000
	(Being 12%debentures issued at 10% discount)			
(iii)	Bank Account	Dr.	11,000	
	To 12% Debentures Account			10,000
	To Securities Premium Account			1,000
	(Being 12% debentures issued at 10% premium)			
(iv)	Bank Account	Dr.	11,000	
	Loss on Issue of Debenture Account	Dr.	500	
	To 12% Debentures Account			10,000
	To Securities Premium Account			1,000
	To Premium on redemption of Debentures			500
	(Being 12% debentures issued at 10% premium and redeemed at 5% premium)			
(v)	Bank Account	Dr.	10,000	
	Loss on issue of Debentures Account	Dr.	500	
	To 12% Debentures Account			10,000
	To Premium on Redemption of Debentures Account			500
	(Being 12% debentures issued at par and redeemed at 5% premium)			
(vi)	Bank Account	Dr.	9,000	
	Loss on Issue of Debentures Account (1000+500)	Dr.	1,500	
	To 12% Debentures Account			10,000
	To Premium on redemption of Debentures Account			500
	(Being 12% debentures issued at 10% discount and redeemed at 5% premium)			

ACCOUNTING TREATMENT OF DISCOUNT/LOSS ON THE ISSUE OF DEBENTURES

The discount/loss on debentures is in the nature of capital loss and therefore the same must be written off over the life time of debentures. The entire amount of discount or loss on issue of debenture cannot be written off in the year of issue since the benefit of debenture capital will continue till the redemption of debentures takes place. However, the following alternatives are available to write off discount/loss on issue of debentures.

1. Discount on issue of debentures being a capital loss can be written off against capital profits.
2. Discount on issue of debentures can be treated as deferred revenue expenditure and written off against revenue over the period of life of the debentures.

The following are the two methods which are generally adopted for this purpose.

Fixed Instalment Method: Where the debentures are redeemable at the end of specific period, the total amount of discount should be written off by equal instalments of fixed amount over that period.

Fluctuating Instalment Method: If the debentures are to be repaid by annual drawings or instalments it would be equitable in such a case to write off discount in proportion to unpaid amount of debentures.

Illustration 11

Bee Ltd. issued 2,000, 12% Debentures of Rs.100 each at a discount of 6% on 01.04.2018 repayable by equal annual drawings in four years. You are required to show the discount on Issue of Debentures Account over the period.

Solution:

Total amount of discount on issue of debentures:

= Rs. 2,00,000 x 6/100 = Rs. 12,000

This total discount of Rs. 12,000 has to be written off in proportion to the debentures outstanding at the beginning of each year. Thus, outstanding balance ratio will be as follows:

1.4.2018 = Rs. 2,00,000

1.4.2019 = Rs. (2,00,000 - 50,000) = Rs.1,50,000

1.4.2020= Rs. (1,50,000 - 50,000) = Rs. 1,00,000

1.4.2021 = Rs. (1,00,000 - 50,000) = Rs.50,000

Outstanding balance ratio = 2,00,000 : 1,50,000 : 1,00,000 : 50,000

= 4 : 3 : 2 : 1

Therefore, amount of discount to be written off every year will be as follows:

	Rs.
31.3.2019 = 12,000 x 4/10 =	4,800
31.3.2020 = 12,000 x 3/10 =	3,600

31.3.2021 = 12,000 x 2/10 =	2,400
31.3.2022 = 12,000 x 1/10 =	1,200
Total	Rs. 12,000

REDEMPTION OF DEBENTURES

Section 71 (1) of the Companies Act, 2013	Section 71 (2) of the Companies Act, 2013	Section 71 (4) of the Companies Act, 2013
Company may issue debentures with an option to convert such debentures into shares, either wholly or partly at the time of redemption. Provided that the issue of debentures with an option to convert such debentures into shares, wholly or partly, should be approved by a special resolution passed at a duly convened general meeting.	No company can issue any debentures which carry any voting rights.	Where debentures are issued by a company, the company should create a debenture redemption reserve account out of the profits of the company available for payment of dividend and the amount credited to such account should not be utilized by the company for any purpose other than the redemption of debentures.

CREATION OF DEBENTURE REDEMPTION RESERVE

Section 71(4) of the Companies Act, 2013, read with Rule 18(7) of the Companies (Share Capital And Debentures) Rules, 2014, requires every company issuing redeemable non-convertible debentures to create a Debenture Redemption Reserve (DRR) account of at least a certain percentage of the total outstanding value of the issued debentures (described below), out of the profits of the company available for the payment of dividend and the amount credited to such account shall only be used for the redemption of debentures. This effort is to protect the debenture holders from the possibility of the company defaulting on repayments, as DRR ensures that enough funds are available to meet the obligations of the debenture holders.

Let us assume that an unlisted company issues ₹10 crore worth of debentures in January 2022 with a maturity date of January 2032. In this case, the company has to create ₹1 crore (representing 10% of the total outstanding of the issued debentures, i.e., ₹10 crore) as DRR before the maturity date.

Adequacy of Debenture Redemption Reserve (DRR)

The Debenture Redemption Reserve shall be created out of the profits of the company available for payment of dividend; the limits with respect to adequacy of DRR and investment or deposits, as the case may be, shall be as under:

Sr. No.	Debentures issued by	Adequacy of Debenture Redemption Reserve (DRR)
1	All India Financial Institutions (AIFIs) regulated by Reserve Bank of India and Banking Companies for both public as well as privately placed debentures	No DRR is required

Sr. No.	Debentures issued by	Adequacy of Debenture Redemption Reserve (DRR)
2	Other Financial Institutions (FIs) within the meaning of clause (72) of section 2 of the Companies Act, 2013	DRR will be as applicable to NBFCs registered with RBI (as per (3) below)
3	For listed companies (other than AlFIs and Banking Companies as specified in Sr. No. 1 above):	
a.	All listed NBFCs (registered with RBI under section 45-IA of the RBI Act,) and listed HFCs (Housing Finance Companies registered with National Housing Bank) for both public as well as privately placed debentures	No DRR is required
b.	Other listed companies for both public as well as privately placed debentures	No DRR is required
4	For unlisted companies (other than AlFIs and Banking Companies as specified in Sr. No. 1 above	
a.	All unlisted NBFCs (registered with RBI under section 45-IA of the RBI (Amendment) Act, 1997) and unlisted HFCs (Housing Finance Companies registered with National Housing Bank) for privately placed debentures	No DRR is required
b.	Other unlisted companies	DRR shall be 10% of the value of the outstanding debentures issued

Investment of Debenture Redemption Reserve (DRR) Amount

As per Rule 18 (7) of the Companies (Share Capital and Debentures) Amendment Rules, 2019, following companies:

(a) All listed NBFCs

(b) All listed HFCs

(c) All other listed companies (other than AlFIs, Banking Companies and Other FIs); and

(d) All unlisted companies which are not NBFCs and HFCs

shall on or before the 30th day of April in each year, in respect of debentures issued, deposit or invest, as the case may be, a sum which should not be less than 15% of the amount of its debentures maturing during the year ending on the 31st day of March of next year, in any one or more of the following methods, namely:

(a) in deposits with any scheduled bank, free from charge or lien;

(b) in unencumbered securities of the Central Government or of any State Government;

(c) in unencumbered securities mentioned in clauses (a) to (d) and (ee) of Section 20 of the Indian Trusts Act, 1882;

(d) in unencumbered bonds issued by any other company which is notified under clause (f) of Section 20 of the Indian Trusts Act, 1882.

Important Point:

- The amount deposited or invested, as the case may be, above should not be utilised for any purpose other than for the redemption of debentures maturing during the year referred to above.

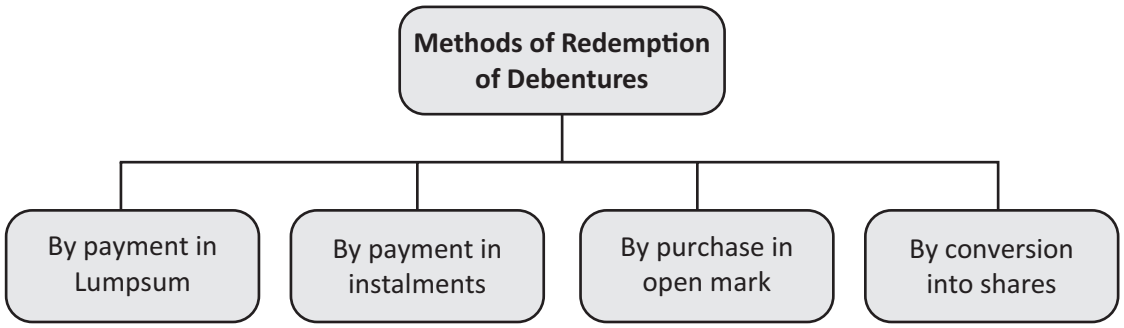
  Provided that the amount remaining deposited or invested, as the case may be, shall not at any time fall below 15% of the amount of debentures maturing during the 31st day of March of that year.

- In case of partly convertible debentures, DRR shall be created in respect of non-convertible portion of debenture issue.
- The amount credited to DRR shall not be utilised by the company except for the purpose of redemption of debentures.
- It should be noted that appropriation to DRR can be made any time before redemption and Investments in specified securities as mentioned above can be done before 30th April for the debentures maturing that year, however, for the sake of simplicity and ease, it is advisable to make the appropriation and investment immediately after the debentures are allotted assuming that the company has sufficient amount of profits (issued if allotment date is not given in the question). Also, in some cases, the date of allotment could be missing, in such cases the appropriation and investments should be done on the first day of that year for which ledgers accounts are to be drafted.

Journal Entries				
Date	**Particular**	**L.F.**	**Amount (Dr.)**	**Amount (Cr.)**
	(a) For setting aside the fixed amount of profit for redemption			
	Profit and Loss A/c Dr.			
	To Debenture Redemption Reserve A/c			
	(b) For investing the amount set aside for redemption			
	Debenture Redemption Reserve Investment A/c Dr.			
	To Bank A/c			
	(c) For receipt of interest on Debenture Redemption Reserve Investments			
	Bank A/c Dr.			
	To Interest on Debenture Redemption Reserve			
	Investment A/c			
	(d) For transfer of interest on Debenture Redemption Reserve Investments (DRRI)			
	Interest on Debenture Redemption Reserve Investment A/c Dr.			
	To Profit and loss A/c*			

	At the time of redemption of debentures **(a) For encashment of Debenture Redemption Reserve Investments** Bank A/c Dr. To Debenture Redemption Reserve Investment A/c **(b) For amount due to debenture holders on redemption** Debentures A/c Dr. To Debenture holders A/c **(c) For payment to debenture holders** Debenture holders A/c To Bank A/c Dr. After redemption of debentures, DRR should be transferred to general reserve DRR A/c Dr. To General Reserve			

** Considering the fact that interest is received each year through cash/bank account and it is not re-invested. In the illustrations given in the chapter, the same has been considered and hence interest on DRR investment is not credited to DRR A/c but taken to P&L A/c.*



By payment in lumpsum

Under payment in lumpsum method, at maturity or at the expiry of a specified period of debenture the payment of entire debenture is made in one lot or even before the expiry of the specified period.

By payment in Instalments

Under payment in instalments method, the payment of specified portion of debenture is made in instalments at specified intervals.

Purchase of Debentures in Open Market

Debentures sometimes are purchased in open market. This is not covered in the chapter as it has been specifically excluded from the syllabus at Foundation level.

Question 1

The following balances appeared in the books of a company (unlisted company other than AIFI, Banking company, NBFC and HFC) as on December 31, 2022: 6% Mortgage 10,000 debentures of Rs. 10 each; Debenture Redemption Reserve (for redemption of debentures) Rs. 5,000; Investments in deposits with a scheduled bank, free from any charge or lien Rs. 15,000 at interest 4% p.a. receivable on 31st December every year. Bank balance with the company is Rs. 90,000.

The Interest on debentures had been paid up to December 31, 2022.

On February 28, 2023, the investments were realised at par and the debentures were paid off at 10.1, together with accrued interest.

Write up the concerned ledger accounts (excluding bank transactions).

Solution:

6% Mortgage Debentures Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Feb. 28, 2023	To Debenture-holders A/c		1,00,000	Jan. 1 2023	By Balance b/d		1,00,000

Debentures Redemption Reserve Investment Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Jan. 1, 2023	To Balance b/d		15,000	Feb. 28, 2023	By Bank		15,000

Debenture Interest Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Feb. 28, 2023	To Bank (10,000x 10 x 6% x 2/12)		1,000	Feb. 28, 2023	By Profit & Loss A/c		1,000

Bank A/c

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Jan 01, 2023	To Balance b/d		90,000	Feb. 28, 2023	By Debenture-holders (10,000 x 10.1)		1,01,000
Feb 28, 2023	To Interest on Debentures Redemption Investments (15,000 x 4% x 2/12)		1,00		By Debenture Interest A/c		1,000

	To Debentures Redemption Reserve investment A/c		15,000		By Balance c/d		3,100
			1,05,100				1,05,100

Debenture Redemption Reserve Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Feb 28, 2023	To General Reserve-(note)		10,000	Jan.1, 2023	By Balance b/d		5,000
				Jan.1, 2023	By Profit & Loss (b/f)		5,000
			10,000				10,000

Note: Amount to be transferred to DRR before the redemption = Rs. 10,000 [i.e. 10% of (10,000 X 10)].

Question: 2

The following balances appeared in the books of Apple Ltd (unlisted company other than AIFI, Banking company, NBFC and HFC) as on 1-4-2022:

(i) 12 % Debentures **Rs. 75,000**

(ii) Balance of DRR **Rs. 25,000**

(iii) DRR Investment Rs. 11,250 represented by 10%` 1,125 Secured Bonds of the Government of India of Rs. 10 each.

Annual contribution to the DRR was made on 31st March every year. On 31-3-2023, balance at bank was Rs. 75,000 before receipt of interest. The investment were realised at par for redemption of debentures at a premium of 10% on the above date.

You are required to prepare the following accounts for the year ended 31st March, 2023:

(1) Debentures Account

(2) DRR Account

(3) DRR Investment Account

(4) Bank Account

(5) Debenture Holders Account.

Solution:

12% Debentures Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Mar 31 2023	To Debenture-holders A/c		75,000	April 1 2022	By Balance b/d		75,000

10% Secured Bonds of Govt. (DRR Investment) A/c

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Apr. 1, 2022	To Balance b/d		11250	Mar. 31, 2023	By Bank		11250

Bank A/c

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Apr 01, 2022	To Balance b/d		75,000	Mar 31, 2023	By Debenture-holders		82500
Mar 31, 2023	To Interest on Debentures Redemption Investments (11250 x 10%)		1125		By Debenture Interest A/c		
	To Debentures Redemption Reserve investment A/c		11250		By Balance c/d		4875
			87375				87375

Debenture Redemption Reserve Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Mar 31, 2023	To General Reserve-(note)		7500	Apr.1, 2022	By Balance b/d		2,500
				Apr 1, 2022	By Profit & Loss (b/f)		5,000
			7500				7,500

Note: *Calculation of DRR before redemption = 10% of Rs. 75,000 = 7500*

Available balance = 2500

DRR required = 7500 - 2500 = 5000.

Debenture Holder Account

Date	Particulars	J.F.	Amount	Date	Particulars	J.F.	Amount
Mar 31, 2023	To Bank A/c		82500	Apr.1, 2022	By 12% Debenture		75000
				Apr 1, 2022	By Premium on redemption of debentures (75000 X 10%)		7500
			82500				82500

Question: 3

ABC Ltd. has issued 1,0000, 12% convertible debentures Rs. 100 each redeemable after a period of five years at a premium of 5%. The debenture holders also had the option at the time of redemption to convert 30% of their holdings into equity shares of Rs. 10 each at a price of Rs. 20 per share and balance in cash. Debenture holders amounting Rs. 2,00,000 opted to get their debentures converted into equity shares as per terms of the issue. You are required to calculate the number of shares issued and cash paid for redemption of Rs. 20,000 debenture holders.

Solution:

Particulars	No. of Debentures
Debenture holders opted for conversion (200000 /100)	2000
Option for conversion	30%
Number of debentures to be converted (30% of 2000)	600
Redemption value of 600 debentures at a premium of 5% [600 x (100+5)]	63000
Equity shares of Rs. 10 each issued on conversion[Rs. 63000/ Rs. 20]	3150 shares

Calculation of cash to be paid:

Number of debentures	2000
Less: number of debentures to be converted into equity shares	(600)
	1400

Redemption value of 1400 debentures (1400 x Rs. 105) i.e. Rs. 147000.

Question 4

The Balance Sheet of Shyam Co. Ltd. (unlisted company other than AIFI, Banking company, NBFC and HFC) as at 31st March, 2023 shown **Long term borrowings with respect to** 12% Debentures of Rs. 100000

At the Annual General Meeting, it was resolved that to repay the debentures at a premium of 5%. Give the necessary journal entries for these transactions.

Journal Entries			
Particular	**L.F.**	**Amount (Dr.)**	**Amount (Cr.)**
Profit and Loss A/c Dr.		10000	
To Debenture Redemption Reserve			10000
(for DRR created 10% x 100000)			
Debenture Redemption Reserve Investment A/c Dr.		15000	
To Bank A/c			15000
(for DRR Investment created 15% x 100000)			

12% Debentures A/c Dr. Premium Payable on Redemption A/c @ 5% Dr. To Debenture holders A/c (Amount payable to debentures holders)		100000 5000	 105000
Profit and loss A/c Dr. To Premium Payable on Redemption A/c (Premium payable on redemption of debentures charged to Profit & Loss A/c)		5000	 5000
Debenture Redemption Reserve A/c Dr. To General Reserve (for DRR transferred to general reserve)		10000	 10000
Bank A/c Dr. To Debenture Redemption Reserve Investment (for DRR Investment realised)		15000	 15000
Debenture holders A/c Dr. To Bank A/c (Amount paid to debenture holders on redemption)		105000	 105000

PURCHASE OF DEBENTURES BEFORE THE SPECIFIED DATE OF PAYMENT OF INTEREST [CUM-INTEREST AND EX-INTEREST QUOTATIONS]

In case of Ex-interest quotation, interest has to be paid to the holders for the expired period in addition to the price paid for the debentures. In any case, the company must pay interest for the expired period and while making entry in its books at the time of purchase of the debentures, the amount paid by way of interest should be treated separately from the price actually paid for the debentures.

Interest on debentures is generally paid half yearly to the holders on certain specified dates, e.g., 30th September and 31st March every year. If debentures are purchased exactly on these specified dates, it involves no problem. In such a case, interest is payable to the holders of debentures. But, where debentures are purchased at a date before the specified date of payment of interest the question which naturally arises is whether the price paid for such debentures includes the interest for the expired period (i.e., from the previous date of payment of interest up to the date of purchase) or not.

For this purpose it is important to note whether the price paid for the debentures is quoted as “Cum- interest” or “Ex-interest”. If the purchase price for the debentures includes interest for the expired period, the quotation is said to be “Cum-interest”. If, on the other hand, the purchase price for the debentures excludes the interest for the expired period, the quotation is said to be “Ex-interest”.

Illustration 12

(Purchase of debentures for immediate cancellation)

XYZ Ltd. has 5000, 10% debentures of Rs.100 each. The interest on these debentures is paid half yearly on June 30, December 31 every year. The company is not maintaining any sinking fund. On 01-04-2022, the company purchased 500 debentures at Rs. 95 each cum – interest for immediate cancellation. On 01-10-2022, the company purchased 600 debentures at Rs. 90 each ex-interest for immediate cancellation. Journalize.

Solution:

XYZ Ltd.

Journal Entries

Date	*Particulars*		*Debit (Rs.)*	*Credit (Rs.)*
2022 April 1	10% Debentures A/c	Dr	50,000	
	Debenture Interest A/c	Dr	1250	
	To Bank A/c			47,500
	To Profit on cancellation of debentures A/c			3750
	(Purchase of debentures-cum-interest for immediate cancellation)			
June 30	Debenture Interest A/c	Dr	22,500	
	To Bank A/c			22,500
	(Payment of interest on Rs 4,50,000 debentures for six months)			
October 1	10% Debentures A/c	Dr	60,000	
	Debenture Interest A/c	Dr	1500	
	To Bank A/c			55,500
	To Profit on cancellation of debentures A/c			6,000
	(Purchase of debentures ex-interest for immediate cancellation)			
December 31	Debenture Interest A/c	Dr	19,500	
	To Bank A/c			19,500
	(Payment of interest on Rs 3,90,000 debentures for six months)			
December 31	Profit & Loss A/c	Dr	44,750	
	To Debenture interest A/c			44,750
	(Transfer of debenture interest to P&L A/c)			

December 31	Profit on cancellation of Debentures A/c To Capital Reserve A/c (Profit on cancellation transferred to Capital Reserve)	Dr	9750	 9750
December 31	Surplus A/c To Debenture Redemption Reserve A/c (Transfer to DRR)	Dr	1,10,000	 1,10,000

Illustration 13

(Purchase of Own Debentures as investment)

Sugandha Ltd. issued 10,000 12% Debentures of Rs. 100 each on 1st April, 2021. Interest is payable on 30th September and 31st March every year. On 1st July, 2022, the company purchased 1,000 of its Own Debentures at Rs. 96 ex-interest as investments. On 1st January, 2023, the company purchased 2000 of its Own Debentures at Rs. 96 cum interest as investment. On 31st March 2023, the company cancelled all of its Own Debentures and books closes on 31st March every year. Journalize.

Solution:

Sugandha Ltd. Journal Entries

Date	*Particulars*		*Debit (Rs.)*	*Credit (Rs.)*
2021 April1	Bank A/c To 12% Debentures A/c (Being issued 10,000, 12% debentures of Rs 100 each)	Dr	10,00,000	 10,00,000
September 30	Debenture Interest A/c To Bank A/c (Being paid interest on debentures for six months)	Dr	60,000	 60,000
2022 March 31	Debenture Interest A/c To Bank A/c (Being interest paid on debentures for six months)	Dr	60,000	 60,000
March 31	Profit & Loss A/c To Debenture interest A/c	Dr	1,20,000	 1,20,000
July 1	Own Debentures A/c Debenture Interest A/c To Bank A/c (Being purchase of 1000 debentures at Rs 96 ex interest)	Dr Dr	96,000 3,000	 99,000

September 30	Debenture interest A/c Dr	57,000	
	To Bank A/c		54,000
	To Interest on Own Debentures A/c		3,000
	(Being interest on 9000 debentures for 6 months and own debentures for 3 months)		
2023 January 1	Own Debentures A/c Dr	1,86,000	
	Debenture Interest A/c Dr	6,000	
	To Bank A/c		1,92,000
	(Being 2000 own debentures purchased at Rs 96 cum interest)		
March 31	Debenture Interest A/c Dr	54,000	
	To Bank A/c		42,000
	To Interest on own debentures A/c		12,000
	(Being interest on 7000 debentures for 6 months and own debentures for 3 months)		
	Profit & Loss A/c Dr	1,20,000	
	To Debenture Interest A/c		1,20,000
	Interest on Own Debentures A/c Dr	15,000	
	To Profit & Loss A/c		15,000
	(Being transfer of interest on own debentures)		
	12% Debentures A/c Dr	3,00,000	
	To Own Debentures A/c		2,82,000
	To Profit on Cancellation A/c		18,000
	(Being cancellation of 3000 own debentures)		
	Profit on Cancellation A/c Dr	18,000	
	To Capital Reserve A/c		18,000
	(Being profit on cancellation transferred)		

LESSON ROUND-UP

- Debentures are Part of loan capital and the company is liable to pay interest thereon whether it earns profit or not
- Debentures may be of different kinds depending upon the conditions of their issue- secured , unsecured, bearer, registered, convertible, non- convertible, redeemable, irredeemable, first mortgage, second mortgage.
- Debentures may be issued at par, or at a premium, or at a discount
- Debentures can be issued for cash, consideration other than cash and as collateral security.
- The term 'Collateral Security may be defined as additional security given for a loan. Where a company obtains a secured loan from a bank or insurance company, it may mortgage some of its assets as a security against the said loan.
- Wherever a company issues debentures it undertakes to pay interest thereon at a fixed percentage. As the debentures acknowledge a debt, the payment of interest on the debt is obligatory on the part of the company issuing them irrespective of the fact whether the company earns profit or not. Thus, interest payable on debentures is a charge against the profits of the company.
- The discount/loss on debentures is in the nature of capital loss and therefore the same must be written off over the life time of debentures.
- When debentures are redeemed out of capital, no debenture redemption reserve is created out of profit of the company.
- Section 71(4) of the companies Act, 2013 provides that the debentures shall be redeemed out of divisible profits of the company through the creation of Debenture Redemption Reserve.
- A company if authorized by its articles of association, can buy its own debentures in the open market. The debentures so purchased can be used either for immediate cancellation or redemption of debentures or for investment.
- If the purchase price for the debentures includes interest for the expired period, the quotation is said to be "Cum-interest". If, on the other hand, the purchase price for the debentures excludes the interest for the expired period, the quotation is said to be "Ex-interest".

GLOSSARY

Debentures: Debentures are part of loan capital and the company is liable to pay interest thereon whether it earns profit or not.

Collateral Security: Collateral Security may be defined as additional security given for a loan.

Debenture interest: the payment of interest on the debt is obligatory on the part of the company issuing them irrespective of the fact whether the company earns profit or not.

Discount/loss on issue of debentures: The discount/loss on issue of debentures is in the nature of capital loss and therefore the same must be written off over the life time of debentures.

Redemption of debentures: Redemption of debentures means repayment of loan due on debentures to the debenture holders.

Debenture Redemption Reserve: Debenture Redemption Reserve is created out of profits of the company available for payment of dividend.

Ex-interest quotation: In Ex-interest quotation, interest has to be paid to the holders for the expired period in addition to the price paid for the debentures.

TEST YOURSELF

1. Kakloo Ltd issues Rs 1000, 15%, 5,000 debentures on which amount payable is Rs 200 on application, Rs 300 on allotment and balance on first call. In addition the company offers 1,000 – 12% second mortgage debentures of Rs 1000 each. In case of 15% debentures, the company received applications for 6200 debentures and the directors made pro-rata allotment and excess money was refunded. Journalise.
2. Rajkumar Ltd, purchased a building from Alok Ltd. for Rs 65,00,000. The payment was made as to 25% by accepting a bill of exchange, and for the balance debentures are allotted at 25% premium. Journalise in the books of purchaser.
3. Babli Ltd has 10,00,000 12% Debentures on which the interest is payable on 30th September and 31st March. Show the entries related to debenture interest. Tax deducted at source is 10%.
4. A company issued 15,000 10% Debentures of Rs 100 each on 1 April, 2018 at a discount of 6% redeemable at par by drawings method as follows :

Date of redemption	***Amt of Redemption (FV)***
31 March 2020	5,00,000
31 March 2021	5,00,000
31 March, 2022	5,00,000

5. On 30th June 2022 following balances stood in the books of a company :

	Rs.
8% First Mortgage Debentures Stock	2,00,000
Debenture Redemption Fund	2,13,080
Debenture Redemption Fund Investments:	
Rs 70,000 6% Punjab Electricity Board Bonds	71,260
Rs 80,000 5% UP Water Board Bonds	64,068
Rs 60,000 8% Government of India Loan	61,710
Rs 16,000 7% Cooperative Bank Loan	16,042

On the same day the investments were sold : Electricity bonds at par, 5% loan at Rs 91, 8% loan at Rs 109 and 7% loan at Rs 103. On 1st July the debentures were redeemed at a premium of 5%.

Write up the accounts concerned :

6. MM Ltd. had the following among their ledger opening balances on January 1, 2019 :

11% Debentures A/c (2000 issue)	50,00,000
Debenture Redemption Reserve A/c	45,00,000
13.5% Debentures in XX Ltd. A/c (Face Value Rs. 20,00,000)	19,50,000
Own Debentures A/c (Face value Rs. 20,00,000)	18,50,000

As 31st December 2019 was the date for redemption of the 2000 debentures, the company started buying Own Debentures and made the following purchases in the open market :

1-2-2019 2,000 debentures at Rs. 98 cum-interest.

1-6-2019 2,000 debentures at Rs. 99 ex-interest.

Half yearly interest is due on the debentures on the 30th June and 31st December in the case of both the companies.

On 31st December 2019 the debentures in XX Ltd. were sold for Rs. 95 each ex-interest. On that date, the outstanding debentures of MM Ltd. were redeemed by payment and by cancellation. Show the entries in the following ledger accounts of MM Ltd. during 2019 :

(a) Debenture Redemption Reserve A/c

(b) Own Debentures A/c

The face value of a debenture was Rs. 100 (Round off calculations to the nearest rupee.).

7. On 1st April, 2018 A Ltd. made an issue of 10,00,000 14% debentures of Rs. 100 each at Rs. 98 per debenture. According to the terms of issue, the company should redeem 10000 debentures either by purchasing them from the open market or by drawing lots at par at the company's option. Profit, if any, on redemption is to be transferred to capital reserve.

The company's accounting year ends on 31st March. Interest is payable on 30th September and 31st March.

During 2018-19 the company wrote off 20% of Debenture Discount Account.

During 2021-22, the company purchased and cancelled the debentures as given below:

Rs. 200,00,000 at Rs. 95 per debenture on 30th September, and

Rs. 300,00,000 at Rs. 97 per debenture on 31st March.

Give the journal entries in the books of A Ltd. for both the years

8. A company issued 100,000 debentures of Rs. 100 each redeemable at the end of 10th year, but reserves the right to redeem earlier from the end of the 5th year. The company decides at the end of the 5th year to redeem 20,000 debentures out of the profits it has made.

Pass necessary journal entries relating to redemption.

9. Give Journal entries for the following:

i. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at par and redeemable at par.

ii. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at premium of 5% but redeemable at par.

iii. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at discount of 5% repayable at par.

iv. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at par but repayable at a premium of 5%.

v. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at discount of 5% but redeemable at premium of 5%.

vi. Issue of Rs. 1,00,000, 9% debentures of Rs. 100 each at premium of 5% and redeemable at premium of 5%.

10. You are required to pass the journal entries relating to the issue of the debentures in the books of X Ltd., under the following cases:

    (a) 120, 8% debentures of Rs. 1,000 each are issued at 5% discount and repayable at par. Balance in Securities Premium Reserve is Rs. 10,000.

    (b) 150, 7% debentures of Rs. 1,000 each are issued at 5% discount and repayable at premium of 10%. Balance in Securities Premium Reserve is Rs. 20,000.

    (c) 80, 9% debentures of Rs. 1,000 each are issued at 5% premium.

    (d) Another 400, 8% debentures of Rs. 100 each are issued as collateral security against a loan of Rs. 40,000

11. JK Ltd., a listed company, issued 6,000, 12% Debentures of 50 each at a premium of 5% on April 1, 2016. Interest on these debentures is payable annually on 31st March each year. The debentures are redeemable at par in four equal installments at the end of third, fourth, fifth and sixth year at a premium of 10%. The company invested in specified securities as investment for the redemption of debentures.

    You are required to pass journal entries at the time of issue and redemption of debentures in the books of the company.

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.

- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House

- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann

- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Related Aspects of Company Accounts

Lesson 6

KEY CONCEPTS

■ Buy back ■ Escrow account ■ ESOP ■ Underwriting ■ Firm Underwriting ■ Marked Application ■ Unmarked Application

Learning Objectives

To understand:

- Accounting treatment and conditions for ESOPs
- Accounting procedure and conditions of buy-back of shares
- Equity Shares with differential rights
- Meaning and types of Underwriting
- Difference between marked application and unmarked applications
- Firms Underwriting
- Liability of underwriters

Lesson Outline

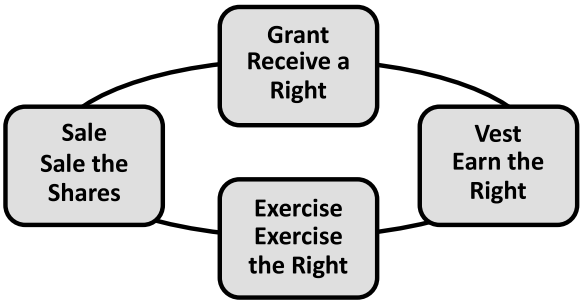
- Employee Stock Option Plan 'ESOP'
- Buy-Back of Shares
- Equity Shares with Differential Rights
- Explanatory Statement Annexed to Notice
- Underwriting of Shares/Debentures
- Firms Underwriting
- Lesson Round-Up
- Test Yourself
- List of Further Readings

EMPLOYEE STOCK OPTION PLAN (ESOP)

ESOP means a scheme under which the company grants option (a right but not an obligation) to an employee to apply for shares of the company at a predetermined price. This right is exercisable by the employee, during the specified period.

Section 2(37) of the Companies Act, 2013 states that the "employee stock option" means the option given to the whole time director, officers or employees of a company which gives such directors, officers or employees the benefit or right to purchase or subscribe at a future date, the securities offered by the company at a predetermined price. The SEBI has issued guidelines for ESOS of listed companies. These guidelines are also applicable for Employee Stock Purchase Scheme (ESPS), which implies a scheme under which the company offers shares to employee as part of public issue or otherwise.

ESOP CYCLE's



Important Terms of ESOP

Grant: Grant means giving an option to the Employees to subscribe to the shares of the company at the pre-determined price.

Grant Date: It is the date of agreement between the enterprise and its employees to the terms of Employees Stock Option Plan (ESOP).

Vesting: A process to give right to employees to apply for shares of the company. Vesting Date: It is the date on which the employee becomes entitled to apply for the shares once he has satisfied the vesting conditions.

Vesting Period: The period between the grant date and the date on which all the specified vesting conditions of an Employees Stock Option Plan (ESOP) need to be satisfied.

Exercise: It means applying by the employee for issue of shares against the option vested in him.

Exercise Period: Period after vesting within which the employee must exercise the right to apply for shares against the option vested in him in pursuance of the Employees Stock Option Plan.

Exercise Price: The price payable by the employee for exercising the option granted in pursuance of the Employees Stock Option Plan.

Value of Option: Difference between the market price and the issue price of the security.

A company issuing the options has to fulfill following prescribed conditions:

(a) these shares are of the same class of shares already issued;

(b) it is authorised by a special resolution passed by the company;

(c) the resolution specifies the number of shares, the current market price, consideration, if any, and the class or classes of directors or employees to whom such equity shares are to be issued;

(d) not less than one year has, at the date of issue, elapsed since the date on which the company had commenced business; and

(e) these shares are issued in accordance with SEBI regulations, if the shares are listed.

Accounting for ESOP

For accounting purposes, employee share-based payment plans are classified into the following categories:

Equity-settled: Under these plans, the employees receive shares.

Cash-settled: Under these plans, the employees receive cash based on the price (or value) of the enterprise's shares.

Employee share-based payment plans with cash alternatives: Under these plans, either the enterprise or the employee has a choice of whether the enterprise settles the payment in cash or by issue of shares.

An enterprise should measure the fair value of shares or stock options granted at the grant date, based on market prices, if available, taking into account the terms and conditions upon which those shares or stock options were granted. If market prices are not available, the enterprise should estimate the fair value of the instruments granted using a valuation technique to estimate what the price of those instruments would have been on the grant date in an arm's length transaction between knowledgeable, willing parties. The valuation technique should be consistent with generally accepted valuation methodologies for pricing financial instruments (e.g., use of an option pricing model for valuing stock options) and should incorporate all factors and assumptions that knowledgeable, willing market participants would consider in setting the price. Vesting conditions, other than market conditions, should not be taken into account when estimating the fair value of the shares or stock options at the grant date. Instead, vesting conditions should be taken into account by adjusting the number of shares or stock options included in the measurement of the transaction amount so that, ultimately, the amount recognized for employee services received as consideration for the shares or stock options granted is based on the number of shares or stock options that eventually vest.

Hence, on a cumulative basis, no amount is recognized for employee services received if the shares or stock options granted do not vest because of failure to satisfy a vesting condition (i.e., these are forfeited), e.g., the employee fails to complete a specified service period, or a performance condition is not satisfied.

Equity-settled Employee Share-based Payment Plans

An enterprise should recognize as an expense (except where service received qualifies to be included as a part of the cost of an asset) the services received in an equity-settled employee share-based payment plan when it receives the services, with a corresponding credit to an appropriate equity account, say, 'Stock Options Outstanding Account'. This account is transitional in nature as it gets ultimately transferred to another equity account such as share capital, securities premium account and/or general reserve as recommended in the Guidance Note.

If the shares or stock options granted vest immediately, the employee is not required to complete a specified period of service before becoming unconditionally entitled to those instruments. In the absence of evidence to the contrary, the enterprise should presume that services rendered by the employee as consideration for the instruments have been received. In this case, on the grant date, the enterprise should recognize services received in full with a corresponding credit to the equity account.

If the shares or stock options granted do not vest until the employee completes a specified period of service, the enterprise should presume that the services to be rendered by the employee as consideration for those instruments will be received in the future, during the vesting period. The enterprise should account for those services as they are rendered by the employee during the vesting period, on a time proportion basis, with a corresponding credit to the equity account.

To apply the requirements of the Guidance Note on Employee Share Based Payments, the enterprise should recognize an amount for the employee services received during the vesting period based on the best available estimate of the number of shares or stock options expected to vest and should revise that estimate, if necessary, if subsequent information indicates that the number of shares or stock options expected to vest differs from previous estimates. On vesting date, the enterprise should revise the estimate to equal the number of shares or stock options that ultimately vest. Market conditions, such as a target share price upon which vesting (or right to exercise) is conditioned, should be taken into account when estimating the fair value of the shares or stock options granted. On exercise of the right to obtain shares or stock options, the enterprise issues shares on receipt of the exercise price. The shares so issued should be considered to have been issued at the consideration comprising the exercise price and the corresponding amount standing to the credit of the relevant equity account (e.g., Stock Options Outstanding Account). In a situation where the right to obtain shares or stock option expires unexercised, the balance standing to the credit of the relevant equity account should be transferred to general reserve.

Cash-settled Employee Share-based Payment Plans

For cash-settled employee share-based payment plans, the enterprise should measure the services received and the liability incurred at the fair value of the liability. Until the liability is settled, the enterprise is required to re-measure the fair value of the liability at each reporting date and at the date of settlement, with any changes in fair value recognized in profit or loss for the period.

Employee Share-based Payment Plans with Cash Alternatives

For employee share-based payment plans in which the terms of the arrangement provide either the enterprise or the employee with a choice of whether the enterprise settles the transaction in cash or by issuing shares, the enterprise is required to account for that transaction, or the components of that transaction, as a cash-settled sharebased payment plan if, and to the extent that, the enterprise has incurred a liability to settle in cash (or other assets), or as an equity-settled share-based payment plan if, and to the extent that, no such liability has been incurred.

Accounting for employee share-based payment plans is based on the fair value method. There is another method known as the 'Intrinsic Value Method' for valuation of employee share-based payment plans. Intrinsic value, in the case of a listed company, is the amount by which the quoted market price of the underlying share exceeds the exercise price of an option. In the case of a non-listed company, since the shares are not quoted on a stock exchange, value of its shares is determined on the basis of a valuation report from an independent valuer.

Illustration 1:

A Company has its share capital divided into shares of Rs. 10 each. On 1st April, 20X1 it granted 10,000 employees' stock options at Rs. 40, when the market price was Rs. 130. The options were to be exercised between 15th March, 20X2 and 31st March, 20X2. The employees exercised their options for 9,500 shares only; the remaining options lapsed. The company closes its books on 31st March every year. Show Journal Entries.

Solution:

Journal Entries

Date	*Particulars*	*Dr.* ₹	*Cr.* ₹
15th March 20X2 to 31st March 20X2	Bank A/c (9,500 x 40) Dr.	3,80,000	
	Employee compensation expense A/c [9,500 x (130-40) Dr.	8,55,000	
	To Equity share capital A/c (9,500 x 10)		95,000
	To Securities premium A/c [9,500 x (130-10)]		11,40,000
	(Being allotment to employees of 9,500 equity shares of ₹10 each at a premium of ₹ 120 per share in exercise of stock options by employees)		
31st March 20X2	Profit and Loss A/c Dr.	8,55,000	
	To Employee compensation expense A/c		8,55,000
	(Being transfer of employee compensation expense to profit and loss account)		

Illustration 2

ABC Ltd. grants 1,000 employees stock options on 1.4.20X0 at Rs. 40, when the market price is Rs. 160. The vesting period is 2½ years and the maximum exercise period is one year. 300 unvested options lapse on 1.5.20X2. 600 options are exercised on 30.6.20X3. 100 vested options lapse at the end of the exercise period. Pass Journal Entries giving suitable narrations.

Solution:

In the books of ABC Ltd.

Journal Entries

Date	*Particulars*	*Dr. (₹)*	*Cr. (₹)*
31.3.20X1	Employees compensation expense account Dr.	48,000	
	To Employee stock option outstanding account		48,000
	(Being compensation expenses recognized in respect of the employee stock option i.e. 1,000 options granted to employees at a discount of ₹ 120 each, amortized on straight line basis over 2½ years)		
	(1,000 stock options x ₹ 120 / 2.5 years)		
	Profit and loss account Dr.	48,000	
	To Employees compensation expenses account		48,000
	(Being expenses transferred to profit and loss account at year end)		
31.3.20X2	Employees compensation expenses account Dr.	48,000	
	To Employee stock option outstanding account		48,000
	(Being compensation expense recognized in respect of the employee stock option i.e. 1,000 options granted to employees at a discount of ₹ 120 each, amortized on straight line basis over 2½ years)		
	(1,000 stock options x ₹ 120 / 2.5 years)		
	Profit and loss account Dr.	48,000	
	To Employees compensation expenses account		48,000
	(Being expenses transferred to profit and loss account at year end)		
31.3.20X3	Employee stock option outstanding account (W.N.1) Dr.	12,000	
	To General Reserve account (W.N.1)		12,000
	(Being excess of employees compensation expenses transferred to general reserve account)		
30.6.20X3	Bank A/c (600 × ₹ 40) Dr.	24,000	
	Employee stock option outstanding account (600 × ₹ 120) Dr.	72,000	
	To Equity share capital account (600 × ₹ 10)		6,000
	To Securities premium account (600 x ₹ 150)		90,000
	(Being 600 employee stock option exercised at an exercise price of ₹ 40 each)		

01.10.20X3	Employee stock option outstanding account (W.N.2) Dr.	12,000	
	To General reserve account (W.N.2)		12,000
	(Being ESOS outstanding A/c on lapse of 100 options at the end of exercise of option period transferred to General Reserve A/c)		

Working Notes:

1. On 31.3.20X3, ABC Ltd. will examine its actual forfeitures and make necessary adjustments, if any, to reflect expenses for the number of options that actually vested. Considering that 700 stock options have completed 2.5 years vesting period, the expense to be recognized during the year is in negative i.e.

No. of options actually vested (700 x 120)	₹ 84,000
Less: Expenses recognized ₹ (48,000 + 48,000)	(₹ 96,000)
Excess expense transferred to general reserve	₹ 12,000

2. Similarly, on 1.10.20X3, Employee Stock Option Outstanding Account will be

No. of options actually vested (600 x 120)	₹ 72,000
Less: Expenses recognized	(₹ 84,000)
Excess expense transferred to general reserve	₹ 12,000

Employee Stock Options Outstanding will appear in the Balance Sheet under a separate heading, between 'Share Capital' and 'Reserves and Surplus'.

Illustration 3:

P Ltd. granted option for 8,000 equity shares of nominal value of Rs. 10 on 1st October, 20X0 at Rs. 80 when the market price was Rs. 170. The vesting period is 4½ years, 4,000 unvested options lapsed on 1st December, 20X2, 3,000 options were exercised on 30th September, 20X5 and 1,000 vested options lapsed at the end of the exercise period. Pass Journal Entries for above transactions.

Solution:

In the books of P Ltd.

Journal Entries

Date	*Particulars*	*(₹)*	*(₹)*
31.3.20X1	Employees compensation expense account Dr.	80,000	
	To Employee stock option outstandingaccount		80,000
	(Being compensation expenses for 6 months recognized in respect of the employee stock options i.e. 8,000 options granted to employees at a discount of ₹ 90 (170-80) each, amortized on straight line basis over 4½ years [(8,000 stock options x ₹ 90) / 4.5 years] x 0.5) (W.N.1)		

Date	Particulars		(₹)	(₹)
	Profit and loss account	Dr.	80,000	
	To Employees compensation expenses account			80,000
	(Being expenses transferred to profit and loss account at the year end)			
31.3.20X2	Employees compensation expense account	Dr.	1,60,000	
	To Employee stock option outstanding account			1,60,000
	(Being compensation expense recognized in respect of the employee stock option i.e. 8,000 options granted to employees at a discount of ₹ 90 each, amortized on straight line basis over 4½ years 2			
	(8,000 stock options x ₹ 90) / 4.5 years) x 1 year)			
	Profit and loss account	Dr.	1,60,000	
	To Employees compensation expense account			1,60,000
	(Being expenses transferred to profit and loss account at year end)			
31.3.20X3	Employee stock option outstanding account (W.N.2)	Dr.	40,000	
	To General Reserve account (W.N.2)			40,000
	(Being excess of employees compensation expenses transferred to general reserve account)			
31.3.20X4	Employees compensation expense account	Dr.	80,000	
	To Employee stock option outstanding account			80,000
	(Being compensation expenses recognized in respect of the employee stock option i.e. 4,000 options at a discount of ₹ 90 each, amortized on straight line basis over 4½ years)			
	(4,000 stock options x ₹ 90) / 4.5 years)			
	Profit and loss account	Dr.	80,000	
	To Employees compensation expenses account			80,000
	(Being expenses transferred to profit and loss account at year end)			

Date	Particulars		(₹)	(₹)
31.3.20X5	Employees compensation expense account	Dr.	80,000	
	To Employee stock option outstanding account			80,000
	(Being compensation expenses recognized in respect of the employee stock option i.e. 4,000 options at a discount of ₹ 90 each, amortised on straight line basis over 4½ years)			
	[(4,000 stock options x ₹ 90) / 4.5 years])			
	Profit and loss account	Dr.	80,000	
	To Employees compensation expense account			80,000
	(Being expenses transferred to profit and loss account at year end)			
30.9.20X5	Bank A/c (3,000 × ₹ 80)	Dr.	2,40,000	
	Employee stock option outstanding	Dr.	2,70,000	
	To Equity share capital account (3,000 x ₹ 10)			30,000
	To Securities premium (`170 – ₹ 10) x 3,000			4,80,000
	(Being 3,000 employee stock option exercised at an exercise price of ₹ 80 each)			
	Employee stock option outstanding account (W.N.3)	Dr.	90,000	
	To General reserve account (W.N.3)			90,000
	(Being ESOS outstanding A/c transferred to General Reserve A/c on lapse of 1000 vested options at the end of the exercise period)			

Working Notes:

1. Fair value = ₹ 170 – ₹ 80 = ₹ 90
2. At 1.12.X3, 4,000 unvested option lapsed on which till date expenses recognized to be transferred to general reserve =

$$(4000 \times 90 \times \frac{2.5}{4.5}) - 2,40,000 = 40,000$$

3. Expenses charged on lapsed vested options transferred to general reserve
   = 1,000 x ₹ 90 = ₹ 90,000

Disclosure in the Director's Report – The Board of Directors shall inter alia disclosure either in the Director's Report or in the annexure to the Director's Report the following details of the ESOS:

(a) Options granted;

(b) The pricing formula;

(c) Options vested;

(d) Options exercised;

(e) The total number of shares arising as a result of exercise of option;

(f) Options lapsed;

(g) Variation of terms of options;

(h) Money realized by exercise of options;

(i) Total number of options in force;

(j) Employee wise details of options granted to:

  (i) Senior managerial personnel;

  (ii) Any other employee who receives a grant in any one year of option amounting to 5% or more of option granted during that year;

  (iii) Identified employees who were granted option, during any one year, equal to or exceeding 1% of the issued capital (excluding outstanding warrants and conversions) of the company at the time of grant;

(k) 'diluted earnings per share' pursuant to the issue of shares on exercise of option calculated in accordance.

BUY-BACK OF SHARES

When a company has substantial cash resources, it may like to buy its own shares from the market particularly when the prevailing rate of its shares in the market is much lower than the book value; or what the company perceives to be its true value. Buy-back of shares enables the company to go back to its shareholders and offers to purchase from them the shares they hold. Buy-back of Securities is a very important tool for companies that wants to reduce their Share Capital.

Conditions for Buy-Back of Shares

- must be authorized by its articles
- a special resolution has been passed at a general meeting of the company authorizing the buy-back, but the same is not required when the buy-back is 10% or less of the total paid up equity capital and free reserves of the company; and such buy-back has been authorized by the Board by means of a resolution passed at its meeting
- the buy-back is 25% or less of the aggregate of paid up capital and free reserves of the company. But in case of Equity Shares, the same shall be taken as 25% of paid up equity capital only
- Debt Equity ratio should be 2:1, where: Debt is aggregate of secured and unsecured debts owed by the company after buy-back, and Equity: is the aggregate of the paid up capital and its free reserves

all the shares or other specified securities for buy-back are fully paid up

If shares or securities are listed, buy-back will be in accordance with the regulations made by the Securities and Exchange Board in this behalf

the buy-back in respect of unlisted shares or other specified securities will be in accordance with Share Capital and Debentures Rules, 2014

no offer of buy-back shall be made within a period of one year from the date of the closure of the preceding offer of buy-back, if any.

Explanatory Statement – Section 68(3):

The notice of the meeting at which the special resolution is proposed to be passed shall be accompanied by an explanatory statement stating –

(a) a full and complete disclosure of all material facts;

(b) the necessity for the buy-back;

(c) the class of shares or securities intended to be purchased under the buy-back;

(d) the amount to be invested under the buy-back; and

(e) the time-limit for the completion of buy-back.

As per the rules, following more details is to be included in the Explanatory Statement:

(f) the date of the board meeting at which the proposal for buy-back was approved by the Board of Directors of the company;

(g) the number of securities that the company proposes to buy-back;

(h) the method to be adopted for the buy-back;

(i) the price at which the buy-back of shares or other securities shall be made;

(j) the basis of arriving at the buy-back price;

(k) the maximum amount to be paid for the buy-back and the sources of funds from which the buy-back would be financed;

(l) Shareholding:

  (a) it is the aggregate shareholding of the promoters and of the directors of the promoter, where the promoter is a company, of the directors and key managerial personnel, as on the date of the notice convening the general meeting;

  (b) the aggregate number of equity shares purchased or sold by persons mentioned in sub-clause (a) during a period of twelve months preceding the date of the board meeting at which the buy-back was approved and from that date till the date of notice convening the general meeting;

(c) the maximum and minimum price at which purchases and sales referred to in sub-clause (b) were made along with the relevant date.

(m) if the persons mentioned in l (a) intend to tender their shares for buy-back –

(a) the quantum of shares proposed to be tendered;

(b) the details of their transactions and their holdings in the last twelve months, prior to the date of the board meeting at which the buy-back was approved including information of number of shares acquired, the price and the date of acquisition.

(n) a confirmation that there are no defaults subsisting in repayment of deposits, interest payment thereon, redemption of debentures or payment of interest thereon, or redemption of preference shares, or payment of dividend due to any shareholder, or repayment of any term loans, or interest payable thereon to any financial institution or banking company;

(o) a confirmation:

(a) that the Board of Directors have made a full enquiry into the affairs and prospects of the company and that they have formed the opinion- general meeting is convened there shall be no grounds on which the company could be found unable to pay its debts;

(b) about the company's prospect for the year immediately following that date, its management character and initiations, its financial resources that will be available during that year so that the company shall he able to meet its liabilities as and when they fall due and shall not be rendered insolvent within a period of 1 year from that date; and

(c) the directors have taken into account the liabilities(including prospective and contingent liabilities), as if the company were being wound up under the provisions of the Companies Act, 2013.

(p) a report addressed to the Board of Directors by the company's auditors stating that-

(i) they have inquired into the company's state of affairs;

(ii) the amount of the permissible capital payment for the securities in question is in their view properly determined;

(iii) that the audited accounts on the basis of which calculation with reference to buy-back is done is not more than six months old from the date of offer document; and

(iv) the Board of Directors have formed the opinion as specified in point 'o' on reasonable grounds and that the company, with regard to its state of affairs, shall not be rendered insolvent within a period of one year from that date.

Other Conditions for Buy back

- Every buy-back shall be completed within a period of one year from the date of the resolution or special resolution, as the case may be, passed by the Board. [Section 68(4)]
- The buy-back can be :

(a) from the existing shareholders or security holders on a proportionate basis;

(b) from the open market;

(c) by purchasing the securities issued to employees of the company pursuant to a scheme of stock option or sweat equity. [Section 68(5)]

- Before making such buy-back, file with the Registrar, a declaration of solvency signed by at least two directors of the company, one of whom shall be the managing director, if any, Form No. SH.9 may be prescribed and verified by an affidavit to the effect that the Board of Directors has made a full inquiry into the affairs of the company as a result of which they have formed an opinion that it is capable of meeting its liabilities and will not be rendered insolvent within a period of one year from the date of declaration adopted by the Board. [Section 68(6)]
- Company shall extinguish and physically destroy the shares or securities so bought back within seven days of the last date of completion of buy-back. [Section 68(7)]
- Where a company completes a buy-back of its shares or other specified securities, it shall not make a further issue of the same kind of shares or other securities including allotment of new shares or other specified securities within a period of six months except by way of:
  - (a) bonus issue, or
  - (b) in the discharge of subsisting obligations such as conversion of warrants, stock option schemes, sweat equity or conversion of preference shares or debentures into equity shares.
- Company shall maintain a register in Form No. SH.10 of the shares or securities so bought, the consideration paid for the shares or securities bought back, the date of cancellation of shares or securities, the date of extinguishing and physically destroying the shares or securities. The register of shares or securities bought back shall be maintained at the registered office of the company and shall be kept in the custody of the secretary of the company or any other person authorized by the board in this behalf. The entries in the register shall be authenticated by the secretary of the company or by any other person authorized by the Board for the purpose.
- A company shall, after the completion of the buy-back under this section, shall file with the Registrar a return in Form No. SH.11 containing such particulars relating to the buy-back within thirty days of such completion. There shall be annexed to the return, a certificate in Form No. SH.15 signed by two directors of the company including the managing director, if any, certifying that the buy-back of securities has been made in compliance with the provisions of the Act and the rules made thereunder.
- If a company makes any default in complying with the provisions of this section or any regulation made by the Securities and Exchange Board, for the purposes of clause (f) of sub-section (2), the company shall be punishable with fine which shall not be less than one lakh rupees but which may extend to three lakh rupees and every officer of the company who is in default shall be punishable with fine which shall not be less than one lakh rupees but which may extend to three lakh rupees.

Transfer of certain sums to Capital Redemption Reserves Account (Section 69)

Where a company purchases its own shares out of free reserves or securities premium account, a sum equal to the nominal value of the shares so purchased shall be transferred to the Capital Redemption Reserve Account and details of such transfer shall be disclosed in the balance sheet. The Capital Redemption Reserve Account may be applied by the company, in paying up unissued shares of the company to be issued to members of the company as fully paid bonus shares.

Prohibition on buy-back in following circumstances (Section 70)

No company shall directly or indirectly purchase its own shares or other specified securities –

(a) through any subsidiary company including its own subsidiary companies;

(b) through any investment company or group of investment companies; or

(c) if a default, is made by the company, in the repayment of deposits accepted either before or after the

commencement of this Act, interest payment thereon, redemption of debentures or preference shares or payment of dividend to any shareholder, or repayment of any term loan or interest payable thereon to any financial institution or banking company. Provided that the buy-back is not prohibited, if the default is remedied and a period of three years has lapsed after such default ceased to subsist.

No company shall, directly or indirectly, purchase its own shares or other specified securities in case such company has not complied with the provisions of:

(a) Sections 92: Annual Return

(b) Section 123: Declaration and Payment of Dividend

(c) Section 127: Failure to pay Dividend

(d) Section 129: Failure to give True and Fair Statement.

Modes of Buy-Back

A company may buy-back its shares or other specified securities by any one of the following methods:

a) from the existing share holders or other specified securities holders on a proportionate basis through the tender offer;

b) from the open market through—

   i) book-building process,

   ii) stock exchange;

c) from odd-lot holders, provided that no offer of buy-back for fifteen per cent or more of the paid up capital and free reserves of the company shall be made from the open market.

Disclosures, filing requirements and timelines for public announcement and draft letter of offer

When a company proposes to buy-back its own shares, and it has been authorised by a special resolution or a resolution passed by the board of directors, as the case may be, shall make a public announcement within two working days from the date of declaration of results of the postal ballot for special resolution/board of directors resolution in at least one English National Daily, one Hindi National Daily and one Regional language daily, all with wide circulation at the place where the Registered Office of the company is situated and the said public announcement shall contain all the material information as specific in these Regulations. A copy of the public announcement along with the soft copy, shall also be submitted to SEBI, simultaneously, through a merchant banker.

The company shall within five working days of the public announcement file the following :

a) A draft letter of offer, along with a soft copy, containing disclosures as specified in these regulations through a merchant banker who is not associated with the company.

b) A declaration of solvency in specified form and in a manner provided in Section 68(8) of the Companies Act, 2013.

c) Prescribed fees as specified in these regulations.

SEBI may provide its comments on the draft letter of offer within seven working days of the receipt of the draft letter of offer. Letter of Offer shall be dispatch to the Shareholders.

The company shall dispatch the letter of offer along with the tender form to all securities holders which are eligible to participate in the buy-back offer not later than five working days from the receipt of communication of comments from SEBI.

Note:

- Letter of Offer may also be dispatched through electronic mode in accordance with the provisions of the Companies Act, 2013.
- On receipt of a request from any shareholder to receive a copy of the letter of offer in physical form, the same shall be provided.

If in case an eligible public shareholder does not receive the tender offer/offer form, even though he can participate in the buy-back offer and tender shares in the manner as provided by SEBI.

The date of the opening of the offer shall be not later than five working days from the date of dispatch of the letter of offer. It shall be remain opened for a period of ten working days.

The company shall provide the facilities for tendering of shares by the shareholders and settlement of the same, through the stock exchange mechanism in the manner as provided by SEBI.

Escrow account

Regulation 9(xi) of SEBI (Buy back of Securities) Regulations, 2018 provides that a company shall, as and by way of security for performance of its obligations under the regulations, on or before the opening of the offer, deposit in an escrow account such sum as specified below:

The escrow amount shall be payable in the following manner:

a) if the consideration payable does not exceed Rupees 100 crores; 25 per cent of the consideration payable;

b) if the consideration payable exceeds Rupees 100 crores; 25 per cent upto Rupees 100 crores and 10 per cent thereafter.

The escrow account referred to in this regulation shall consist of,

(i) cash deposited with a scheduled commercial bank, or

(ii) bank guarantee in favour of the merchant banker, or

(iii) deposit of acceptable securities with appropriate margin, with the merchant banker, or

(iv) a combination of (i), (ii) and (iii) above.

Accounting for Buy-Back

Buy-back of shares is just the opposite of issue of shares. Just as shares may be issued at par, at a premium, even buy-back may be at par, at a premium or at a discount. The basis of accounting for buy-back is Section 68 of the Companies Act, 2013. This Section not only permits a company to buy-back or redeem its equity shares, but also specifies the sources from out of which repurchase is to be effected.

According to Section 68(1), a company may buy-back its shares or other specified securities from out of:

1. Its free reserves, or
2. The securities premium account, or
3. The proceeds of any shares or other specified securities.

However, no buy-back of shares shall be made out of the proceeds of an earlier issue of the same kind of shares or same kind of other specified securities. This Section also lays down that all the shares or other specified securities for buy-back are fully paid up.

As per Section 69, when a company purchases its own shares out of free reserves. Then a sum equal to the nominal value of the shares so purchased shall be transferred to the Capital Redemption Reserve Account and details of such transfer should be disclosed in the balance sheet.

The Capital Redemption reserve account may be applied by the company, in paying up unissued share of the company to be issued to members of the company as fully paid bonus shares.

EQUITY SHARES WITH DIFFERENTIAL RIGHTS

According to Section 43 of the Companies Act, 2013, Equity share capital may be Equity Share Capital with voting right or Equity Share Capital with differential right as to dividend, voting or otherwise.

Rule 4 of the Companies (Share Capital and Debentures) Rules 2014 deals with equity shares with differential rights.

Which Company may issue:

A company limited by shares shall issue equity shares with differential rights as to dividend, voting or otherwise, when it complies with the following conditions:

(a) The articles of association of the company authorize the issue of shares with differential rights.

(b) The issue of shares is authorized by an ordinary resolution passed at a general meeting of the shareholders. Where the equity shares of a company are listed on a recognized stock exchange, the issue of such shares shall be approved by the shareholders through postal ballot.

(c) The voting power in respect of shares with differential rights of the company shall not exceed seventy four per.

(d) cent of total voting power including voting power in respect of equity shares with differential rights issued at any point of time.

(e) The company has not defaulted in filing financial statements and annual returns for three financial years immediately preceding the financial year in which it is decided to issue such shares.

(f) The company has no subsisting default in the payment of a declared dividend to its shareholders or repayment of its matured deposits, or redemption of its preference shares, or debentures that have become due for redemption, or payment of interest on such deposits, or debentures or payment of dividend.

(g) The company has not defaulted in payment of the dividend on preference shares or repayment of any term loan from a public financial institution, or State level financial institution, or scheduled Bank that has become repayable or interest payable thereon, or dues with respect to statutory payments relating to its employees to any authority or default in crediting the amount in Investor Education and Protection Fund to the Central Government. Provided that a company may issue equity shares with differential rights upon expiry of five years from the end of the financial Year in which such default was made good.

(h) the company has not been penalized by Court or Tribunal during the last three years of any offence under the Reserve Bank of India Act, 1934, the Securities and Exchange Board of India Act, 1992, the Securities Contracts Regulation Act, 1956, the Foreign Exchange Management Act, 1999 or any other special Act, under which such companies being regulated by sectoral regulators.

This may be noted here that the, penalty by regulators itself causes no disqualification.

EXPLANATORY STATEMENT ANNEXED TO NOTICE

The explanatory statement to be annexed to the notice of the general meeting or of a postal ballot shall contain the following particulars, namely:-

(a) The total number of shares to be issued with differential rights;

(b) The details of the differential rights;

(c) The percentage of the shares with differential rights to the total post-issue paid up equity share capital, including equity shares with differential rights issued at any point of time;

(d) The reasons or justification for the issue;

(e) The price at which such shares are proposed to be issued either at par or at a premium;

(f) The basis on which the price has been arrived at;

(g) In case of:

(i) Private placement or preferential issue-

(a) details of total number of shares proposed to be allotted to promoters, directors and key managerial personnel;

(b) details of total number of shares proposed to be allotted to persons other than the promoters, directors and key managerial personnel, and their relationship, if any, with any of the promoters, director or key managerial personnel;

(ii) Public issue-

Reservation, if any, for different classes of applicants including promoters, directors or key managerial personnel;

(h) The percentage of voting right which the equity share capital with differential voting right shall carry to the total voting right of the aggregate equity share capital;

(i) The scale or proportion in which the voting rights of such class or type of shares shall vary;

(j) The change in control, if any, in the company that may occur consequent to the issue of equity shares with differential voting rights;

(k) The diluted earnings per Share (EPS) pursuant to the issue of such shares, calculated in accordance with the applicable accounting standards;

(l) The pre- and post-issue shareholding pattern along with voting rights as per clause 35 of the listing agreement issued by Security Exchange Board of India from time to time.

Please note here, Clause 35 is specially made applicable to the company issuing equity shares with differential rights for the purpose of these sub-rules.

No Conversion:

The company shall not convert its existing equity share capital with voting rights into equity share capital carrying differential voting rights and vice versa.

Disclosure requirement in Board's Reports

The Board of Directors shall, *inter alia,* disclose the following details in the Board's Report for the financial year in which the issue of equity shares with differential rights was completed,

- The total number of shares allotted with differential rights;
- The details of the differential rights relating to voting rights and dividends;
- The percentage of the shares with differential rights to the total post-issue equity share capital with differential rights issued at any point of time and percentage of voting rights which the equity share capital with differential voting right shall carry to the total voting right of the aggregate equity share capital;
- The price at which such shares have been issued;
- The particulars of promoters, directors or key managerial personnel to whom such shares are issued;
- The change in control, if any, in the company resolution from the issue of equity shares with differential voting rights;
- The diluted Earning per Share (EPS) pursuant to the issue of each class of shares, calculated in accordance with the applicable accounting standards;
- The pre and post issue shareholdings pattern along with voting rights in the format specified under sub- rule (2) of rule 4.

General Rights available:

The holders of the equity shares with differential rights shall enjoy all other rights such as bonus shares, and rights shares etc., which the holders of equity shares are entitled to, subject to the differential rights with which such shares have been issued.

Entry in Register of Members:

Where a company issues equity shares with differential rights, the Register of Members maintained under Section 88 shall contain all the relevant particulars of the shares so issued along with details of the shareholders.

However, according to the Companies (Share Capital and Debentures) Amendment Rules, 2014 of 18th June 2014, it is hereby clarified that equity shares with differential rights issued by any company under the provisions of the Companies Act, 1956 (1 of 1956) and the rules made thereunder, shall continue to be regulated under such provisions and rules. This means provisions of earlier Act shall continue to apply.

UNDERWRITING OF SHARES / DEBENTURES

Underwriting is an agreement, with or without conditions, to subscribe to the securities of a body corporate when existing shareholders of the corporate or the public do not subscribe to the securities offered to them. When a company goes in for an Initial Public Offer (IPO), it may face certain uncertainty about whether its Offer of shares or other securities will be subscribed in full or not. If the public issue does not get fully subscribed, the project for which the funds are being raised cannot be implemented. As per law, it is required that if the company is not able to collect 90% of the offer amount, then it needs to compulsorily return the money to those who have subscribed to the shares.

To avoid the risk of under subscription companies may seek the help of a specialized group of risk redeemers called underwriters. The function of the underwriters is to arrange subscription of floated shares. If the whole or a certain portion of the shares or debentures of the company are not applied for by the public, the underwriters themselves apply or persuade others to apply for those shares or debentures. The underwriters, as risk takers, and are entitled to get commission at prescribed rates.

It can be easily comprehended that when the floated shares are likely to be undersubscribed, the underwriters come to the forefront. In other cases they remain in the background, acting as catalysts arranger of sale to the investing public.

Before entering into an agreement with the company, the underwriters assess the following:

(a) worth of the public issue;

(b) market response to the issue; and

(c) their own ability to get the issue fully subscribed.

Depending upon the risk assessment of the issue, the underwriters decide on their amount of commission. Owing to under subscription, if the issue is devalues, the underwriters pay up the required amount and deduct their commission from that.

From the viewpoint of the issuer company, the following are generally observed:

(a) While selecting underwriters and finalizing underwriting arrangements, lead merchant bankers shall ensure that the underwriters do not overexpose themselves so that it may become difficult to fulfill underwriting commitments.

(b) The overall exposure of underwriter(s) belonging to the same group or management in an issue shall be assessed carefully by the lead merchant banker.

(c) The lead merchant banker shall satisfy themselves about the ability of the underwriters to discharge their underwriting obligations satisfactorily.

(d) The lead merchant banker shall:

   (i) incorporate a statement in the offer document to the effect that in the opinion of the lead merchant banker, the underwriters' assets are adequate to meet their underwriting obligations;

   (ii) Obtain underwriters' written consent before including their names as underwriters in the final offer document.

(e) In order to ascertain the underwriters' worth, the lead merchant banker(s) shall undertake a minimum underwriting obligation of 5% of the total underwriting commitment, or Rs. 25 lacs whichever is less.

(g) The outstanding underwriting commitments of a merchant banker shall not exceed 20 times its net worth, any point of time.

(h) The lead merchant banker shall ensure that the relevant details are included in the offer document underwriters.

It should be noted that as per the latest SEBI Guidelines underwriting is not mandatory. Under the SEBI rules, no person other than a share broker or merchant banker can act as an underwriter unless he holds a certificate granted by SEBI. Regarding underwriting, the following disclosures should be made in the Offer Document:

(a) Names and addresses of the underwriters and the amount underwritten by them.

(b) Declaration by the Board of Directors of the issuing company that the underwriters have sufficient resources to discharge their respective obligations.

Underwriting Agreement

An underwriting agreement is a contract between a group of investment bankers who form an underwriting group or syndicate and the issuing corporation of a new securities issue. The purpose of the underwriting agreement is to ensure that all of the players understand their responsibility in the process, thus minimizing potential conflict. The underwriting agreement is also called an underwriting contract.

Sub-Underwriters

In order to spread the risk of under subscription, the principal underwriters may enter into subsidiary agreements with sub-underwriters. Such agreements are made between the underwriters alone, with the company not being a party thereto. As per agreement, the company pays commission at a prescribed rate to the principal underwriters, who in turn, disburse commission to the sub-underwriters. Sometimes an additional commission is paid to the principal underwriters to encourage sub-underwriting. This is known as over-riding commission. The payment of an over-riding commission enables the company to deal with first one or two underwriters instead of a number of them.

Underwriting Commission

It may be paid in cash or in fully paid up shares or debentures or a combination of all these. It is paid on the issue price of the shares or debentures so underwritten. As per the provision of Section 40 of the Companies Act, 2013, commission is payable, if the following conditions are satisfied:

(a) The payment of the commission is authorized by the articles;

(b) the commission may be paid out of proceedings of the issue or the profit of the company or both.

(c) The commission paid or agreed to be paid does not exceed in the case of shares, five per cent of the price at which the shares are issued or the amount or rate authorized by the articles, whichever is less, and in the case of debentures, two and a half per cent of the price at which the debentures are issued or the amount or rate authorized by the articles, whichever is less;

(d) the prospectus of the company shall disclose -

  (i) the name of the underwriters;

  (ii) the rate and amount of the commission payable to the underwriter; and

(iii) the number of securities which is to be underwritten or subscribed by the underwriter absolutely or conditionally.

(e) there shall not be paid commission to any underwriter on securities which are not offered to the public for subscription;

(f) A copy of the contract for the payment of the commission is delivered to the Registrar at the time of delivery of the prospectus or the statement in lieu of prospectus for registration.

Full and Partial Underwriting

When the whole issue is underwritten by the underwriter(s) it is called full underwriting. When a part (say 75%) of the whole issue is underwritten by the underwriter(s) it is called partial underwriting. In this case the company is treated as having underwritten the balance of shares.

Accounting Entries

1. **For Commission/brokerage due:**

Commission/Brokerage A/c Dr.

To Underwriter Account

To Broker Account

2. **For payment of Commission/brokerage**

Underwriter Account Dr.

Broker Account Dr.

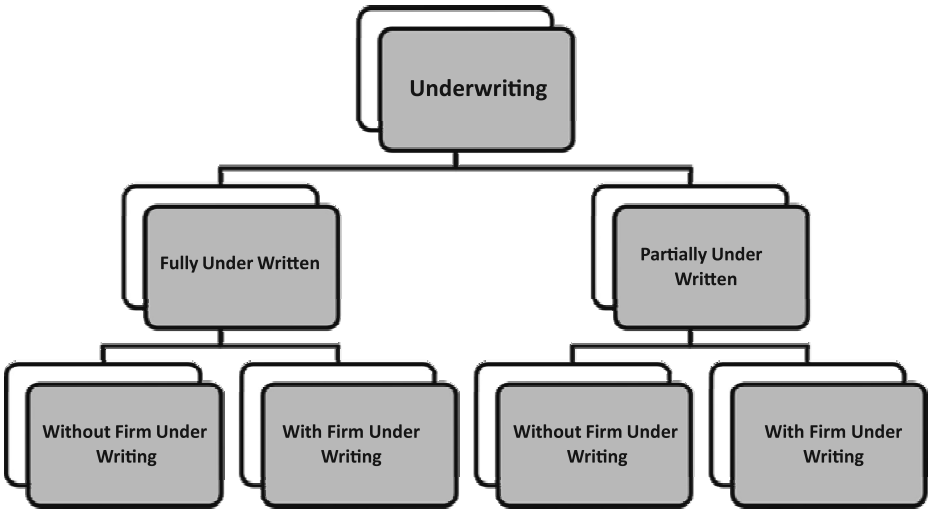
To Bank Account [Cheque]

To Share Capital Account [Shares]

To Debentures Account [Debentures]

Determination of Liability in respect of Underwriting Contract

The nature of underwriting contract determines the liability of the underwriter. The different types of underwriting contract with their subdivisions can be shown with the help of the following diagram:



Case 1: When the Issue is fully underwritten [without Firm Underwriting]

If the entire issue has been underwritten by one underwriter, the determination of his liability is very simple. The total number of applications (both marked and unmarked) are deducted from the number of shares underwritten and the resultant figure is treated as a liability of the underwriter. For example, X Ltd. issued 1,00,000 equity shares of Rs. 10 each. The issue was fully underwritten by A. However, the company received applications for 80,000 shares which includes marked applications for 60,000 shares.

Here, A's liability will be 1,00,000- 60,000- 20,000 = 20,000 shares. A would get full credit for the unmarked 20,000 applications.

Case 2: If the entire issue has been underwritten by a number of underwriters, certain difficulties may arise in respect of division of unmarked applications.

The unmarked applications can be divided between the underwriters in the following two ways.

Method 1

Under this method, all unmarked applications are divided between the underwriters in the ratio of gross liability of individual underwriter. For determining the liability of individual underwriter, the following steps are followed:

Step 1 Compute gross liability (if it has not been given) of individual underwriter on the basis of agreed ratio. For example, X Ltd. issued 1,00,000 Equity shares of Rs. 10 each. The issue was underwritten as : A-30%; B -40% and C-30%. Here the gross liability will be: A-30% of 1,00,000 = 30,000 Shares; B-40% of 1,00,000 = 40,000 shares C-30% of 1,00,000 = 30,000 shares.

↓

Step 2 Subtract marked applications from gross liability of respective underwriters.

↓

Step 3 Determine the number of unmarked applications. (Unmarked application = Total applications received less marked applications). Divide unmarked applications between different underwriters in the ratio of gross liability, as per our example, in the ratio of 3:4:3. If the resultant figures are all positive or zero, then stop here. Now these figures represent the net liability of each underwriter. If some of the resultant figures are negative, then continue to Step 4.

↓

Step 4 Add all negative figures and divide the resultant ones between the underwriters having positive figures in the ratio of gross liability inter se (for details see Illustration 3). Repeat Step 4 unless all figures are non-negative. Now these figures represent the net liability of each underwriter.

Method 2

Under this method, all unmarked applications are divided between the underwriters in the ratio of gross liability less marked applications. For determining the liability of individual underwriter following steps are followed:

Step 1 Compute gross liability in the usual manner (if it has not been given).

Step 2 Subtract marked applications from gross liability of respective underwriters. If some of the resultant figures are negative, add all negative figures and divide their sum in the ratio of gross liability *inter se.*

Step 3 Determine the number of unmarked applications. Divide unmarked applications between different underwriters in the ratio of gross liability less marked applications, i.e., the resultant figures of Step 2. If the resultant figures of Step 3 are all positive or zero, stop here. Now these figures represent the net liability of each underwriter.

If some of the resultant figures are negative, then continue to Step 4.

Step 4 Add all negative figures and divide their sum between the underwriters having positive figures in the same ratio of Step 3. Repeat Step 4 unless all figures are non-negative. Now these figures represent the net liability.

Case 3: If a part of the issue of shares or debentures is underwritten only by one underwriter:

In such a case, only a part of the whole issue, say 60% or 70% is underwritten only by one underwriter and so far as the balance 40% or 30% of the issue is concerned, the company itself is said to have underwritten the same. As such, the unmarked applications are treated as marked as far as the company is concerned.

In such a case, the gross liability of the underwriter will be that part of the issue of shares or debentures which is underwritten, say 60% or 70% and the net liability will be determined by deducting the marked applications (the applications sent through him) from the gross liability. Thus, the net liability will be determined as follows:

Net liability = Gross liability (say 60% or 70% of the issue) – Marked applications.

It is to be noted here that if the marked applications exceed or equal the number of shares or debentures underwritten, the underwriter is free from his liability and cannot be called upon to take up any shares or debentures of the company. Similarly, if all the shares or debentures are subscribed, the underwriter is free from his liability in spite of the fact the marked applications are less than the number of shares or debentures underwritten.

Case 4: If the part of the issue of shares or debentures is underwritten by a number of underwriters:

In such a case only a part of the whole issue, say 60% or 70% or 80% is underwritten by a number of underwriters and so far as the balance 40% or 30% or 20% is concerned, the company itself is said to have underwritten the same. As such, the unmarked applications are treated as marked so far as the company is concerned. In such a case, the method of determining the net liability of the respective underwriters is similar to the method discussed above.

FIRM UNDERWRITING

In the case of 'firm underwriting', the underwriters take up the agreed number of shares or debentures 'firm underwritten' in addition to unsubscribed shares or debentures, if any. In such an instance, an underwriter is not allowed to set off his firm underwriting against his liability otherwise determined, that he will have to subscribe both for shares/debentures 'underwritten firm' and for shares which he has to take under the underwriting contract, ignoring firm underwriting.

While computing the individual liability of the underwriters, the 'firm underwriting' can be dealt with in any of the following manner in the absence of any specific instructions:

(a) The 'firm underwriting' may be adjusted against the individual liability of each underwriter separately or may be treated at par with marked applications.

When firm underwriting is treated at par with marked applications. In such a case, the statement of liability of underwriters will be as under:

Gross Liability (agreed ratio-total shares underwritten) .....

Less: Marked applications including firm underwriting.....

Balance left

Less: Unmarked application (ratio of Gross liability) .....

Net liability

Add: Firm underwriting.....

Total Liability.....

(b) The benefit of 'firm underwriting' may be shared by all underwriters or firm underwriting may be treated at par with unmarked applications. In such case, the shares/debentures underwritten firm will be included in the unmarked forms. In such case, the state of liability of underwriters will appear as shown above except that shares/debentures underwritten firm by each underwriter will not be specifically adjusted against his individual liability but will be included in the total unmarked forms to be distributed amongst all underwriters in the ratio of their gross liability.

Illustration 4

Sunflow Ltd. issued 50,000 equity shares. The whole of the issue was underwritten as follows: Red 40%; White 30%; Blue 30%

Applications for 40,000 shares were received in all, out of which applications for 10,000 shares had the stamp of Red; those for 5,000 shares that of White and those for 10,000 shares that of Blue. The remaining applications for 15,000 shares did not bear any stamp.

Determine the liability of the underwriters.

Solution:

Net Liability of Underwriters

Particulars	*Red (40%) Shares*	*White (30%) Shares*	*Blue (30%) Shares*
Gross liability in the agreed ratio of 40 : 30 : 30	20,000	15,000	15,000

Less: Marked applications	10,000	5,000	10,000
Balance left	10,000	10,000	5,000
Less: Unmarked applications in the ratio of gross liability, i.e., 40 : 30 : 30	6,000	4,500	4,500
Net liability	4,000	5,500	500

Illustration 5

Monlit Ltd., issued 50,000 equity, shares of which only 60% was underwritten by Green. Applications for 45,000 shares were received in all out of which application for 26,000 were marked.

Determine the liability of Green.

Solution:

Gross liability of Green being 60% of 50,000 shares,

i.e., 60/100 x 50,000 = 30,000 shares

Less: Marked applications = 26,000 shares

Net liability of Green = 4,000 shares

Notes:

(1) If the marked applications were for 30,000 shares or more, Green would have had no liability at all.

(2) If the applications received by the company were for all the 50,000 shares, Green would have no liability at all even though the marked applications were for 26,000 shares.

(3) If the applications received by the company were for 48,000 shares, Green's liability would have been restricted to (50,000 - 48,000) = 2,000 shares, even though the marked applications were for 26,000 shares.

Sometimes, it may so happen that the information as to the marked applications and unmarked applications may not be given in the problem. In such a case, it has to be assumed that out of the total applications received by the company, the number of applications proportionate to that part of the issue underwritten have been received through the underwriters.

Illustration 6

Goods Earths Ltd., issued 30,000 6% Debentures of ₹ 100 each. 60% of the issue was underwritten by Black. Applications for 28,000 debentures were by the company.

Debentures the liability of Black.

Solution:

Gross liability of Black being 60% of 30,000 debentures i.e., 60/100 x 30,000 = 18,000 debentures

Less: Marked applications assumed 60% of 28,000 i.e., 60/100 x 28,000 = 16,800 debentures

Net liability of Black = 1,200 debentures

Alternatively, Black's liability can be determined in the following way:

Number of debentures not subscribed for by the public = (30,000 – 28,000)

= 2,000 debentures

Black's liability = 60% of 2,000 debentures

= 60/100 x 2,000 = 1,200 debentures

Illustration 7

Satellite Ltd., issued 12% 10,000 Preference Shares of ₹ 10 each. The issue was underwritten as follows: Apple 30%, Mango 30%, Orange 20%.

Application for 8,000 shares were received by the company in all. Determine the liability of the respective underwriters.

Solution:

Particulars	***Apple (30%) Shares***	***Mango (30%) Shares***	***Orange (20%) Shares***
Gross liability in the agreed ratio 30 : 30 : 20	3,000	3,000	2,000
Less: Marked application, i.e., 8,000 application in the ratio of 3/8 : 3/8 : 2/8	2,400	2,400	1,600
Net liability	600	600	400

Alternatively, the liability of the respective underwriters can also be determined in the following manner:

Shares issued 10,000

Less: Applications received 8,000

Unsubscribed shares 2,000

Apple's liability = 30% of 2,000 = 600 shares

Mango's liability = 30% of 2,000 = 600 shares

Orange's liability = 20% of 2,000 = 400 shares

Total liability of Apple, Mango and Orange = 600 + 600 + 400 = 1,600 shares.

which represent 80% of the total issue underwritten. The balance (2,000 - 1,600) = 400 shares representing 20% of the issue not underwritten will remain as unissued.

Illustration 8

Emess Ltd. issued 40,000 shares which were underwritten as:

P: 24,000 shares Q: 10,000 shares and R: 6,000 shares. The underwriters made applications for firm underwriting as under:

P: 3,200 shares; Q: 1,200 shares; and R: 4,000 shares. The total subscriptions excluding firm underwriting (including marked applications) were 20,000 shares.

The marked applications were - P: 4,000 shares; Q: 8,000 shares; and R: 2,000 shares.

Prepare a statement showing the net liability of underwriters.

Solution:

Statement of Underwriters' Liability
(Firm underwriting shares are treated as unmarked applications)

(Shares)

Particulars	***P***	***Q***	***R***	***Total***
Gross Liability	24,000	10,000	6,000	40,000
Less: Marked applications	4,000	8,000	2,000	14,000
Balance	20,000	2,000	4,000	26,000
Less: Unmarked applications in the ratio of gross liability (12:5:3)	8,640	3,600	2,160	14,400
Balance	11,360	(–1,600)	1,840	11,600
Credit of Q's over subscription to				
P & R in the ratio of 12:3	(1,280)	+1,600	(320)	–
Net Liability	10,080	—	1,520	11,600
Add: Firm underwriting	3,200	1,200	4,000	8,400
Total Liability	13,280	1,200	5,520	20,000

Alternate Answer

Statement of Underwriters' Liability
(Firm underwriting shares are treated as marked applications)

(Shares)

Particulars	***P***	***Q***	***R***	***Total***
Gross Liability	24,000	10,000	6,000	40,000
Less: Unmarked applications 6,000 in ratio of gross liability (12:5:3)	3,600	1,500	900	6,000
Balance	20,400	8,500	5,100	34,000
Less: Marked application plus shares underwritten firm	7,200	9,200	6,000	22,400

Balance	13,200	- 700	- 900	11,600
Credit for Q's and R'sover subscription	- 1,600	+700	+900	–
Net Liability	11,600	–	–	11,600
Add: Firm Underwriting	3,200	1,200	4,000	8,400
Total Liability	14,800	1,200	4,000	20,000

Illustration 9

Sam Limited invited applications from public for 1,00,000 equity shares of 10 each at a premium of Rs. 5 per share. The entire issue was underwritten by the underwriters A, B, C and D to the extent of 30%, 30%, 20% and 20% respectively with the provision of firm underwriting of 3,000, 2,000, 1,000 and 1,000 shares respectively. The underwriters were entitled to the maximum commission permitted by law.

The company received applications for 70,000 shares from public out of which applications for 19,000, 10,000, 21,000 and 8,000 shares were marked in favour of A, B, C and D respectively.

Calculate the liability of each one of the underwriters. Also ascertain the underwriting commission @ 2.5% payable to the different underwriters.

Solution:

Liability of Underwriters (No. of shares)

	Total	A	B	C	D
Less: Unmarked Applications	12,000	3,600	3,600	2,400	2,400
Balance	88,000	26,400	26,400	17,600	17,600
Less: Marked Applications	58,000	19,000	10,000	21,000	8,000
Balance	30,000	7,400	16,400	- 3,400	9,600
Less: Firm Underwriting	7,000	3,000	2,000	1,000	1,000
Balance	23,000	4,400	14,400	- 4,400	8,600
Adjustment	–	- 1,650	- 1,650	+4,400	- 1,100
Net Liability	23,000	2,750	12,750	-	7,500
Total Liability includingfirm underwriting	30,000	5,750	14,750	1,000	8,500

Note: The above answer is arrived at by treating 'firm underwriting shares' on par with marked applications. Alternatively, the 'firm underwriting shares' may be treated on par with un-marked applications. Then, the answer will be as follows:

	Shares
Applications received including firm underwriting	77,000 (70,000 + 7,000)
Less: Marked Applications	58,000
Un-marked Applications	19,000

Liabilities of Underwriters (No. of shares)

Particulars	***Total***	***A***	***B***	***C***	***D***
Gross Liability	1,00,000	30,000	30,000	20,000	20,000
Less: Unmarked Applications	19,000	5,700	5,700	3,800	3,800
Balance	81,000	24,300	24,300	16,200	16,200
Less: Marked					
Applications	58,000	19,000	10,000	21,000	8,000
Balance	23,000	5,300	14,300	- 4,800	8,200
Adjustment	___	- 1,800	- 1,800	+4,800	1,200
Net Liability	23,000	3,500	12,500	–	7,000
Add: Firm Underwriting	7,000	3,000	2,000	1,000	1,000
Total Liability	30,000	6,500	14,500	1,000	8,000

Underwriting Commission

The underwriting commission is payable at the rate of 2.5% of the issue price of shares.

Thus, the commission payable to A= 30000 x 15 x 2.5/100 = 11250

B = 11250

C = 20000x15x2.5/100 = 7500

D = 7500

Illustration 10:

Lillies Ltd. issued 1,00,000 equity shares, where the issue was underwritten by 3 underwriters as follows: A 40%; B 30%; C 30%.

Applications for 60,000 shares were received in all, out of which applications for 20,000 shares had the stamp of A; those for 10,000 shares that of B and those for 20,000 shares that of C. The remaining applications for 10,000 shares did not bear any stamp.

Determine the liability of the underwriters.

Solution:

Net Liability of Underwriters

Particulars	*A (40%) Shares*	*B (30%) Shares*	*C (30%) Shares*
Gross liability in the agreed ratio of 40 : 30 : 30	40,000	30,000	30,000
Less: Marked applications	20,000	10,000	20,000
Balance left	20,000	20,000	10,000
Less: Unmarked applications in the ratio of gross liability, i.e., 40 : 30 : 30 (10,000 Unmarked)	4,000	3,000	3,000
Net liability	16,000	17,000	7,000

Illustration 11:

Ramona Ltd., issued 50,000 equity shares of which only 60% was underwritten by Green. Applications for 45,000 shares were received in all out of which application for 26,000 were marked.

Determine the liability of Green.

Solution:

Gross liability of Green being 60% of 50,000 shares = 30,000 shares

Less: Marked applications Net liability of Green = 26,000 shares

Net liability of Green = 4,000 shares

Notes:

(1) Had the marked applications been were for 30,000 shares or more, Green would have had no liability at all.

(2) Had the applications received by the company been for all the 50,000 shares Green would have had no liability at all, even though the marked applications were for 26,000 shares.

(3) Had the applications received by the company been for 48,000 shares, Green's liability would have had restricted to (50,000 - 48,000) = 2,000 shares, even though the marked applications were for 26,000 shares.

Working Assumption: In case the marked and unmarked applications is not be given in the question, then one can assume the number of applications received as marked applications (as proportionate to that part of the issue underwritten as received through the underwriters.)

Illustration 12:

ABC Ltd. issued 30,000, 6% debentures of Rs. 100 each. 60% of the issue was underwritten by Delton. Applications for 28,000 debentures were received by the company. Determine the liability of Delton.

Solution:

Gross liability of Delton being 60% of 30,000 debentures	= 18,000 debentures
Less: Marked applications (assumed 60%) i.e., 60/100 x 28,000	= 16,800 debentures
Net liability of Delton	= 1,200 debentures

Alternatively Delton's liability can be determined in the following way:

Number of debentures not subscribed for by the public = (30,000 - 28,000)	= 2,000 debentures
Delton's liability = 60% of 2,000 debentures	= 1,200 debentures

Illustration 13:

Binsar Ltd. issued 12% 10,000 Preference Shares of Rs 10 each. The issue was underwritten as follows: Apple 30%, Mango 30%, Orange 20%. Application for 8,000 shares were received by the company in all. Determine the liability of the respective underwriters.

Solution:

Particulars	***Apple (30%) Shares***	***Mango (30%) Shares***	***Orange (20%) Shares***
Gross liability in the agreed ratio or 30 : 30 : 20	3,000	3,000	2,000
Less: Marked application, i.e., 8,000 application in theratio of 3/10 : 3/20 : 2/10	2,400	2,400	1,600
Net liability	600	600	400

Alternatively the liability of the respective underwriters can also be determined in the following manner: Shares issued 10,000

Less: Applications received 8,000 Unsubscribed shares 2,000

Apple's liability = 30% of 2,000 =	600 shares
Mango's liability = 30% of 2,000 =	600 shares
Orange's liability = 20% of 2,000 =	400 shares
Total liability of Apple, Mango and Orange =	600 + 600 + 400 = 1,600 shares.

which represent 80% of the total issue underwritten. The balance (2,000 - 20% of the issue not underwritten will remain as unissued. 1,600) = 400 shares representing

Illustration 14:

Emess Ltd. issued 40,000 shares which were underwritten. P: 24,000 shares Q: 10,000 shares and R: 6,000 shares. The underwriters made applications for firm underwriting as under:

P: 3,200 shares; Q: 1,200 shares; and R: 4,000 shares. The total subscriptions excluding firm underwriting (including marked applications) were 20,000 shares.

The marked applications were - P: 4,000 shares; Q: 8,000 shares; and R: 2,000 shares

Prepare a statement showing the net liability of underwriters

Solution:

Working Note: Firm underwriting shares are treated as unmarked applications.

Statement of Computation of Liability

Particulars	***P***	***Q***	***R***	***Total***
Gross Liability	24000	10000	6000	40000
Less: Marked Applications	4000	8000	2000	14000
Balance	20000	2000	4000	26000
Less: Unmarked Applications in ratio of gross Liability (12:5:3)	8640	3600	2160	14400
Balance Net	11360	(1600)	1840	11600
Credit of Q's capital over P & R in ratio of 12:3	(1280)	+1600	(320)	
Net Liability	10,080	0	1,520	11,600
Add: Firm Underwriting	3,200	1,200	4,000	8,400
Total Liability	**13,280**	**1,200**	**5,520**	**20,000**

Illustration 15:

Sam Limited invited applications from public for 1,00,000 equity shares of Rs 10 each on a premium of X 5 per share. The entire issue was underwritten by the underwriters Anita, Babita, Chavi and David to the extent of 30%, 30%, 20% and 20% respectively with the provision of firm underwriting of 3,000, 2,000, 1,000 and 1,000 shares respectively. The underwriters were entitled to the maximum commission permitted by law.

The company received applications for 70,000 shares from public out of which applications for 19,000, 10,000; 21000 and 8,000 shares were marked in favour of Anita, Babita, Chavi and David respectively.

Calculate the liability of each one of the underwriters. Also ascertain the underwriting commission @ 2.5% payable to the different underwriters.

Solution:

Statement of Liability of Underwriters:

Note: by treating 'firm underwriting shares' on a par with marked applications

Particulars	*Anita*	*Babita*	*Chavi*	*David*	*Total*
Gross Liability	30000	30000	20000	20000	100,000
Less: Marked Applications	19000	10000	21000	8000	58000
Balance	11000	20000	(1000)	12000	42000
Less: unmarked Applications in ratio of gross Liability(30;30:20:20)	3600	3600	2400	2400	12000
Balance Net	7400	16400	(3400)	9600	30000
Less: Firm Underwriting	3000	2000	1000	1000	7000
Balance	4400	14400	(4400)	8600	23000
Less: Credit of excess to others in ratio (30:30:20)	(1650)	(1650)	+4400	(1100)	
Net Liability	2750	12750	0	7500	23000
Total Liability, including Firm Underwriting	**5750**	**14750**	**1000**	**8500**	**30000**

Alternatively, the 'firm underwriting shares' may be treated on a par with unmarked applications.

Applications received including firm underwritten = 70,000 + 7,000 = 77,000

Less: Marked application = 58,000

Net Unmarked Application liability of underwriters (No. of Shares) = 19,000

Particulars	*Anita*	*Babita*	*Chavi*	*David*	*Total*
Gross Liability	30000	30000	20000	20000	100,000
Less: unmarked Applications in ratio of gross Liability (30:30:20:20)	5700	5700	3800	3800	19,000
Balance	24300	24300	16200	16200	81,000
Less: Marked Application	19000	10000	21000	8000	58000
Balance Net	5300	14300	(4800)	8200	23000
Adjustment of excess	(1800)	(1800)	+4800	(1200)	
Balance	3500	12500	-	7000	23000
Add: Firm Liability	3000	2000	1000	1000	7000
Total Liability, including Firm Underwriting	**6500**	**14500**	**1000**	**8000**	**30000**

Calculation of Underwriting commission

Underwriting commission is payable at the rate of 2.5% of the issue price of shares;	***Amount***
A = 30000 * 15 * 2.5%	11,250
B = 30000 * 15 * 2.5%	11,250
C = 20000 * 15 * 2.5%	7,500
D = 20000 * 15 * 2.5%	7,500

LESSON ROUND-UP

- A company, other than a listed company, which is not required to comply with Securities and Exchange Board of India Employee Stock Option Scheme Guidelines shall not offer shares to its employees under a scheme of employees' stock option (hereinafter referred to as "Employees Stock Option Scheme").
- ESOP means a scheme under which the company grants option (a right but not an obligation) to an employee to apply for shares of the company at a predetermined price. This right is exercisable by the employee, during the specified period.
- Section 2(37) of the Companies Act, 2013 states that the "employee stock option" means the option given to the whole time director, officers or employees of a company which gives such directors, officers of employees the benefit or right to purchase or subscribe at a future date, the securities offered by the company at a predetermined price.
- When a company has substantial cash resources, it may like to buy its own shares from the market particularly when the prevailing rate of its shares in the market is much lower than the book value or what the company perceives to be its true value.
- As per Section 68, 69, 70 of the Companies Act, 2013 states that a company may purchase its own shares or other specified securities out of its free reserves, and the proceeds of any other shares or other specified securities.
- Buy-back is permissible: (a) from the existing security holders on a proportionate basis through the tender offer; or (b) from the open market.
- Regulation 10(1) of the Securities and Exchange Board of India provides that a company shall, as and by way of security for performance of its obligations on or before the opening of the offer of re- purchase, deposit in an escrow account such sum as is specified in 10(2).
- According to Section 43 of the Companies Act, 2013, Equity share capital may be Equity Share Capital with the voting right or Equity Share Capital with differential right as to dividend, voting or otherwise.
- Rule 4 of the Companies (Share Capital and Debentures) Rules 2014 deals with equity shares with differential rights.
- The company shall not convert its existing equity share capital with voting rights into equity share capital carrying differential voting rights and vice versa.

- The holders of the equity shares with differential rights shall enjoy all other rights, such as bonus shares, rights shares etc., which the holders of equity shares are entitled to, subject to the differential rights with which such shares have been issued.
- Where a company issues equity shares with differential rights, the Register of Members maintained under section 88 shall contain all the relevant particulars of the shares so issued along with details of the shareholders.
- Underwriting is an undertaking or guarantee given by the underwriters to the company that the shares or debentures offered to the public will be subscribed for in full.
- An underwriting agreement may be: Complete Underwriting, Partial Underwriting and Firm Underwriting.
- Applications bearing the stamp of the respective underwriters are called marked applications and the applications received directly by the company which do not bear any stamp of the underwriters are known as unmarked applications.

TEST YOURSELF

1. For accounting purposes, employee share-based payment plans are classified as:
   (a) Equity settled and cash settled.
   (b) Liability settled and cash settled.
   (c) Equity settled, cash settled and employees share based payment plans with cash alternatives.
2. Under the Companies Act 2013, there shall be a minimum period of:
   (a) two years between grant of options and vesting of option
   (b) one year between grant of options and vesting of option
   (c) six months between grant of options and vesting of option.
3. The excess of the market price of the share under ESOS over the exercise price of the option is:
   (a) Exercise Price
   (b) Intrinsic Value
   (c) Fair value
4. Which amount would be recognized for Share based payment?
   (a) Fair value of Share prices/ value
   (b) Amount as per agreement
   (c) Fair value of goods/ services received unless it is not reliably measurable then fair value of share prices would be used

Answer

[1. (c); 2. (b); 3. (b) 4. (c)]

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.

- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House

- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann

- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Consolidation of Accounts

Lesson 7

KEY CONCEPTS

■ Holding company ■ Subsidiary company ■ Associate Company ■ Wholly Owned Subsidiary Company ■ Partly Owned Subsidiary Company ■ Consolidated Financial statement ■ Minority interest ■ Small Shareholder ■ Pre-acquisition profits ■ Post-acquisition profits

Learning Objectives

To understand:

- Term 'Holding Company' and 'Subsidiary Company'
- Legal requirements relating to presentation of accounts by a Holding Company
- Preparation of Consolidated financial statement of a holding company and its subsidiaries
- Various steps involved in preparation of Consolidated Balance Sheet & Consolidated Profit & Loss Account

Lesson Outline

- Introduction
- Legal Requirements for a Holding Company
- Advantages of Consolidation of Financial Statements
- Consolidation Procedures
- Content and Format of Consolidated Balance Sheet
  - Calculation of Goodwill / Capital Reserve (Cost of Control)
  - Calculation of Minority Interest
- Content and Format of Consolidated Profit & Loss Accounts
  - Pre-Acquisition Profits/Reserves
  - Revaluation of Fixed Assets of Subsidiary and Treatment
- Bonus Shares Issued By Subsidiary Company
- Treatment of Dividend
- Treatment of Goodwill appearing in the Balance Sheet of Subsidiary Company
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION

It is an era of business growth. Many organizations are growing into large corporations by the process of acquisition, mergers, gaining control by one company over the other company, restructuring etc. Acquisition and mergers ultimately leads to either cost reduction or controlling the market or sharing the material supplies or product diversification or availing tax benefits or synergy. Whatever the motto behind these ventures is, the ultimate result is the large scale corporation. Formation of holding company is the most popular device for achieving these objectives.

Group of companies: Many a times, company expands by keeping intact their separate corporate identity. In this situation, a company (holding company) gains control over the other company (subsidiary company). This significant control is exercised by one company over the other by –

1. Purchasing specified number of shares or
2. Exercising control over the board of directors or on voting power of that company.

Unit of companies connected in these ways is collectively called a Group of Companies. Holding Company and Subsidiary Company have been defined in Section 2 of the Companies Act, 2013.

Holding Company

As per Section 2(46) of the Companies Act, 2013 "holding company", in relation to one or more other companies, means a company of which such companies are subsidiary companies;

Subsidiary Company

As per Section 2(87) of the Companies Act, 2013 "subsidiary company" or "subsidiary", in relation to any other company (that is to say the holding company), means a company in which the holding company–

(i) controls the composition of the Board of Directors; or

(ii) exercises or controls more than one-half of the total share capital either at its own or together with one or more of its subsidiary companies.

A company shall be deemed to be a subsidiary company of the holding company even if there is indirect control through the subsidiary company (ies).

The control over the composition of a subsidiary company's Board of Directors means exercise of some power to appoint or remove all or a majority of the directors of the subsidiary company.

'Total share capital', as defined in section 2(87) (ii) above, has been further clarified by the Rule 2(1)(r) of the Companies (Specification of Definitions Details) Rules, 2016. As per the Rule, total share capital includes

a) paid up equity share capital

b) convertible preference share capital.

Section 19 of the Companies Act, 2013 prohibits a subsidiary company from holding shares in the holding company. According to this section, no company shall, either by itself or through its nominees, hold any shares in its holding company and no holding company shall allot or transfer its shares to any of its subsidiary companies and any such allotment or transfer of shares of a company to its subsidiary company shall be void.

However, a subsidiary may continue to be a member of its holding company when –

a) the subsidiary company holds such shares as the legal representative of a deceased member of the holding co.

b) the subsidiary company holds such shares as a trustee; or

c) the subsidiary company is a shareholder even before it became a subsidiary company of the holding company.

The subsidiary company shall have a right to vote at a meeting of the holding company only in respect of the shares held by it as a legal representative or as a trustee,

In case (c) mentioned above, the subsidiary shall not have any voting rights in respect of the shares held.

Company Includes Body Corporate

- As per Section 2(87) of the Companies Act, 2013 Company include a 'Body Corporate'.
- As per Section 2(11) of the Companies Act, 2013 Body Corporate includes a 'Company incorporate out of India'.

Thus, an Indian company in which more than 50% shares are held by a foreign body corporate will be a 'Subsidiary Company'. Similarly, any Indian body corporate can be 'holding company' even if that body corporate is not registered as 'company' under Companies Act.

An Indian company can be holding/subsidiary of a foreign body corporate even if it is not registered as a Company.

Associate company

Associate Company, in relation to another company, means a company in which that other company has a significant influence, but which is not a subsidiary company of the company having such influence and includes a joint venture company. The purpose of significant influence has been clarified in the explanation as control of at least twenty per cent of total share capital, or of business decisions under an agreement. In the case of joint ventures it is always by way an agreement significant influence is used but not necessarily by control over share capital. The meaning of significant influence is in line with AS18.

Wholly Owned Subsidiary Company

A company in which all the shares with voting rights (i.e. 100%) are owned by the holding company, it is said to be a wholly owned subsidiary company.

Partly Owned Subsidiary Company

A company in which only the majority of shares (more than 50%) are owned by the holding company, it is said to be a party owned subsidiary.

Minority Shareholder

Small Shareholder: A shareholder who is holding shares of nominal value of INR 20,000 or such other sum as may be prescribed.

Minority Shareholder: Equity holder of a firm who does not have the voting control of the firm, by virtue of his or her below fifty percent ownership of the firm's equity capital.

LEGAL REQUIREMENTS FOR A HOLDING COMPANY

Section 129 (Clause 3) of the Companies Act, 2013 mandated the companies having one or more subsidiaries, to prepare Consolidated Financial Statements. According to this section, where a company has one or more subsidiaries, it shall, in addition to separate financial statements will prepare a consolidated financial statement of the company and of all the subsidiaries in the same form and manner as that of its own. It shall also attach along with its financial statements, a separate statement containing the salient features of the financial statement of its subsidiary or subsidiaries in the prescribed form. For the purpose of section 129, 'subsidiary' includes 'Associate company' and 'Joint venture'.

Also as per the AS 21, where an enterprise does not have a subsidiary but has an associate and/or a joint venture such an enterprise should also prepare consolidated financial statements in accordance with Accounting Standard (AS) 23, Accounting for Associates in Consolidated Financial Statements, and Accounting Standard (AS) 27, Financial Reporting of Interests in Joint Ventures respectively.

Section 129 of the Companies Act, 2013 stipulates that the balance sheet of a holding company has to be accompanied by the below-mentioned documents of relating to each of its subsidiaries:

1. A copy of the Balance Sheet of the subsidiary
2. A copy of the P&LA/c of the subsidiary company
3. A copy of the report of its Board of Directors
4. A copy of the report of its auditors
5. A statement containing the following particulars:
   (i) The nature and extent of holding companies interest in the subsidiary at the end of the last financial year;
   (ii) The net aggregate amount of profits or losses in the subsidiary so far as it concerns the members of the holding company and is not dealt within the holding company's accounts.
6. If the financial year of the holding company and its subsidiary company coincide with each other subsidiary company's balance sheet and other documents specified above with respect to the same financial year should be attached to the balance sheet of the holding company.
7. If the financial year of the subsidiary company does not coincide with the financial year of the holding company, a statement showing the following should be attached:
   (i) Whether, and to what extent, there has been a change in the holding company's interest in the subsidiary company since the close of the financial year of the subsidiary company;
   (ii) Details of any materials changes which have occurred between the end of the financial year of the subsidiary company and the end of the financial year of the holding company in respect of:
      a) The subsidiary's fixed assets
      b) Its investments
      c) The moneys lent by it
      d) The moneys borrowed by it for any purpose other than that of meeting its current liabilities
      e) If for any reason, the board of directors of the holding company is unable to obtain information on profits (capital or revenue) a report in writing to the effect.

In a nutshell, if the financial years of both the subsidiary and holding companies do not coincide, the preceding year's balance sheet and other statements of the subsidiary company should be attached. The information attached to the balance sheet of a holding company in respect of its subsidiary companies could not be more than 6 months.

Exclusion from Preparation of Consolidated Financial Statements

As per AS 21, a subsidiary should be excluded from consolidation when:

a) control is intended to be temporary because the subsidiary is acquired and held exclusively with a view to its subsequent disposal in the near future; or

b) it operates under severe long-term restrictions which significantly impair its ability to transfer funds to the parent.

In consolidated financial statements, investments in such subsidiaries should be accounted for in accordance with AS 13 'Accounting for Investments'. The reasons for not consolidating a subsidiary should be disclosed in the consolidated financial statements.

Consolidation of its subsidiary which is a Limited Liability Partnership (LLP) or a partnership firm

As per rule 6 of Companies (Accounts) Rules, 2014, under the heading 'Manner of consolidation of accounts' it is provided that consolidation of financial statements of a company shall be done in accordance with the provisions of Schedule III to the Companies Act, 2013 and the applicable Accounting Standards.

It is noted that relevant Indian Accounting Standard i.e., Ind AS 110, Consolidated Financial Statements provides that where an entity has control on one or more other entities, the controlling entity is required to consolidate all the controlled entities. Since, the word 'entity' includes a company as well as any other form of entity, therefore, LLPs and partnership firms are required to be consolidated. Similarly, under Accounting Standard (AS) 21, as per the definition of subsidiary, an enterprise controlled by the parent is required to be consolidated. The term 'enterprise' includes a company and any enterprise other than a company. Therefore, under AS also, LLPs and partnership firms are required to be consolidated.

Accordingly, in the given case, holding company is required to consolidate its subsidiary which is an LLP or a partnership firm.

Consolidation of Limited Liability Partnership (LLP) which is an associate or joint venture

If LLP or a partnership firm is an associate or joint venture of holding company, even then the LLP and the partnership firm need to be consolidated in accordance with the requirements of applicable Accounting Standards.

<table>
<tr><th colspan="2">CONSOLIDATED FINANCIAL STATEMENTS (CFS)
(In Compliance with Ind AS)</th></tr>
<tr><td>Objective</td><td>● To reflect the financial position of an entire group (consists of a parent and its subsidiaries)</td></tr>
<tr><td>Coverage of Ind AS</td><td>Applicable Ind AS preparation of consolidated and separate financial statements of group entities:
<table>
<tr><th>Ind As</th><th>Particulars</th></tr>
<tr><td>110</td><td>Consolidated Financial Statements</td></tr>
<tr><td>111</td><td>Joint Arrangements</td></tr>
<tr><td>28</td><td>Investments in Associates and Joint Ventures</td></tr>
<tr><td>27</td><td>Separate Financial Statements</td></tr>
<tr><td>112</td><td>Disclosures of Interests in Other entities</td></tr>
</table></td></tr>
<tr><td>Requirement of CFS</td><td>If company holds shares in the investee company
● having 20% or more voting rights having significant influence over the investee company (As per Ind AS 28 - Associate).
● having joint control over the investee company (As per Ind AS 28 – Joint Venture).
● having control over investee company (As per Ind AS 110 - Subsidiary company).
Note:
For not falling under above situation then the investor company prepares only individual/ standalone financial statements.</td></tr>
<tr><td>Points to be considered for CFS</td><td>● CFS is required to be prepared as per Ind AS 28 under Equity Method when Investor Company has significant influence or joint control over the investee company (associate or joint venture).
● Under Equity Method of consolidation, no assets or liabilities of the investee is recognized, rather investment account is recognized at cost plus share of investor in post-acquisition profits (both profit or loss and other comprehensive income) in the investee.
● When investor company has control over the investee company (subsidiary), CFS are required to be prepared on the reporting date as per Ind AS 110:
➢ by aggregating the Book Value of assets and liabilities of parent with the fair value of assets and liabilities of the subsidiary along with post-acquisition changes in their book value,
➢ by incorporating non-controlling interest (Minority Interest) at acquisition date value along with post-acquisition proportion in total comprehensive income of the subsidiary,
➢ by adjusting goodwill or gains from bargain purchase at acquisition date as per Ind AS 103, and
➢ by incorporating parent’s proportion in post-acquisition profits of the subsidiary company in the consolidated Other Equity,
➢ No investment account is documented for holding shares in the subsidiary.</td></tr>
</table>

	• Ind AS 103 presents that the acquirer obtaining control over acquiree, recognizes and measures in its CFS at the acquisition date ➢ The identifiable assets acquired, the liabilities assumed at Fair Value ➢ Any non-controlling interest in the acquiree at Fair Value or at Proportionate Value and ➢ The goodwill acquired in the business combination or a gain on bargain purchase.

ADVANTAGES OF CONSOLIDATION OF FINANCIAL STATEMENTS

1. **Facilitates easy comprehension:** Shareholders are in a position to get a clear insight about the financial position of the group (parent and all its subsidiaries).
2. **Assists in ascertaining intrinsic value of share:** For various accounting procedures, intrinsic value of shares serves as an essential tool. This can be attained on the basis of consolidated financial statements of companies.
3. **Proper assessment of return on investment:** Only consolidated financial statements can provide proper information on the total share of holding company in the revenue profit of its subsidiaries.
4. **Minority interest disclosure:** In the consolidated balance sheets, the item shown under the head 'Minority Interest' discloses the total amount payable to outside shareholders. This is the liability payable to outsiders, i.e., general public. This factor is the main factor to be considered in the process of acquisition of company.
5. **Helps in the "evaluation" of holding company:** As consolidated financial statements reflect a true and fair view of the position of the holding company (parent) as a group, the investors may be able to evaluate the performance of the company. Thereby, it enhances the overall performance of the group.

The following are its limitations:

1. **Varied information**: All the subsidiary companies may not carry the same type of business. As their activities differ from each other, information combined together in a single format may result in confusion and alternatives.
2. **Irrelevant concealment of facts**: The data got from subsidiary companies may not be relevant in the combined form. Further, to arrive at common figures, some of the facts may be suppressed. In such a situation, a consolidated financial statement may not reflect a true and fair view of the position of the companies.

CONSOLIDATION PROCEDURES

Rule 6 of the Companies (Accounts) Rules, 2014 states that the manner of consolidation of financial statements of the company shall be in accordance with the provisions of Schedule III of the Act and the applicable accounting standards. AS 21, lays down the procedure for consolidation of financial statements of the companies within the group.

When preparing consolidated financial statements, the individual balances of the parent and its subsidiaries are aggregated on a line-by-line basis, and then certain consolidation adjustments are made.

For example, the cash, trade receivables and prepayments of the parent and each subsidiary are added together to arrive at the cash, trade receivables and prepayments of the group, before consolidation adjustments are made.

The objective is that the consolidated financial statements should present the information contained in the consolidated financial statements of a parent and its subsidiaries as if they were the financial statements of a single economic entity.

In order that the consolidated financial statements present financial information about the group as that of a single enterprise, the following steps are then taken:

1. the carrying amount of the parent's investment in each subsidiary and the parent's portion of equity of each subsidiary are eliminated. In case cost of acquisition exceeds or is less than the acquirer's interest, goodwill or capital reserve is calculated retrospectively;
2. intragroup transactions, including sales, expenses and dividends, are eliminated, in full;
3. unrealised profits resulting from intragroup transactions that are included in the carrying amount of assets, such as inventory and fixed assets, are eliminated in full;
4. unrealised losses resulting from intragroup transactions that are deducted in arriving at the carrying amount of assets are also eliminated unless cost cannot be recovered;
5. minority interest in the net income of consolidated subsidiaries for the reporting period are identified and adjusted against the income of the group in order to arrive at the net income attributable to the owners of the parent; and
6. minority interests in the net assets of consolidated subsidiaries are identified and presented in the consolidated balance sheet separately from liabilities and the parent shareholders' equity.

CONTENTS AND FORMAT OF CONSOLIDATED BALANCE SHEET

Section 129 (Clause 3) of the Companies Act, 2013 mandated the companies having one or more subsidiaries, to prepare Consolidated Financial Statements. According to this section, where a company has one or more subsidiaries, it shall, in addition to separate financial statements will prepare a consolidated financial statement of the company and of all the subsidiaries in the same form and manner as that of its own.

It shall also attach along with its financial statements, a separate statement containing the salient features of the financial statement of its subsidiary or subsidiaries in the prescribed form.

Consolidated Financial Statements are intended to show the financial position of the group as a whole - by showing the economic resources controlled by them, by presenting the obligations of the group and the results the group achieves with its resources.

The Schedule III of the Companies Act, 2013, provides certain general instructions for the preparation of consolidated financial statements.

1. Accordingly, where a company is required to prepare Consolidated Financial Statements, i.e., consolidated balance sheet and consolidated statement of profit and loss, the company shall *mutatis mutandis* follow the requirements of Schedule III of the Companies Act, 2013, as applicable to a company in the preparation of balance sheet and statement of profit and loss. In addition, the consolidated financial statements shall disclose the information as per the requirements specified in the applicable Accounting Standards including the following:
   - (i) Profit or loss attributable to "minority interest" and to owners of the parent in the statement of profit and loss shall be presented as allocation for the period.
   - (ii) "Minority interests" in the balance sheet within equity shall be presented separately from the equity of the owners of the parent.

Format

Consolidated Balance Sheet Of

Holding Company and its Subsidiaries as on .....

Format of Consolidated Balance Sheet			
1. EQUITY AND LIABILITIES		**Amount**	**Amount**
SHAREHOLDER'S FUND			XX
a) Share Capital (Holding Company)		XX	
b) Reserves & Surplus			
i) General Reserve (Holding Co.)		XX	
ii) Capital Reserve (Holding Co.)	XX		
Add: Capital Reserve from Acquisition	XX	XX	
iii) Surplus			
Surplus of Holding Co.	XX		
Add: Share in revenue profits of Subsidiary Co.	XX		
Less: Unrealized Profits	(XX)	XX	XX
2. Non-current liabilities			
a) Minority Interest		XX	
b) Holding Co.	XX		
Subsidiary Co.	XX	XX	XX
3. Current liabilities			
Holding Co.	XX		
Subsidiary Co.	XX		
Less: Inter Co. or mutual Owings	XX		XX
Total			**XX**
ASSETS			
1. Non-current assets			
a) Property, Plant and Equipment:			
i) Tangible assets			
Holding Co.	XX		
Subsidiary Co.	XX		XX
ii) Intangible assets:			

Goodwill or Cost of Control:			
Holding Co.	XX		
Subsidiary Co.	XX		
Goodwill resulting from acquisition		XX XX	XX
b) Non-Current Investment			
Holding Co. (except investment in shares of subsidiary Co.)			XX
2. Current assets			
Holding Co.	XX		
Subsidiary Co.	XX		
Less: Inter Company or Mutual Owings	XX		XX
Total			**XX**

Illustration 1

Model : Cancellation of investment – Wholly owned subsidiary company.

From the following Balance Sheet of H Ltd. (holding) and S Ltd. (subsidiary), prepare a consolidated balance sheet of H Ltd. and its subsidiary S Ltd.

Particulars	***H Ltd Rs.***	***S Ltd Rs.***
Equity & Liabilities Share capital : Shares of Rs. 10 each	5,00,000	2,00,000
Sundry Liabilities	1,00,000	25,000
Total	**6,00,000**	**2,25,000**
Assets: Sundry Assets	400000	225000
Investment : 20,000 shares of Rs.10 each of S Ltd	200000	
Total	**6,00,000**	**2,25,000**

Solution:

Notes

1. The Balance Sheet reveals that H Ltd. owns the whole of issued share capital of S Ltd. (wholly owned subsidiary).
2. The balance sheet of H Ltd. reveals the investment in shares of S Ltd. the amount is equal to the nominal value of issued share capital of S. Ltd.
3. These two amounts represent the same transaction but different in nature. (the issued capital of S Ltd. and investment held by H Ltd.)

4. These two are the internal items of H Ltd. and S Ltd. Hence, these should be eliminated in the preparation of consolidated balance sheet shown in the following:

Consolidated Balance Sheet of H Ltd. & S Ltd. as on .....

I. EQUITIES AND LIABILITIES		**H Ltd. Amount (Rs.)**
1. Shareholders' funds Share Capital		
50,000 shares of Rs. 10 each (H Ltd. Only)		5,00,000
2. Sundry Liabilities		
H Ltd.	1,00,000	
S Ltd.	25,000	1,25,000
Total		**6,25,000**
II. ASSETS		
Sundry Assets		
H Ltd.	4,00,000	
S Ltd.	2,25,000	6,25,000
Total		**6,25,000**

Note: The investment account on the assets side of H Ltd. is replaced by the total assets of S Ltd. on the assets side of consolidated balance sheet and its liabilities are shown on the liabilities side.

Calculation of Goodwill/Capital Reserve (Cost of Control)

As on the date of investment, the cost of investment and the equity in the subsidiary needs to be calculated. AS 21 defines equity as the 'residual interest in the assets of an enterprise after deducting all its liabilities.' In other words, it is equal to the net worth of the enterprise. Once the above is calculated, goodwill or capital reserve is calculated as under:

Goodwill = Cost of Investment - Parent's share in the equity of the subsidiary on date of investment

Capital Reserve = Parent's share in the equity of the subsidiary on date of investment – Cost of investment

The parent's portion of equity in a subsidiary, at the date on which investment is made, is determined on the basis of information contained in the financial statements of the subsidiary as on the date of investment.

However, if the financial statements of a subsidiary as on the date of investment are not available and if it is impracticable to draw the financial statements of the subsidiary as on that date, financial statements of the subsidiary for the immediately preceding period are used as a basis for consolidation.

Adjustments are made to these financial statements for the effects of significant transactions or other events that occur between the date of such financial statements and the date of investment in the subsidiary.

It may be mentioned that positive or negative differential is separately recognised only in purchase method. This differential calculated as cost of control is shown in the consolidated balance sheet.

Calculation	***Particulars***	***(Rs.)***
	A. Net cost of investment	
	(i) Amount actually paid for equity shares and preference shares of subsidiary	******
	(ii) *Less*: dividend received out of pre-acquisition profit of the subsidiary (whether equity or preference dividend)	(*****)
	(iii) *Less*: Share of holding company in preference dividend on cumulative pref. shares whether declared or not and on non- cumulative pref. shares when declared out of pre-acquisition profit of the subsidiary	(******)
	(iv) *Less*: Share of holding company in declared equity dividend of the subsidiary out of pre-acquisition profit of the subsidiary	(******)
	Total net cost of investment (I+ ii+ iii+ iv)	******
	B. Share of holding company in the net assets of the subsidiary company	
	(i) Paid up value of equity shares (including bonus shares) presently held by the holding company	******
	(ii) Paid up value of preference shares presently held by the holding company	*****
	(iii) Share of holding company in the capital profit of the subsidiary company	*****
	Total share of holding company in the net assets of the subsidiary company (i+ ii+ iii)	
	C. Goodwill on consolidation (if A exceeds B) or Capital reserve on consolidation (if B exceeds A)	******
		*******

Illustration 2

Model: Goodwill

From the following balance sheets of H Ltd. and its subsidiary S Ltd. as on 31 December 2022, prepare consolidated balance sheet.

Particulars	***Rs.***	***Rs.***
Equities & Liabilities		
Share Capital: Shares of Rs. 50 each	5,00,000	2,00,000
Creditors	1,00,000	20,000
Reserves	--	10,000
Profit & Loss A/c	50,000	30,000
Total	**6,50,000**	**2,60,000**

Assets		
Sundry Assets:	350000	260000
Investment in the shares of S Ltd 4,000 shares (at cost)	300000	
Total	**6,50,000**	**2,60,000**

H Ltd. purchase shares in S Ltd. on 31.12.2022.

Solution

Computation of Goodwill:

Particulars	***Rs.***
Step 1: Cost price of shares in S Ltd. (Investment) Give:	3,00,000
Step 2: Less: Face value of shares:	2,00,000
	1,00,000
Step 3: Less: Share in Reserves:	10,000
	90,000
Step 4: Less: Share in Profit (P&L A/c):	30,000
∴ Goodwill	60,000

Consolidated Balance Sheet of

H Ltd. & S Ltd.

as on 31.12.2022

I. EQUITIES AND LIABILITIES		**Amount (Rs.)**
1. Shareholders' funds		
a. Share Capital		
50,000 shares of Rs. 10 each (H Ltd. only)		5,00,000
b. Reserve & surplus		50,000
2. Other Liabilities		
H Ltd.	1,00,000	
S Ltd.	20,000	1,20,000
Total		**6,70,000**
II. ASSETS		
1. Sundry Assets		
H Ltd.	3,50,000	
S Ltd.	2,60,000	6,10,000
Goodwill		60,000
Total		**6,70,000**

Illustration 3

Model: Capital reserve

From the following balance sheets of H Ltd. and its subsidiary S Ltd. as on 31st December 2022, prepare a consolidated balance sheet.

Liabilities	***H Ltd. Rs.***	***S Ltd. Rs.***
Share Capital:		
(Shares of Rs.100 each)	6,00,000	4,00,000
Creditors	2,00,000	50,000
Reserve	40,000	20,000
Profit & Loss A/c	70,000	15,000
Total	**9,10,000**	**4,85,000**
Sundry Assets	5,00,000	4,85,000
Investment in 4,000 Shares of S. Ltd. (on 31st December 2022)	4,10,000	
Total	**9,10,000**	**4,85,000**

Solution:

Computation of Capital Reserve

Particulars		***Rs.***
Step 1:	Cost price of shares (on 31.12.22):	4,10,000
Step 2:	*Less*: Paid – up value of shares (face value) :	4,00,000
	Difference :	10,000
Step 3:	*Less*: (Proportionate) Shares in Reserve 100% :	(20,000)
		(10,000)
Step 4:	*Less*: 100% share in profit (P&L A/c)	(15,000)
Step 5:	Capital Reserve	(25,000)

Consolidated Balance Sheet of
H Ltd. and Its Subsidiary S Ltd.
As on 31.12.2022

I. EQUITIES AND LIABILITIES		***Amount (Rs.)***
1. Shareholders' funds		6,00,000
(a) Share Capital of H Ltd.		
(b) Reserve & surplus		
Capital Reserve		25,000
General Reserve		40,000
P & L A/c		70,000
2. Other Liabilities		
H Ltd.	2,00,000	
S Ltd.	50,000	2,50,000
Total		**9,85,000**
II. ASSETS		
1. Sundry Assets		
H Ltd.	5,00,000	
S Ltd.	4,85,000	9,85,000
Total		**9,85,000**

Minority Interest

As per AS 21, 'Minority interest' is that part of the net results of operations and of the net assets of a subsidiary attributable to the interests which are not owned, directly or indirectly through subsidiary or subsidiaries, by the parent.

As per Ind AS 110, 'Non-controlling interest' is an equity in a subsidiary, not attributable, directly or indirectly to a parent.

The term 'Minority interest' or 'Non-controlling interest' is not defined under the Companies Act, 2013.

Calculation and presentation of the minority interest: This point may be explained as under:

Calculation	Minority interest will be calculated as under:	
	Particulars	***(Rs.)***
	A. Paid up value of the equity shares (including bonus shares) held by the minority	*****
	B. Paid up value of preference shares presently held by the minority	******
	C. Share of minority in the capital profits/(loss) of the subsidiary	******
	D. Share of minority in the revenue profits/(loss) of the subsidiary	******

	E. Share of minority in the revenue reserve of the subsidiary	******
	F. Share of minority in the preference dividend of the subsidiary (on cumulative preference shares whether declared or not and on non-cumulative preference shares when declared)	******
	G. Share of minority in the equity dividend declared by the subsidiary	******
	Minority Interest (A+B+C+D+E+F+G)	
Presentation of minority interest in the consolidated Balance sheet	'Minority Interest' should be presented as a separate item after the head 'Shareholders' fund' but before the head 'Share application money pending allotment' on the 'Equity and Liabilities' side of the Balance sheet.	

Illustration 4

Model : Minority interest

From the following, prepare consolidated balance sheet of H Ltd. and its subsidiary S Ltd.

Particulars	***Rs.***	***Rs.***
Equities & Liabilities		
Share capital :		
Shares of Rs.10 each	5,00,000	3,00,000
Other Liabilities	1,40,000	20,000
Total	640000	320000
Assets:		
Sundry Assets	400000	320000
Investment in Shares of S Ltd. 24000 shares of Rs.10 each	240000	
Total	**6,40,000**	**3,20,000**

Notes:

1. This partly owned subsidiary company H Ltd. owns to the extent:

   Issued capital of S Ltd. Rs.3,00,000

   Owned as investment in shares of S Ltd. Rs.2,40,000

   $\therefore$ proportionate share $\frac{\text{Rs. } 2,40,000}{\text{Rs. } 3,00,000} \times 100 = 80\%$

2. Outside shareholders share = (100-80)% = 20%

   $\therefore$ value of minority interest = 20% of Rs. 3,00,000

   = Rs.60,000

This amount may be shown in either of the following two ways:

(i) As a separate item under the head 'Minority Interest'

(ii) Along with share capital of holding company

3. As in this problem, no items relating to capital reserve profit and loss; revenue reserve profit and loss or P&L A/c balance is given – Minority interest is computed straight away in Notes 1 and 2.

Solution:

Consolidated Balance Sheet of
H Ltd. & S Ltd.
as on .....

Particulars	*Amount (Rs.)*	*Amount (Rs.)*
I. EQUITIES AND LIABILITIES		
1. Shareholders' funds		
a) Share Capital -50,000 shares of Rs. 10 each (H Ltd. only)		5,00,000
2. Non-current liabilities		
Minority Interest		60,000
3. Other Liabilities		
H Ltd.	1,40,000	
S Ltd.	20,000	1,60,000
Total		**7,20,000**
II. ASSETS		
Sundry Assets		
H Ltd.	4,00,000	
S Ltd.	3,20,000	7,20,000
Total		**7,20,000**

CONTENTS AND FORMAT OF CONSOLIDATED PROFIT AND LOSS ACCOUNT

While preparing the Consolidated Profit and Loss Account of the holding company and its subsidiary, the items appearing in the Profit and Loss Account of the holding and subsidiary companies have to be aggregated. But in doing so, the following adjustments have to be made:

(i) Transfer of goods between the holding company and the subsidiary company should be eliminated both from the purchases and sales appearing in the Consolidated Profit and Loss Account.

(ii) Stock Reserve for unrealised profit in respect of inter-company transactions should be created by debiting Consolidated Profit and Loss Account and crediting Stock Reserve Account.

(iii) The share of profits of the subsidiary company arising before the date of acquisition of shares by the holding company that belongs to the holding company will be debited to the Consolidated Profit and Loss Account and credited to Capital Reserve or Goodwill Account as the case may be. In case of loss the entry will be just reversed.

(iv) The share of profits or losses belonging to the minority shareholders will be respectively credited or debited to Minority Interest Account.

(v) Dividends received from the subsidiary company by the holding company should be eliminated from both the sides of the Consolidated Profit and Loss Account.

(vi) Care should be taken to see that both the companies pass entries for interest accrued and outstanding on debentures of the subsidiary company held by the holding company. The debenture interest should be eliminated from both the sides of the Consolidated Profit and Loss Account to the extent to which it relates to the debentures held by the holding company.

(vii) If the subsidiary company has passed entries for proposed dividend and the holding company has taken credit for its shares of the dividends, the holding company's share should be eliminated from both the sides of the Consolidated Profit and Loss Statement. The necessary changes should also be made on both the sides of the Consolidated Balance Sheet. However, if the holding company has not passed entries for proposed dividends of the subsidiary company, the debit in respect of the proposed dividend should be reduced by the holding company's share in such proposed dividend and obviously, the liability in respect of proposed dividend in the Consolidated Balance Sheet should also be reduced.

(viii) If there are profits and the dividends on cumulative preference shares are in arrears, the arrears of dividends on preference shares held by the Minority shareholders should be debited to the Consolidated Profit and Loss Account and credited to Minority Interest Account.

(ix) If fixed assets of the subsidiary company are revalued at the time of acquisition of shares by the holding company without any alteration in book-values, the excess or short depreciation should be adjusted by debiting or crediting the Consolidated Profit and Loss Account and crediting or debiting the respective Asset Account.

(x) The minority interest will consist of its proportion of total profits after adjustment of excess or short depreciation due to over or under valuation of fixed assets, but before adjusting the proportionate unrealised profit on stock.

It is important to note here that the consolidated Profit and Loss Statement has got no concern with the Consolidated Balance Sheet. It is prepared in addition to the Consolidated Balance Sheet to serve the purpose of showing the total profits earned by the group of companies for a particular period.

PROFIT AND LOSS ACCOUNT

Particulars	***Note No.***	***Figures for the Current Reporting period***	***Figures for the Previous Reporting period***
I Revenue from operations			
II Other Income			
III Total Revenue (I + II)			
IV Expenses:			
Cost of materials consumed			
Purchases of Stock-in-Trade			
Changes in inventories of finished goods			
Employee benefits expense			

	Finance costs			
	Depreciation and amortization expense			
	Other expenses			
	Total expense			
V	Profit before exceptional and extraordinary items and tax (III-IV)			
VI	Exceptional items			
VII	Profit before extraordinary items and tax (V-VI)			
VIII	Extraordinary items			
IX	Profit before tax (VII-VIII)			
X	Tax expense: Current tax Deferred tax			
XI	Profit (Loss) for the period from continuing operations			
XII	Profit / (Loss) from discontinuing operations (before tax)			
XIII	Tax expense of discontinuing operations			
XIV	Profit/(Loss) from discontinuing operations (after tax) (XII-XIII)			
XV	Earning per equity share:			
	Basic			
	Diluted			

In Consolidated Financial Statements, the following shall be disclosed by way of additional information:

Name of the entity in the	***Net Assets, i.e., total assets minus total liabilities***		***Share in profit or loss***	
	As % of consolidated net assets	***Amt***	***As % of consolidated profit or loss***	***Amt***
1	***2***	***3***	***4***	***5***
Parent Subsidiaries Indian 1. 2. 3. Foreign 1. 2. 3. Minority Interests in all subsidiaries Associates				

(Investment as per the equity method) Indian 1. 2. 3. Foreign 1. 2. 3.				
Joint Ventures (as per proportionate consolidation/ investment as per the equity method) Indian 1. 2. 3. Foreign 1. 2. 3. **TOTAL**				

1. All subsidiaries, associates and joint ventures (whether Indian or foreign) will be covered under consolidated financial statements.
2. An entity shall also disclose the list of subsidiaries or associates or joint ventures which have not been consolidated in the consolidated financial statements along with the reasons of not consolidating.

Pre-acquisition and post-acquisition Profits/Reserves

Terms	***Meaning***
(i) Date of acquisition	Date of acquisition refers to the ***date on which the relationship*** of holding company/ parent** and subsidiary company comes into existence.
(ii) Pre-acquisition	Pre-acquisition period refers to the period beginning with the ***date of beginning of the current accounting period and ending with the date immediately preceding*** the date of acquistion of majority equity shares* by the holding company/parent**.
(iii) Post-acquisition	Post-acquisition period refers to the period beginning with the ***date of acquisition of majority equity shares**** by the holding company/parent** and ending with the date on which the current accounting period ends.

Pre-acquisition profits* ** and reserves refer to the undistributed portion of profits and reserves earned and created up to the date immediately preceding the date of acquisition of majority equity shares* by the holding company/parent**.

Post-acquisition profits* ** and reserves refer to the undistributed portion of profits and reserves earned and created on or after the date of acquisition of majority equity shares* by the holding company/parent**.

The share of holding company and minority interest is calculated as under:

Share of holding company/parent = (No. of equity shares held by the holding company/Total number of equity shares* in subsidiary company) x 100

Minority/Non-controlling interest = (No. of equity shares* held by minority/Total number of equity shares* in subsidiary company) x 100

*'Equity shares' may alternatively be termed as 'Equity interests' or 'Ordinary shares' also as per Indian Accounting Standards (Ind ASs)/International Financial Reporting Standards (IFRSs).

**The term 'Holding company' is used by the Companies Act, 2013 and the term 'Parent' is used by the AS 21/ Ind AS 110/IFRS 10. However, both the terms mean the same thing.

*** In the absence of any information to the contrary, the profits of a year are treated as accruing form day to day on a uniform basis.

Summary of Treatment of pre-acquisition profits (or losses) and reserves and post-acquisition profits (or losses) and reserves in a summarized form: After computation of these figures by means of analysis of profits of the subsidiary as above, treat the same as under:

Item	*Holding company's share*	*Minority*
Pre-acquisition profits (or losses) and Reserves (capital profits)	Holding company's share will be added to (or in the case of losses deducted from) the paid-up value of shares presently held by the holding company in the subsidiary company so as to calculate the holding company's share in the net assets of the subsidiary company.	The Share of minority will be added to (or in the cases of losses deducted from) the paid-up value of shares presently held by the minority in the subsidiary company so as to calculate the Minority Interest.
Post-acquisition profits (or losses) and reserves (Revenue profits)	Holding company's share in the profit of the subsidiary will be added to (or in the case of losses deducted from) the profit and Loss A/c of the holding company. Holding company's share in the reserves shall be added to the reserves of the holding company.	The Minority share in the post-acquisition profits and reserves shall be added to (or in the case of losses deducted from) the paid-up value of shares held by the minority in the subsidiary company so as to calculate the Minority Interest.

Note: It may be observed that whether the profit and surpluses and losses of subsidiary are pre-acquisition or post-acquisition matters only in the case of holding company because the treatment for holding company diff depending on whether these pre-or post. However, it does not make any difference for the minority interest at all because all the profit and reserves whether pre-or post are included in the minority interest.

Illustration 5

Model: Pre-acquisition profit/reserves

From the following information, prepare a consolidated balance sheet

Balance sheet

As on 31 December 2022

Particulars	*H Ltd. (Rs.)*	*S Ltd. (Rs.)*
I. Equities & Liabilities		
Share Capital	2,00,000	1,00,000
Shares of Rs.10 each Reserves	50,000	20,000
Profit & Loss A/c	20,000	10,000
Creditors	30,000	20,000
Total	**3,00,000**	**1,50,000**
II. Assets		
Sundry Assets	220000	1,50,000
Investments	80000	
6,000 Shares of S Ltd		
Total	**3,00,000**	**1,50,000**

H Ld. Acquired its shares in S Ltd. on 1 January 2022 when reserves of S Ltd. stood at Rs.4,000 and its profit and loss account (Cr.) was Rs.5,000

Solution

Basic Calculations:

1. Calculation of H Ltd.'s share in capital profit and reserve:

   Step 1: Ratio of Equity Acquired and Held by Minority Interests:

   Total number of shares = Rs. $\frac{1,00,000}{10}$ = 10,000 Shares

   Number of shares acquired by H Ltd. = 6,000 Shares

   Number of shares held by minority interest by H Ltd. = 4,000 Shares

   ∴ Ratio of Shares Acquired and Held by Minority Interest 6,000: 4,000

   or 6: 4 or 3: 2

	Rs.
Step 2: Shares in Pre-acquisition profit: 3/5 x Rs. 5,000 =	3,000
Share in Pre-acquisition reserves: 3/5 x Rs. 4,000 =	2,400
Step 3: Total amount to be transferred to capital reserve or to be adjusted against goodwill	5,400

2. Calculation of Goodwill

	Rs.
Step 1: Investment in shares of S Ltd.	80,000
Step 2: *Less*: Face Value of Shares Held (6,000 x Rs.10)	(60,000)
	20,000
Step 3: *Less*: Company's share of Pre-acquisition profit & reserve	(5,400)
(Ref: Basic calculation 1 step 3) i.e. capital reserve:	14,600

3. Calculation of H Ltd.'s Share in Revenue Profit & Reserves:

(i) Balance in Reserve Account (Given):	20,000
Less: Pre-acquisition Reserve (Given):	4,000
∴ Post-acquisition Reserve:	16,000
of this, H Ltd.'s Share = $\frac{3}{5}$ x Rs.16,000 =	9,600
(ii) Balance in P&L A/c (Given):	10,000
Less: pre-acquisition profit (Given):	(5,000)
∴ Post-acquisition profit:	5,000
Of this, H Ltd.'s share = $\frac{3}{5}$ x Rs.5,000 =	3,000

4. Computation of Minority Interest:

(i) Nominal value of equity shares held:	
4,000 shares (10,000 – H Ltd.'s acquisition 6,000) x Rs.10	40,000
(ii) Share: $\frac{2}{5}$ i.e. minority shareholder's share	
Their share in reserve: $\frac{2}{5}$ x Rs.20,000 =	8,000
Share in profit = $\frac{2}{5}$ x 10,000 =	4,000
	52,000

Consolidated Balance Sheet of
H Ltd. and Its Subsidiary S Ltd.
As on 31 December 2022

I. EQUITIES AND LIABILITIES		**Amount (Rs.)**
1. Shareholders' funds		
(a) Share Capital: 20000 shares of Rs. 10 each		2,00,000
(b) Reserve & surplus		
General Reserve H Ltd.	50,000	
Shares in S Ltd.	9,600	59,600
P & L A/c of H Ltd.	20,000	

Share in S Ltd.	3,000	23,000
1. Minority Interest		52,000
2. Other Liabilities		
H Ltd.	30,000	
S Ltd.	20,000	50,000
Total		**3,84,600**
II. ASSETS		
1. Sundry Assets		
H Ltd.	2,20,000	
S Ltd.	1,50,000	3,70,000
Goodwill		14,600
Total		**3,84,600**

Elimination of Inter-Company Balances and Amounts

Sr. No.	*Details*	*Adjustments*
1.	**Elimination of the cost to the parent of its investment in subsidiary and the parent's portion of equity in subsidiary**	The terms 'Parent' and 'Holding company' are same and the terms 'Subsidiary' and 'Subsidiary company' are also same. The investment of holding company in subsidiary is presented under the sub-head 'Non-current investments' under the main head 'Non-current assets' on the Assets side of the holding company's Balance Sheet. The parent' portion of equity in subsidiary is shown under 'Share Capital' of the subsidiary's Balance sheet. Both are eliminated i.e. cancelled for preparing Consolidated Balance Sheet otherwise it will mean that the same company can make investment in the share capital of its own company which is completely illogical. Similarly, if the subsidiary company has investment in the holding company's equity (which is possible only before it became a subsidiary), the represented portion of the equity of holding company and the corresponding investment of the subsidiary company should also be eliminated.
2.	**Elimination of unrealized profit on assets transferred between the holding company and subsidiary company**	If any current or non-current asset is sold by one company to another company within the group i.e. the current or non-current asset is sold by the holding company to the subsidiary company or by the subsidiary company to the holding company at a profit, there may be two situations as under: The buying company has sold the whole of such asset bought at a profit from the selling company till the end of the accounting year: In such a case, the question of elimination of the unrealized profit from the asset does not arise because there is no unsold asset as such with the buying company.

		The buying company has not sold the entire asset bought at a profit from the selling company till the end of the accounting year: In such a case, the unrealized profit on such unsold asset must be eliminated. The elimination should be done by debiting the Profit and Loss Account of the holding company and crediting the concerned asset by the amount of unrealized profit. It must be noted that if the asset under consideration is the depreciable fixed asset (i.e. the item of property, plant and equipment), the amount of unrealized profit should be computed only after providing for depreciation. **Note**: It does not make any difference which company in the group is the buyer and which company in the group is the seller. Calculation of 'Minority interest' and 'Goodwill/Capital Reserve on consolidation' is not in any way affected by the elimination of unrealized profit.
3.	**Elimination of unrealized loss on assets transferred between the holding company and subsidiary company**	If the asset sold by one entity to another entity within the group at a loss is sold by the buying entity fully, there is no question of elimination of unrealized loss on the unsold asset. However, when such asset bought remains with the buyer entity within the group either wholly or partly, then the unrealized loss on such unsold asset may or may not be eliminated as per the situation discussed as under: Unrealized losses resulting from intra group transactions should be eliminated only if cost can be recovered. It means that if the cost cannot be recovered by selling the asset, the unrealized loss should not be eliminated. If the unrealized loss is to be eliminated, the same is eliminated by debiting the concerned Asset A/c and crediting the Profit and Loss A/c of the holding company. **Note:** It does not make any difference which company in the group is the buyer and which company in the group is the seller. Calculation of 'Minority interest' and 'Goodwill/Capital Reserve on consolidation' are not in any way affected by the elimination of unrealized loss.
4.	**Elimination of intra-group balances**	Intra group balances should also be eliminated. The following may be the examples of intra group balances: a) Loan advanced by one company and taken by another company within the group; b) Debtors and creditors within the group; c) Bills receivable and bills payable within the group; d) Debentures shown on the Equity and Liabilities side of one company and investment in those debentures shown on the assets side of another company within the group; e) Prepaid expenses of one company and Income Received in Advance of another company within the group; f) Outstanding Expenses of one company and Accrued Income of another company within the group.

5.	**Adjustment of remittance-in-transit**	The holding company may be the debtor of the subsidiary company or the subsidiary company may be the debtor of the holding company within the group. The debtor company may send cash to the creditor company but the same may not be received by the creditor company by the end of the accounting year. In such a case, the debtor company must have debited the 'Creditors A/c' in its books at the time of sending cash. However, the creditor company did not credit the 'Debtors A/c' and did not debit its 'Cash/Bank A/c' because it did not receive the said cash by the end of the accounting year. Hence, in the CBS, the 'Debtors A/c' of the recipient company should be reduced and 'Cash/Bank A/c' should be increased by the amount of remittance-in-transit. What applies to debtors and creditors may apply to any other inter-company balances also.
6.	**Treatment of debentures of Subsidiary Company held by holding company**	The debentures of subsidiary company will be added with the debentures of holding company. However, if some debentures of subsidiary company are held by the holding company, then the paid-up value of such debentures held will be eliminated from the aggregate of debentures of both the companies to be shown on the 'Equity and Liabilities" side of the consolidated balance sheet. Further, the cost of investment of holding company in such debentures will be eliminated from the aggregate of investment to be shown on the assets side of the consolidated balance sheet. The difference between the cost of investment of the holding company in such debentures and the paid-up value of such debentures of subsidiary company will be either profit or loss on debentures held which will be added to or deducted from the balance of profit and Loss Account of the holding company to find out the closing balance of consolidated profit and Loss account of the holding company to be taken to consolidated balance sheet. For this purpose, if the cost of investment in debentures is more than the paid-up value of debentures, the difference between the two is loss and in the reverse case, the difference between the two is profit.
7.	**Treatment of debentures of holding company held by subsidiary company**	The paid-up value of debentures and cost of investment will be eliminated as above. The difference between the paid-up value of debentures and the cost of investment of subsidiary will be taken in the analysis of profits of subsidiary **Note**: The aforesaid intra group amounts are eliminated by deducting the intra group items from the aggregate amounts of the respective items on both the sides of the balance sheet.
8.	**Elimination of mutual contingent liabilities**	Contingent liability in respect of bills drawn by holding company/subsidiary company upon subsidiary company/holding company and discounted is eliminated. For example. Suppose H Ltd. is the holding company and S Ltd. is the subsidiary company. H Ltd. may draw a bill on S Ltd and hence the bill is 'Bills receivable' for H Ltd. and is the Bills Payable for S Ltd. In such a case, if H Ltd. discounts the bills receivable with the third party, say, Bank, the contingent liability of H Ltd. and S Ltd. in respect of bills discounted should be added and from the total, the bills accepted by S Ltd. which have been discounted by H Ltd. should be deducted as a mutual contingent liability. The same process will be adopted if S Ltd. has drawn a bill upon H Ltd. and the said bills have been discounted by S Ltd. with the third party. Thus, for Notes to Accounts to the CBS,

		Contingent liabilities for CBS=Total contingent liabilities-internal contingent liabilities (i.e. the contingent liabilities which exist only between the holding company and subsidiary company). Thus, the formula for contingent liabilities for bills receivable may be written as under: **Contingent liabilities for Bills receivable (for Notes to Account to CBS)** =Bills receivable drawn and discounted by holding company+ Bills receivable drawn and discounted by subsidiary company-Bills receivable drawn by holding company upon subsidiary company and discounted-Bills receivable drawn by subsidiary company upon holding company and discounted.

Presentation of items in the Consolidated Balance Sheet based on the elimination of inter-company amounts and balances: In the CBS, some items appear on the ***aggregate basis (with or without elimination of the intra group amount)*** and some items appear on ***individual basis belonging to Holding Company only***.

The list of items appearing on aggregate basis and those appearing on individual basis may be given as under:

Items which appear on aggregate basis subject to elimination of intra group amount and unrealized profit	Items which appear on individual basis i.e. the items which belong to holding company only
(i) Current liabilities (ii) Non-current liabilities (iii) Current assets (iv) Non-current assets: e.g. Tangible fixed assets, intangible fixed assets, capital work-in-progress, intangible assets under development, non- current investments, long term loans and advances (v) *Contingent liabilities and commitments (shown in the form of a note outside the consolidated balance sheet) i.e. total contingent liabilities- internal contingent liabilities (vi) Proposed Dividend and Dividend Distribution tax thereon	(i) Share Capital (ii) Reserves and surplus (iii) Dividend payable (iv) Other non-current assets (like discount on Issue of shares, underwriting commission, unamortized borrowing costs etc.)

Revaluation of Fixed Assets of Subsidiary and Treatment

(i) Computationof Profit or loss on revaluation and treatment thereof	**Part I: Computation**: The computation of profit or loss on revaluation of fixed assets is done as under: Revalued figure is compared with the carrying amount (i.e. the book value) as on the date of revaluation and the difference between the two figures is either profit or loss on revaluation of fixed assets which is as under: (a) If the revalued figure as on the date of revaluation is more than the carrying amount on the date of revaluation, there is a profit on revaluation i.e. Profit on revaluation=Revalued figure on the date of revaluation-carrying amount on the date of revaluation.

	(b) If the revalued figure as on the date of Revaluation is less than the carrying amount as on the date of revaluation, there is a loss on revaluation i.e. Loss on revaluation=Carrying amount on the date of Revaluation-Revalued figure as on the date of revaluation. **Part II: Treatment**: The treatment of profit or loss on revaluation of fixed assets may be explained as under: **(a) Pre-acquisition profit**: Profit on revaluation of fixed asset related to the period before the date of acquisition is pre-acquisition profit. This is treated as capital profit in the analysis of profits of subsidiary. **(b) Post-acquisition profit**: Profit on revaluation of fixed assets related to the period after the date of acquisition is post-acquisition profit. However, ***it is capital profit and not revenue profit***. ***Holding company's share in post-acquisition profit on revaluation of fixed asset should be shown separately in the Consolidated Balance Sheet***. Minority's share therein will be added to the Minority interest. **(c) Pre-acquisition loss**: Loss on revaluation of fixed assets related to the period before the date of acquisition is pre-acquisition loss. Such loss should be deducted from the capital profit in the analysis of profits of subsidiary. **(d) Post-acquisition loss**: Loss on revaluation of fixed asset related to the period after the date of acquisition is post-acquisition loss and will be ***treated like revenue losses***. Holding company's share therein will be deducted from the balance of P&L A/c of Holding Company in the computation of consolidated P&L A/c balance. Minority's share therein will be deducted from minority's interest.
(ii) Computation of Depreciation in case of revaluation of items of PPE and treatment thereof	**Part I: Computation**: The first point is whether we should consider the depreciation in case of revaluation i.e. shortage/deficiency of depreciation on increase in the value of fixed assets or excess/surplus of depreciation on decrease in the value of fixed assets. Normally, if the subsidiary company has revalued the assets in its books, it would have provided depreciation also on the revalued figure. Hence, no readjustment is required. However, when the subsidiary company's balance sheet shows the asset at its original figure, then we will have to account for the shortage/deficiency of depreciation or excess/surplus depreciation for the period from the date of revaluation till the end of the accounting year. The computation of short or excess depreciation is done as under: **(a) Shortage/deficiency of depreciation on increase in the value of fixed assets**= (Increase in the value of fixed assets*rate of depreciation*Period from date of revaluation till the end of accounting year)/12. **(b) Excess/surplus depreciation on decrease in revaluation of fixed asset**= (Decrease in the value of fixed asset*Rate of depreciation*Period from the date of revaluation of fixed asset till the end of the accounting year)/12. **Part II: Treatment**: The treatment of short or excess depreciation on revaluation of fixed asset may be explained as under:

	(a) Shortage/Deficiency of depreciation: The portion of shortage/deficiency of depreciation which is attributable to the post-acquisition period is treated like any other revenue expense and hence is deducted from the post-acquisition profit i.e. it is shown as a negative figure in the column of revenue profit in the analysis of profits of subsidiary. **(b) Excess/surplus depreciation**: The portion of excess/surplus depreciation which is attributable to the post-acquisition period is treated like any other revenue profit and hence is added to the post-acquisition profit i.e. it is shown as a positive figure in the analysis of profits of subsidiary. **Note**: It must be very clear that either shortage/deficiency of depreciation or excess/surplus of depreciation, as the case may be, belong to the post- acquisition period ***only if the date of revaluation is the date of acquisition***. Normally, the revaluation of fixed assets takes place on the date of acquisition. However, if the date of revaluation is before the date of acquisition then either shortage/deficiency of depreciation or excess/surplus of depreciation, as the case may be, belongs to both the pre-acquisition period and the post-acquisition period and should accordingly be included in the computation of pre-acquisition and post-acquisition profit.
(iii) Presentation of items of property, plant and equipment in the Consolidated Balance Sheet	In the consolidated balance sheet, the presentation will be as under: In case of increase in the value of fixed asset

Particulars	***Rs.***
Concerned fixed asset (at figure prior to revaluation)	****
Add: increase in the value of fixed asset	****
Less: shortage/deficiency of depreciation	(****)
Final figure in the Consolidated Balance Sheet	xxx

In case of decrease in the value of Fixed Asset

Particulars	***(Rs.)***
Concerned fixed asset (at figure prior to revaluation)	****
Less: decrease in the value of fixed asset	(****)
Add: Excess/surplus depreciation	****
Final figure in the Consolidated Balance Sheet	****

Illustration 6

Model: Revaluation of assets-profit

The following are the balance sheet of P Ltd., and its subsidiary Q Ltd., as at 31 March 2023:

I. Equity and Liabilities	**P Ltd. Rs.**	**Q Ltd. Rs.**
Equity shares of Rs.100 Each	16,00,000	4,00,000
Profit & Loss A/c	2,00,000	80,000
External Liabilities	30,00,000	19,20,000
Total	**48,00,000**	**24,00,000**

II. Assets	P Ltd. Rs.	Q Ltd. Rs.
Equipment	10,00,000	3,80,000
Investment:		
3,600 equity shares in Q Ltd. on 1 April 2010	5,60,000	---
Other Assets	32,40,000	20,20,000
Total	**48,00,000**	**24,00,000**

On 1 April 2022 P&L A/c of Q Ltd. showed a credit balance of Rs.32,000 and equipment of Q Ltd., was revalued by P Ltd., 20% above its book value of Rs.4,00,000 (but no such adjustment effected in the books of Q Ltd.) prepare the consolidated balance sheet as at 31 March 2023.

Solution

Calculations:

I: Calculation of Pre-acquisition profits:		***Rs.***
(i)	Balance on 1 April 2022	32,000
(ii)	Share of P Ltd i.e. 90% x Rs.32,000	28,800
(iii)	Minority Interest [(i) – (ii)]	3,200
II: Revaluation of Equipment:		
(i)	Profit on revaluation (20% x Rs. 4,00,000)	80,000
(ii)	Share of P Ltd (i.e. 90/100 x 80,000)	72,000
(iii)	Minority share [(i) – (ii)]	8,000
III: Calculation of Additional Depreciation:		
(i)	Book value on 1 April 2022	4,00,000
(ii)	Less: Book value on 31 March 2023	(3,80,000)
(iii)	Depreciation [(i) – (ii)]	20,000
(iv)	Rate of Depreciation = $\frac{20,000}{4,00,000}$ x 100 = 5%	
(v)	∴ Additional Depreciation on Rs.80,000	
	5% = $\frac{5}{100}$ x Rs.80,000	4,000
IV: Calculation of Post-acquisition of profit:		
(i)	Balance on 31 March 2023	80,000
(ii)	*Less*: Balance on 31 March 2022	(32,000)
		48,000
(iii)	*Less*: Additional Depreciation (Ref: III)	(4,000)
(iv)	*Less*: Share of P. Ltd. x 44,000	(39,600)
(v)	Minority Interest [(iii) – (iv)]	4,400

V: Calculation of Cost of Control:

(i)	Cost of Investment in share of Q Ltd.	5,60,000
(ii)	*Less*: Paid-up Capital Held	(3,60,000)
		2,00,000
(iii)	*Less*: Capital Profit-Pre-acquisition	(28,800)
		1,71,200
(iv)	*Less*: Revaluation of Equipment (Capital Profit)	(72,000)
		99,200

VI: Computation of Minority Interest:

(i)	Paid-up value of shares held	40,000
(ii)	*Add*: Share of Pre-acquisition profit:	3,200
	[Ref: I (iii) i.e. $\frac{1}{10}$ x 32,000]	43,200
(iii)	*Add*: Share of Profit on Revaluation	
	[Ref: II (iii) i.e., $\frac{1}{10}$ x Rs.80,000]	8,000
		51,200
(iv)	*Add*: Share of Post-acquisition profit	4,400
	[Ref: IV (v) i.e., $\frac{1}{10}$ x Rs.44,000]	55,600

Consolidated Balance Sheet of P Ltd. and its Subsidiary Q Ltd. as on 31 March 2022

I. EQUITIES AND LIABILITIES		**Amount (Rs.)**
1. Shareholders' funds		
a. Share Capital:		
16000 shares of Rs. 100 each		16,00,000
b. Reserve & surplus		
General Reserve		
P Ltd.	2,00,00	
P & L A/c	39,600	2,39,600
Share in Q Ltd.		55,600
2. Minority Interest		
3. Other Liabilities		
P Ltd.	30,00,000	
Q Ltd.	19,20,000	49,20,000
Total		**68,15,200**

II. ASSETS		
1. Fixed Assets		
P Ltd.	10,00,000	
Q Ltd.	4,80,000	
	14,80,000	
Depreciation 5% on 4,80,000	24,000	14,56,000
Goodwill		99,200
2. Other Assets	32,40,000	
P Ltd.	20,20,000	52,60,000
Q Ltd.		
Total		**68,15,200**

Bonus Shares Issued by Subsidiary Company

Situation	*Treatment*
(i) Accounting effect of bonus issue already given in the books of subsidiary	If Accounting effect has already been given by subsidiary in its books, nothing will be done further. If the problem on hand only states that during the year, bonus shares have been issued and does not state anything as to whether the accounting entry for the said bonus issue has been passed or not, it is presumed that the accounting entry for the said bonus issue has been passed in the books.
(ii) Accounting effect of bonus issue not given in the books of subsidiary	In such a case, the following pieces of work will be done: (a) The balance of profits and reserves out of which bonus shares have been issued should be reduced by passing the following entry: General Reserve A/c/ P&L A/c Dr. To Equity Share Capital A/c ***Note***: Normally, if nothing is mentioned in the problem as to whether general reserve has been used or P&L A/c has been used for issue of bonus shares, the first preference should go in favour of the use of general reserve and the second one in favour of the use P&L A/c. (b) The paid-up value of bonus shares allotted to the minority after the date of acquisition should be added to the paid-up value of equity shares held by the minority. The paid-up value of bonus shares allotted to the holding company after the date of acquisition must be added to the paid-up value of equity shares held by the holding company. ***Note***: As usual, no entry is passed in the books of the holding company (or for that in the books of any recipient company) for the receipt of bonus shares.

Illustration 7

Model: Bonus shares issued out of revenue profits

The summarized balance sheet of H Ltd. and S Ltd. as on 31 December 2022 are as follows:

Equity and Liabilities	**H Ltd. Rs.**	**S Ltd. Rs.**
Share capital:		
Share of Rs.10 each	15,00,000	3,00,000
Reserves	2,40,000	90,000
Profit & Loss A/c	1,80,000	1,20,000
Total	**19,20,000**	**5,10,000**
Assets		
Sundry Assets	15,00,000	5,10,000
24,000 shares in S Ltd.	4,20,000	
Total	**19,20,000**	**5,10,000**

S Ltd. had reserves of Rs.90,000 when H Ltd. acquired the shares in S Ltd. but the P&L A/c balance of S Ltd. was fully earned after the purchase of shares.

S Ltd. decided to issue bonus shares out of the post-acquisition profit in the ratio of 2 shares for every S shares held.

Calculate the cost of control before the issue of bonus shares and after the issue of bonus shares.

Solution:

Particulars	***Amount (Rs.)***
I: Calculation of Cost of Control before the issue of Bonus Shares:	
Step 1: Amount paid by H Ltd. in purchase of shares in S Ltd	4,20,000
Step 2: *Less*: Face value of shares acquired 24,000 x Rs.10	(2,40,000)
	1,80,000
Step 3: *Less*: H Ltd's share of capital profits 90,000 x $\frac{8}{10}$ (*or* $\frac{4}{5}$)	(72,000)
Step 4: Cost of Control/Goodwill	1,08,000
II: Calculation of Cost of Control After the issue of Bonus Shares:	**Rs.**
Step 1: Amount paid by H Ltd. for purchase of shares in S Ltd.	4,20,000
Step 2: *Less*: Face value of shares required (24,000 x Rs.10)	(2,40,000)

	1,80,000
Step 3: *Less*: H Ltd's share of capital profits 90,000 x 8/10	(72,000)
	1,08,000
Step 4: *Less*: H Ltd's Share of Bonus $\left(3,00,000 \times \frac{8}{10} \times \frac{2}{5}\right)$	(96,000)
Step 5: Cost of control/goodwill	12,000

Treatment of Dividend

1. **Treatment of dividend received:** Such dividend received may be either final dividend for the previous year paid by subsidiary during the current year or interim dividend paid by subsidiary for the current year during the current year. This point may be explained as under:

(i) Nature of dividend received	The dividend received from the subsidiary company will be either capital dividend or revenue dividend.
(ii) Meaning of capital dividend and revenue dividend	Capital dividend means the dividend which is received out of the pre-acquisition profits of the subsidiary. Revenue dividend means the dividend received out of post-acquisition profits of the subsidiary. When information is given in the problem as to out of which profits dividend has been paid by subsidiary, the amount of capital dividend and revenue dividend may be easily determined. But, the problem may arise when such information is not given in the question.
(iii)What to do if information as to out of which profits Dividend is paid is not given in the problem?	In such a case, either of the following two assumptions may be made: **Assumption No. (i)**: Dividend has been paid out of current year's profit: If it is assumed that dividend has been paid out of current year's profits and the dividend paid by subsidiary is more than current year's profits, then the excess of dividend paid over current year's profits should be assumed to be paid out of earlier year's profits. Accordingly, depending on the date of acquisition, the dividend shall be assumed to be paid out of pre-acquisition profits and post-acquisition profits. **Assumption No. (ii)**: Dividend has been paid out of earlier year's profits: If dividend is assumed to be paid out of earlier year's profits and the date of acquisition is in the current year, then the entire dividend will be treated as first paid out of earlier year's profits and the balance amount of dividend, if any, which is in excess of earlier year's profit shall be assumed to be paid out of current year's profits. Accordingly, depending on the date of acquisition, the dividend shall be assumed to be paid out of pre-acquisition profits and post-acquisition profits.
(iv) Treatment of capital dividend	Capital dividend received by the holding company is deducted from its cost of investments in the equity shares of subsidiary company while computing goodwill/ capital reserve.

	However, if capital dividend received by the holding company is already credited to its P&L A/c, the same will be rectified by the holding company by debiting its P&L A/c and crediting its 'Investments in equity shares in Subsidiary Company A/c'. Para 12 of AS 13 "Accounting for Investments" also requires, inter alia, that dividend on equity shares declared out of pre-acquisition profits is deducted from cost of investments. **Note:** Capital dividend received by the minority requires no treatment.
(v) Treatment of revenue dividend	Revenue dividend received by the holding company is credited to its P&L A/c. Note: Revenue dividend received by the minority requires no treatment.

2. **Treatment of dividend on preference shares**: This point may be dealt with under two situations as under:

Situation	***Treatment***
(a) Preference dividend on non-cumulative pref. shares proposed by subsidiary during the current year	This will be totally ignored for the consolidation for the year of proposal of dividend and hence will not be deducted from the profit for the analysis of profits of subsidiary. Subsidiary company will show the same by way of the notes to accounts to the CBS titled 'Proposed dividends and Corporate Dividend tax thereon' view of paragraph 14 of revised AS 4 as under: 'Dividend proposed to be distributed to preference shareholders for the year.... Rs. ..... (Rs. ... per share)' Corporate dividend tax Rs.....
(b) Pref. dividend on non-cumulative pref. shares declared by subsidiary during the current year	This will be deducted from the profit of subsidiary in the year of declaration. Such dividend will be divided between the holding company and minority for the purpose of consolidation for the year of declaration. Holding company's share shall be divided between pre-acquisition and post-acquisition dividend and shall be dealt with by it accordingly. Minority share shall be added to the minority interest.
(c) Preference dividend on cumulative pref. shares proposed by subsidiary during the current year	**Case 1:** When some portion of cumulative preference shares is held by the minority: In such a case, para 27 of AS 21 will apply. Hence, the preference dividend will be deducted from the profit of subsidiary. The pref. dividend so deducted shall be divided between holding and minority. Holding company's share of such dividend will be divided between pre-and post- portion and will be dealt with accordingly. Minority's share of such dividend shall be added to the minority interest. The remaining balance of P&LA/c of the subsidiary shall be divided between the holding company and the minority. It may be carefully noted that the adjustment for the dividend on cumulative preference shares for the current year shall be made even if the subsidiary has a debit balance of P&LA/c in which case, the debit balance of P&L A/c in the books of subsidiary before such adjustment shall increase by the adjustment of such preference dividend and hence, the increased debit balance of P&L A/c of subsidiary shall be shared by both the holding company and minority. In the year of declaration of such proposed dividend, such preference dividend is not again deducted from profit of subsidiary for consolidation in the year of declaration because it has already been deducted from profit of subsidiary in the previous year.

	Case 2: When no portion of cumulative preference shares is held by the minority i.e. all preference shares of subsidiary are held by holding company: It will be simply ignored for consolidation purpose in the year of proposal. In the year of declaration by subsidiary, such preference dividend shall be deducted from profit of subsidiary. Further, the said declared dividend shall be treated by holding as pre-acquisition or post-acquisition dividend, as the case may be, and dealt with accordingly.
(d) Preference dividend on cumulative preference shares not proposed by subsidiary during the current year	**Case 1 :** When some portion of cumulative preference shares is held by the minority: In such a case, para 27 of AS 21 will apply. Hence, the preference dividend will be deducted from the profit of subsidiary. The pref. dividend so deducted shall be divided between holding and minority. Holding company's share of such dividend will be divided between pre-and post-portion and will be dealt with accordingly. Minority's share of such dividend shall be added to the minority interest. The remaining balance of P&L A/c of the subsidiary shall be divided between the holding company and the minority. It may be carefully noted that the adjustment for the dividend on cumulative preference shares for the current year shall be made even if the subsidiary has a debit balance of P&L A/c in which case, the debit balance of P&L A/c in the books of subsidiary before such adjustment shall increase by the adjustment of the arrears of preference dividend and hence, the increased debit balance of P&L A/c of subsidiary shall be shared by both the holding company and minority. In the year of payment of such arrears of dividend by subsidiary, it will not be deducted again from profit of subsidiary for consolidation purpose because it has already been deducted from the profit of subsidiary in the concerned previous year. Rather, in the year of payment, the same will be divided between holding and minority. Holding company's share shall be treated as pre- or post-acquisition dividend and shall be dealt with accordingly in its books. Minority will also deal with the receipt of dividend as capital income or revenue income as the case may be. **Case 2:** When no portion of cumulative preference shares is held by the minority i.e. all preference shares of subsidiary are held by holding company: It will be simply ignored and will not be deducted from the profit of the subsidiary for consolidation purpose. Further, arrears of fixed cumulative dividend shall be disclosed in the notes to accounts in the CBS. In the year of payment of such arrears of dividend by subsidiary, it will be deducted from profit of subsidiary for consolidation purpose. Rather, in the year of payment, the same will be treated as pre-or post-acquisition dividend, as the case may be.

3. **Treatment of Equity dividend**: This point may be dealt with under two situations as under:

Situation	*Treatment*
(a) Equity dividend proposed by subsidiary during the current year	This will be ignored for the purpose of consolidation because this will not be adjusted by the subsidiary in the books of account for the year of proposal in view of para 14 of revised AS 4. Such proposed dividend is simply shown in the notes to accounts to the Balance sheet related to the year of proposal. This is adjusted by the subsidiary in the books in the year of declaration in which case, this will be divided between holding company and minority for the purpose of consolidation for the year of declaration. Accordingly, holding company shall divide its share of declared dividend between pre-acquisition dividend and post- acquisition dividend and shall treat accordingly. Minority's share of such declared dividend shall be added to minority interest.

(b) Equity dividend not proposed by subsidiary during the current year	It will be simply ignored for the consolidation. It will not be mentioned even in the notes to accounts to the balance sheet of the subsidiary.
(c) Equity dividend declared	The entry will be passed if the same has not already been passed. If nothing is mentioned whether the entry for declaration of equity dividend has been passed or not, it will be presumed that the entry has been passed.

Treatment of Goodwill appearing in the Balance Sheet of Subsidiary Company

If, the goodwill is shown in the balance sheet of the subsidiary company. That means goodwill already exists.
Accounting Treatment:

Approach I: Add: Goodwill already appearing in the balance sheet of subsidiary company to the goodwill and/or cost of control in the consolidated balance sheet.

Approach II: Add: Only holding company's share to the cost of control/goodwill, from the goodwill of the subsidiary company.

Illustration 8

Model: Dividends paid out of pre-acquisition profits and goodwill of subsidiary company.

From the following Balance Sheets of a holding company and its subsidiary on 31 March 2022, prepare consolidated balance sheet.

Particulars	*H Ltd. Rs.*	*S Ltd. Rs.*
Equities & Liabilities		
Share capital	15,00,000	6,00,000
Shares of Rs. 10 each		
General reserve	2,40,000	1,80,000
P&L Account	2,70,000	2,10,000
Sundry Creditors	1,50,000	1,20,000
Outstanding expenses	60,000	30,000
Total	**22,20,000**	**11,40,000**
Assets:		
Goodwill	90,000	30,000
Machinery	9,00,000	4,50,000
Stock	2,40,000	1,50,000
Debtors	3,60,000	4,80,000

Cash and Bank	60,000	30,000
Investments:		
48,000 shares in S Ltd	5,70,000	
Total	**22,20,000**	**11,40,000**

When control was acquired S Ltd. had Rs.1,20,000 in general reserve and Rs.90,000 in profit and loss account. Immediately on purchase of shares, H Ltd. received Rs.48,000 as dividend from S Ltd. which was credited to profit and loss account. Debtors of H Ltd, include Rs.60,000 due from S Ltd. whereas creditors of S Ltd. include Rs.45,000 due to H Ltd., the difference being accounted for by a cheque-in-transfer.

Solution

Step 1: Determination of Holding-Minority Ratio:

(i) H Ltd's investment in S Ltd: 48,000 Shares

(ii) Minority state in S Ltd.: 12,000 shares

(60,000 shares – 48,000 shares)

(iii) ∴ Holding – Minority Ratio = 48,000:12,000 = 4:1

(i.e. H Ltd. $\frac{4}{5}$ and S Ltd. $\frac{1}{5}$)

Step 2: Determination of H Ltd's share in capital profits and reserves	Rs.	Rs.
(i) Balance in Reserve (pre-acquisition)		
(Given in Additional Information)		1,20,000
(ii) *Add*: Balance in P&L A/c (Pre-acquisition)		
(Given in Additional information)	90,000	
(iii) *Less*: Dividends Paid:		
Shares Dividend		
48,000 48,000		
60,000		
$x = \frac{40,000 \times 60,000}{48,000}$ = Rs. 60,000	(60,000)	30,000
(iv) Total Capital Profit =		1,50,000
(v) H Ltd's share = ($\frac{4}{5}$ x Rs. 1,50,000)		1,20,000
(vi) S Ltd's share (Minority) $\frac{1}{5}$ x Rs.1,50,000 =		30,000

Step 3: Determination of Current Year's Profit:

(i) Balance of Profits as on 31 March 2022 (Ref Balance Sheet)	2,10,000
(ii) *Less*: Pre-acquisition profits after deducting dividends paid [Ref: Step 2 (iii)]	
(Rs.90,000 – Rs.60,000)	30,000

(iii)	Profits During the year		1,80,000
(iv)	H Ltd's share ($\frac{4}{5}$ x Rs. 1,80,000)		1,44,000
(v)	S Ltd.'s share		36,000

Step 4: Determination of share in general reserve:

(i)	Balance of Profits as on 31 March 2022		
	(shown in balance sheet)		1,80,000
(ii)	*Less*: Pre-acquisition reserve		
	(Given in Additional information)		1,20,000
(iii)	Transfer to reserve in the year		60,000
(iv)	Share of H Ltd.'s ($\frac{4}{5}$ x Rs. 60,000)		48,000
(v)	Share of S Ltd.'s ($\frac{1}{5}$ x Rs. 60,000)		12,000

Step 5: Determination of Goodwill/Capital Reserve:

(i)	Cost of investment in share of S Ltd. (Shown in Balance Sheet)		5,70,000
(ii)	*Less*: Paid-up value of shares held (48,000 shares x Rs.10)		4,80,000
			90,000
(iii)	*Less*: Dividends paid out from pre-acquisition profit (Given)		42,000
(iv)	*Add*: Goodwill:		
	H Ltd.	90,000	
	S Ltd.	30,000	1,20,000
			1,62,000
(v)	*Less*: Capital profits [Ref: Step 2 (v)]		(1,20,000)
(vi)	Goodwill – To be shown in consolidated balance sheet		42,000

Step 6: Ascertainment of Minority Interest:

(i)	Face value of Minority Shares Held	
	(12,000 shares x Rs.10)	1,20,000
(ii)	Add: Minority share of General Reserve ($\frac{1}{5}$ x Rs. 1,80,000)	36,000
		1,56,000
(iii)	Add: Minority Share in P&L ($\frac{1}{5}$ x Rs. 2,10,000)	42,000
		1,98,000

Step 7: Construction of Consolidated Balance sheet:

Consolidated Balance Sheet of H Ltd. and its subsidiary S Ltd.

As on 31.03.22

I. EQUITIES AND LIABILITIES		**Amount (Rs.)**
1. Shareholders' funds		
(a) Share Capital:		
150000 shares of Rs. 10 each		15,00,000
(b) Reserve & surplus		
General Reserve H Ltd.:	2,40,000	
Share in S Ltd.	48,000	2,88,000
P & L A/c H Ltd.	2,70,000	
Share in S Ltd.	1,44,000	
	4,14,000	
Less: Dividend	(48,000)	3,66,000
2. Minority Interest		1,98,000
3. Current Liabilities & Provisions		
H Ltd.	1,50,000	
S Ltd.	1,20,000	
	2,70,000	
Less: Inter Company Debts	(45,000)	2,25,000
Outstanding Expenses:		
H Ltd.	60,000	
S Ltd.	30,000	90,000
Total		**26,67,000**
(II) ASSETS		
1. Fixed Assets		
Machinery		
H Ltd.	9,00,000	
S Ltd.	4,50,000	13,50,000
Goodwill		42,000
2. Current Assets		
Stock:		

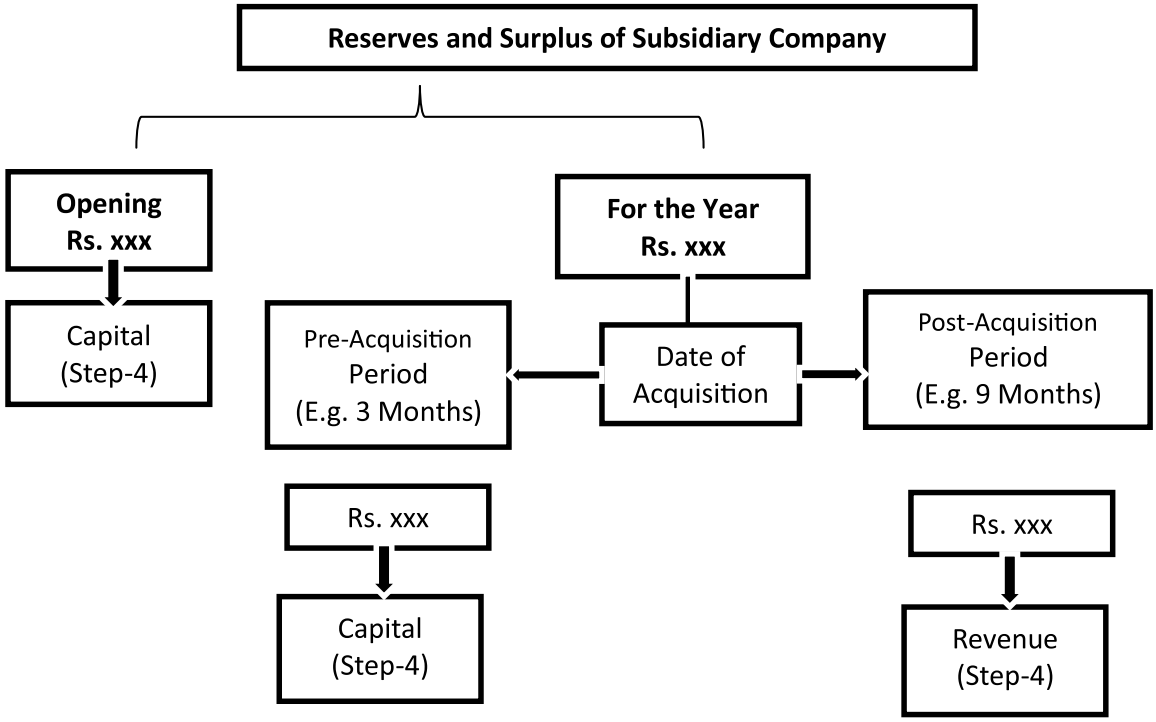
H Ltd.	2,40,000	
S Ltd.	1,50,000	3,90,000
Debtors:		
H Ltd.	3,60,000	
S Ltd.	4,80,000	
	8,40,000	
Less: Inter Company Debts	(60,000)	7,80,000
Cash & Bank Balance		
H Ltd.	60,000	
S Ltd.	30,000	90,000
Cheque-in-transit		15,000
Total		**26,67,000**

Summarized Steps for preparation of Consolidated Financial Statement

Step: 1 Identify Date of Acquisition (DOA)

Step: 2 Compute the Shareholding Ratio

Step: 3 Distributions of Reserves and Surplus of Subsidiary Company subject to certain adjustments*.



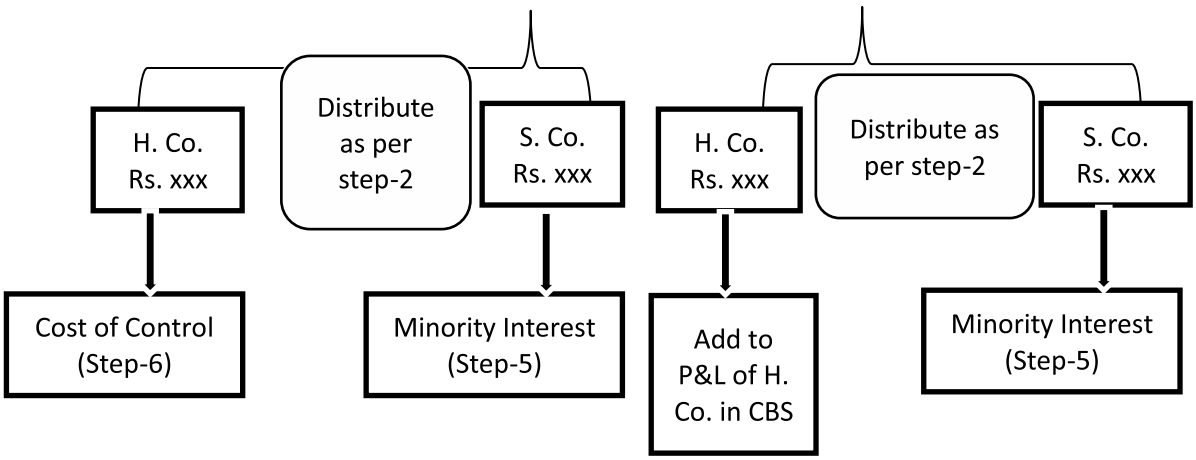
Certain adjustments*

It is important to note that before giving the treatment under step-3 it is required to confirm about following adjustments like:

- Preliminary expense written off
- Revaluation of assets
- Dividend treatment
- Bonus share etc.

Step: 4 Analysis of Profit and Loss of Subsidiary Company

Particulars	*Capital*	*Revenue*
Reserves and Surplus (Step-3)		
• Opening	***	-
• For the Year	***	***
Other Adjustments (If any)	***	***
Total	***	***



Step: 5 Computation of Minority Interest

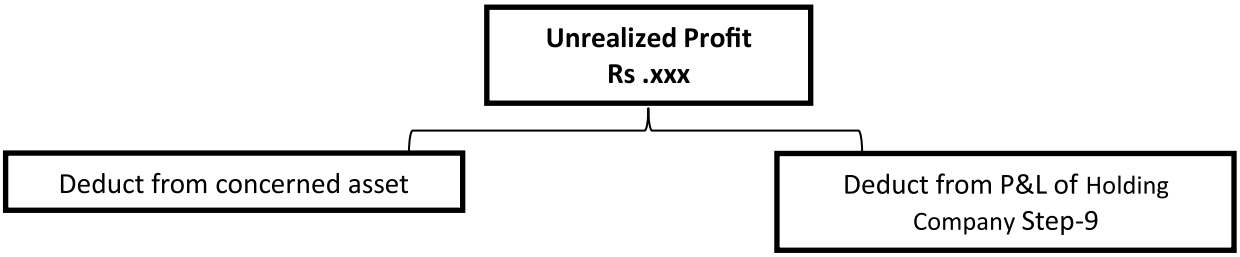
• Proportion of Subsidiary Company in share capital (Eq./Pref.) of Subsidiary Company (Including Bonus) [Share Capital of Subsidiary Company * Proportion of Subsidiary Company (As per step-2)]	***
• Capital Profit/Reserve Portion (Step-4)	
• Revenue Profit/Reserve (Step-4)	***
• Dividend adjustment (Eq/Pref.)	***
Minority Interest (Non-Controlling Interest) [Show Equity & Liability side of Consolidated Balance Sheet 'CBS']	***

Step: 6 Computation of Cost of Control

Investment of Holding Company in the shares of Subsidiary Company	***
Less:	
• Proportion of Holding Company in share capital (Eq./Pref.) of Subsidiary Company (Including Bonus) [Share Capital of Subsidiary Company * Proportion of Holding Company (As per step-2)]	***
• Capital Portion (Step-4)	***
• Dividend received out of pre-acquisition profit of the subsidiary (whether equity or preference dividend)	***
Goodwill (Positive) [Show Assets Side of CBS]	***
Capital Reserve (Negative)[Show Step-9 Reserves & Surplus of CBS]	(***)

Step: 7 Treatment of Inter Company Transactions and other Adjustments

Step: 8 Treatment of Unrealized Profit



Step- 9 Prepare Reserves and Surplus of Holding Company for Consolidated Balance Sheet

Particulars	*Capital*	*P&L*	*Revenue*
Capital Reserve	**		
General Reserve			**
Security Premium	**		
P&L Account		**	
Revenue Portion (Step-4)		**	
Capital Reserve (Step-5)	**		
Unrealized Profit (Step-8)		(**)	
Any other adjustments	**/(**)	**/(**)	**/(**)
Total [A+B+C] (Show under head Reserve and Surplus at CBS)	** (A)	** (B)	** (C)

Step- 10 Prepare Consolidated Balance Sheet (CBS)

CASE 1 [Based on Computation of Minority Interest and Cost of Control]

Following is the extract of H ltd and S ltd as on 31.3.2022.

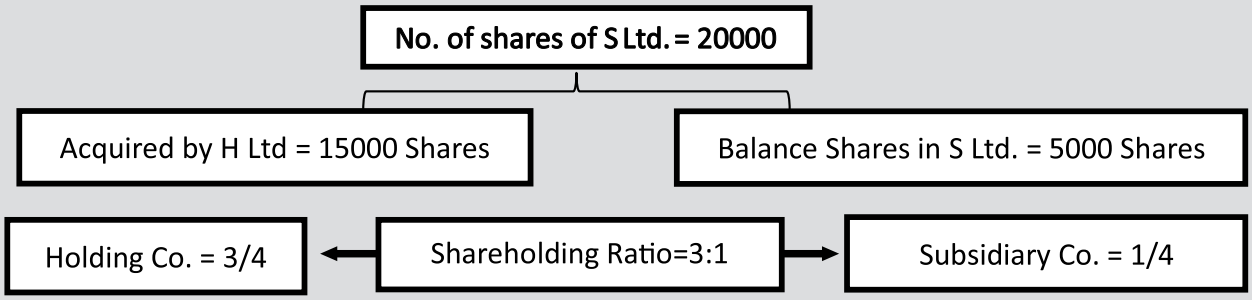
Particulars	*H Ltd.(Rs.)*	*S Ltd.(Rs.)*
Liabilities:		
Share capital: Shares of Rs.10 each	500000	200000
Security Premium	50000	10000
General reserve	100000	50000
Surplus	75000	20000
Creditors	80000	40000
Total	**805000**	**320000**
Assets:		
Sundry assets	510000	320000
Investment: 15000 shares in S ltd	295000	
Total	**805000**	**320000**

You are required to compute Minority Interest and Cost of control assuming H ltd acquired shares in S ltd on 31.3.2022.

Solution:

Note: 1 Date of Acquisition = 31.3.2022

Note: 2 Computation of Share Holding Ratio

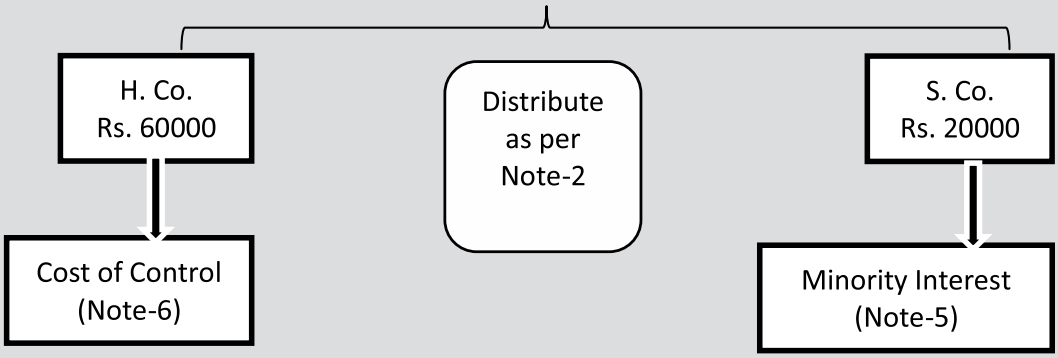


Note: 3 Distribution of Reserves and Surplus of S Ltd. subject to special adjustment (Here, in this example, there is no special adjustment)

Reserves and Surplus of S Ltd.	*Amount Rs*	*Remarks*	*Treatment*
Security Premium	10000	Capital Nature	Show Capital Note:4
General Reserve	50000	Date of Acquisition-31.3.2022, hence, entire period shall be considered as "Pre-Acquisition"	Show Capital Note:4
Surplus	20000	Date of Acquisition-31.3.2022, hence, entire period shall be considered as "Pre-Acquisition"	Show Capital Note:4

Note: 4 Analysis of Profit and Loss of S Ltd.

Particulars	*Capital*	*Revenue*
Security Premium	10000	-
General Reserve - Note-3	50000	-
P&L – Note -3	20000	-
Total	**80000**	**-**



Note: 5 Computation of Minority Interest

• Proportion of S Ltd. in share capital of S Ltd. [Share Capital of S Ltd. * Proportion of S Ltd. (As per Note - 2)] [200000*1/4]	50000
• Capital Profit/Reserve (Note-4)	20000
Minority Interest (Non-Controlling Interest) [Show Equity & Liability side of CBS]	**70000**

Note: 6 Computation of Cost of Control

Investment of H Ltd. in the shares of S Ltd.	295000
***Less*:**	
• Proportion of H Ltd. in share capital of S Ltd. [Share Capital of S Ltd. * Proportion of H Ltd.(As per Note-2)] i.e. (200000*3/4)	(150000)
• Capital Portion (Note-4)	(60000)
Goodwill (Positive) [Show Assets Side of CBS of H Ltd.]	**85000**

CASE 2

From the following balance sheets of Exe Ltd. and Wye Ltd. as on 31st March, 2022, Workout : (a) Net amount due to minority interest and (b) Cost of control.

Particulars	*Exe Ltd.(Rs.)*	*Wye Ltd.(Rs.)*
Liabilities:		
Share capital: Shares of Rs.100 each	15,00,000	5,00,000
General reserve	1,50,000	1,00,000
Profit and loss account	2,00,000	75,000
Creditors	1,87,500	1,20,000
Total	**20,37,500**	**7,95,000**
Assets:		
Sundry assets	14,77,500	7,95,000
Investment: 4,000 shares of Rs.100 each	5,60,000	
Total	**20,37,500**	**7,95,000**

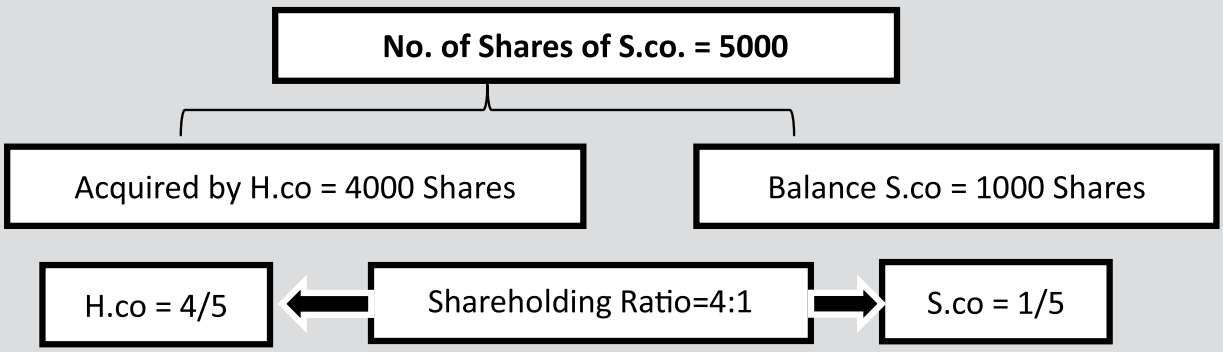
The assets of Wye Ltd. included the equipment worth Rs.1,50,000 which was revalued at Rs.1,25,000.The investment of Exe Ltd. were in the shares of Wye Ltd. and the same were acquired on 1st July, 2021. There is no opening of General Reserve and P&L of Wye ltd.

Solution:

Note: 1 Exe Ltd – H.Co and Wye Ltd – S.co

Note: 1A Date of Acquisition = 1.7.2021

Note: 2 Computation of Share Holding ratio



Note: 3 Distribution of Reserves and Surplus of S.co subject to special adjustment (Here, in this example, adjustment on account of revaluation of assets)

Note: 3(1) Treatment of Revaluation of Assets

Assets on date of Revaluation =Rs. 1,50,000 — ***Capital Loss =Rs. 25000 [Show in Note: 4]*** — Revalued Amount =Rs. 1,25,000 (Given in Example)

Note: 3 (2) Distribution of Reserves and Surplus of S.co

General Reserve of S.co. = 100000

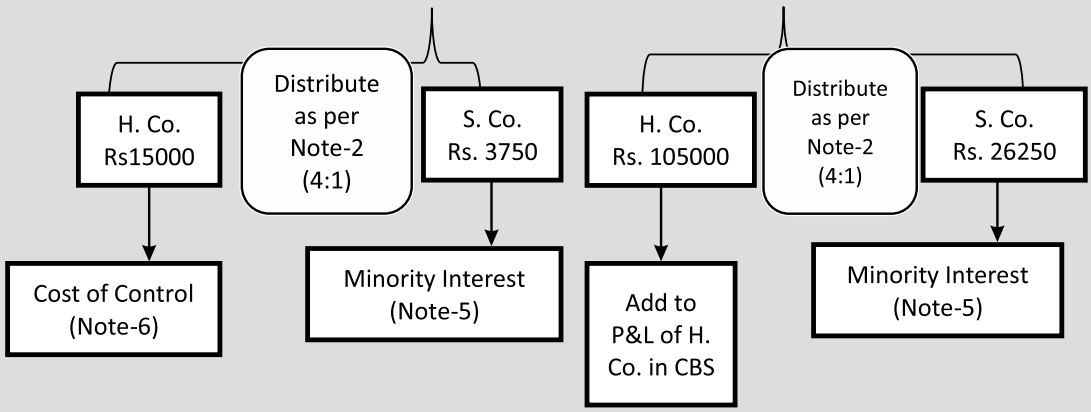
- **Opening Rs. Nil** → Capital (Note-4)
- **For the Year Rs. 100000** → DOA =1.7.2021
  - Pre-Acquisition Period (3 Months) → (100000*3/12) = 25000 → Capital (Note-4)
  - Post-Acquisition Period (9 Months) → (100000*9/12) = 75000 → Revenue (Note-4)

P & L of S.co. = 750000

- **Opening Rs. Nil** → Capital (Note-4)
- **For the Year Rs. 75000** → DOA =1.7.2021
  - Pre-Acquisition Period (3 Months) → (75000*3/12) = 18750 → Capital (Note-4)
  - Post-Acquisition Period (9 Months) → (75000*9/12) = 56250 → Revenue (Note-4)

Note: 4 Analysis of Profit and Loss of S.co.

Particulars	*Capital*	*Revenue*
General Reserve - Note-3(2) ● Opening ● For the Year	 - 25000	 - 75000
P&L – Note -3(2) ● Opening ● For the Year	 - 18750	 - 56250
Capital Loss on account of revaluation [Note- 3(1)]	(25000)	-
Total	**18750**	**131250**



Note: 5 Computation of Minority Interest

● Proportion of S.co in share capital of S.co [Share Capital of S.co * Proportion of S.co(As per step-2)] [500000*1/5]	100000
● Capital Profit/Reserve (Note-4)	3750
● Revenue Profit/Reserve (Note-4)	26250
Minority Interest (Non-Controlling Interest) [Show Eq & Liability side of CBS]	**130000**

Note: 6 Computation of Cost of Control

Investment of H.co in the shares of S.co	560000
Less:	
● Proportion of H.co in share capital of S.co [Share Capital of S.co * Proportion of H.co(As per step-2)] i.e. (500000*4/5)	400000
● Capital Portion (Step-4)	15000
Goodwill (Positive) [Show Assets Side of CBS of H.co]	**145000**

CASE 3 [Based on treatment of Revaluation of Assets]

Following are the balance sheet of H Ltd. and its subsidiary S Ltd. as on 31st March, 2022.

Particulars	H Ltd.(Rs.)	S Ltd.(Rs.)
1) Equities and liabilities:		
Fully paid-up equity shares of Rs.10 each	6,00,000	2,00,000
General reserve	3,40,000	80,000
Profit and loss(surplus)	1,00,000	60,000
Trade payable	70,000	35,000
Total	**11,10,000**	**3,75,000**
2) Assets:		
Machinery	3,90,000	1,35,000
Furniture	80,000	40,000
Investment (80% shares in S Ltd. at cost)	3,40,000	
Stock	1,80,000	1,20,000
Trade receivable	50,000	30,000
Cash and bank	70,000	50,000
Total	**11,10,000**	**3,75,000**

Additional information:

1. Surplus in the profit and loss statement of S Ltd. stood at Rs.30,000 on 1st April, 2021 whereas general reserve has remained unchanged since that date.
2. H Ltd. acquired 80% shares in S Ltd. on 1st October, 2021 for Rs.3,40,000 as mentioned above.
3. S Ltd.'s plant and Machinery which stood at Rs.1,50,000 on 1st April, 2021 was considered worth Rs.1,80,000 as on 1st October, 2021, this figure is to be considered while consolidating the balance sheet.

You are required to prepare consolidated balance sheet.

Solution:

Note: 1 Date of Acquisition = 1.10.2021

Note: 2 Computation of Share Holding ratio (Already Given) = 80% (H. Co) and 20% (S. Co)

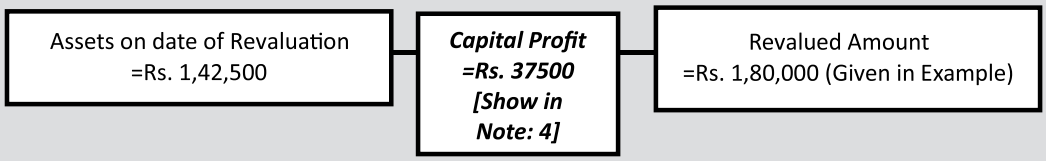
Note: 3 Distribution of Reserves and Surplus of S.co subject to special adjustment (Here, in this example, adjustment on account of revaluation of assets)

Note: 3(1) Treatment of Revaluation of Assets (Date of Revaluation=1.10.2021)

(A) Treatment of Capital Portion of Revaluation

Machinery (1.4.2021) [Given in adjustment)	150000
Less: Machinery (31.3.2022) [Given in balance sheet)	(135000)
Total Depreciation (i.e. 10%)	**15000**

Machinery (1.4.2021) [Given in adjustment)	**150000**
Less: Depreciation from 1.4.21 to 1.10.21 (till date of revaluation) (15000*6/12)	(7500)
Machinery as on 1.10.2021 (i.e. as on date of revaluation)	**142500**



(B) Treatment of Depreciation in case of Revaluation

Depreciation on revaluated amount (180000*10%*6/12)	9000
Depreciation already charged (See Table-A)	(7500)
Revenue Loss [Show Note-4]	**1500**

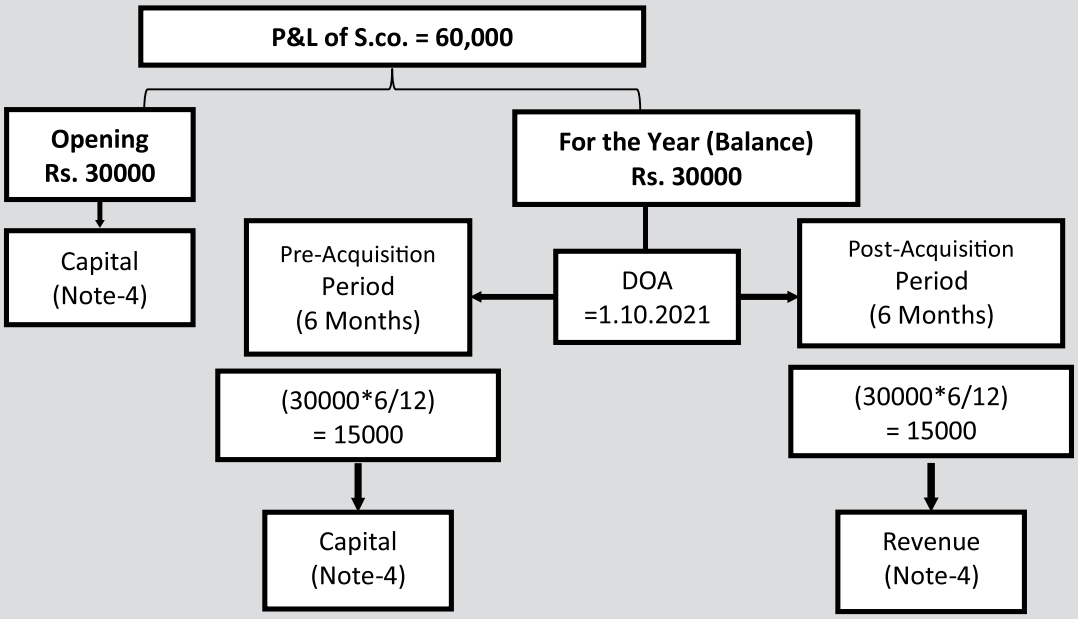
(C) Value of Machinery for CBS

Revalued Amount	180000
Less: Depreciation on revaluated amount	(9000)
Value of Machinery for CBS	**171000**

Note: 3 (2) Distribution of Reserves and Surplus of S.co

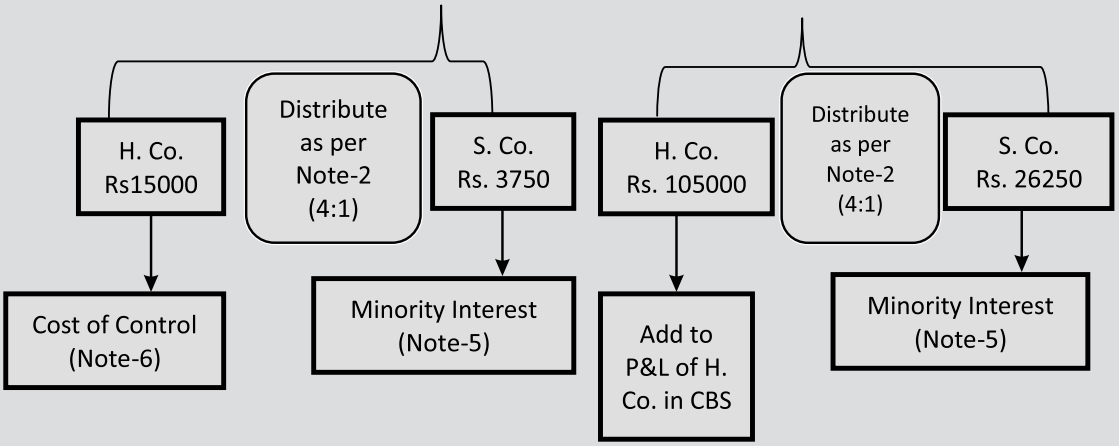
(A) General Reserve = 80000 (Opening) – Unchanged

(B)



Note: 4 Analysis of Profit and Loss of S.co.

Particulars	*Capital*	*Revenue*
General Reserve - Note-3(2) ● Opening	80000	-
P&L – Note -3(2) ● Opening ● For the Year	30000 15000	- 15000
Capital Profit/Revenue Loss on account of revaluation [Note-3(1)]	37500	(1500)
Total	**162500**	**13500**



Note: 5 Computation of Minority Interest

● Proportion of S.co in share capital of S.co [Share Capital of S.co * Proportion of S.co(As per Note-2)] [200000*20%]	40000
● Capital Profit/Reserve (Note-4)	32500
● Revenue Profit/Reserve (Note-4)	2700
Minority Interest (Non-Controlling Interest) [Show Eq & Liability side of CBS]	**75200**

Note: 6 Computation of Cost of Control

Investment of H.co in the shares of S.co	340000
Less:	
● Proportion of H.co in share capital of S.co [Share Capital of S.co * Proportion of H. co (As per step-2)] i.e. (200000*80%)	(160000)
● Capital Portion (Step-4)	(130000)
Goodwill (Positive) [Show Assets Side of CBS of H.co]	**50000**

Note: 7 Reserves and Surplus of H. Co for CBS

Particulars	*Capital*	*P&L*	*Revenue*
Capital Reserve (If any)	-	-	-
General Reserve	-	-	340000
P&L Account	-	100000	-
Revenue Portion (Note-4)	-	10800	-
Total	**Nil (A)**	**110800 (B)**	**340000 (C)**
Total [A+B+C] **(Show under head R&S at CBS of H.co)**	**4,50,800**		

Consolidated Balance sheet as on 31.3.2022

Equity and Liabilities		**Amount Rs**
Shareholders Fund		
Equity Share Capital		6,00,000
Reserves and Surplus	Note-7	4,50,800
Minority Interest (Non-Controlling Interest)	Note-5	75,200
Current Liabilities		
Creditors - H.co = 70000 - S.co = 35000		1,05,000
Total		**12,31,000**
Assets		
Non-Current Assets		
Goodwill	Note- 6	50,000
Plant and Machinery - H.co = 3,90,000 - S.co = 1,71,000	Note-3(1)	5,61,000
Furniture - H.co = 80,000 - S.co = 40,000		1,20,000
Stock - H.co = 1,80,000 - S.co = 1,20,000		3,00,000
Trade receivable - H.co = 50,000 - S.co = 30,000		80,000

Cash and Bank - H.co = 70,000 - S.co = 50,000		1,20,000
Total		**12,31,000**

CASE 4 [Based on treatment of Preliminary Expenses]

Balance sheet of H Ltd. and S Ltd. as at 31st March, 2022 are given below.

Particulars	*H Ltd. (Rs.)*	*S Ltd.(Rs.)*
Liabilities:		
Share capital of Rs.10 each, fully paid	5,00,000	2,00,000
General reserve	1,00,000	50,000
Profit and loss account	60,000	35,000
Creditors	80,000	60,000
Total	**7,40,000**	**3,45,000**
Assets:		
Fixed assets	3,00,000	1,00,000
60% shares in S Ltd. at cost	1,62,400	–
Current assets	2,77,600	2,39,000
Preliminary expenses	–	6,000
Total	**7,40,000**	**3,45,000**

H Ltd. acquired the shares on 1st April, 2021 and on that date general reserve and profit and loss account of S Ltd. showed the balance of Rs.40,000 and Rs.8,000 respectively. No part of preliminary expenses has been written off during the year ended on 31st March, 2022**.** Prepare the consolidated balance sheet of H Ltd. and its subsidiary S Ltd. as on March, 2022.

Solution:

Note: 1 Date of Acquisition = 1.4.2021

Note: 2 Computation of Share Holding ratio (Given in example)

H. ltd = 60%, S. ltd = 40%

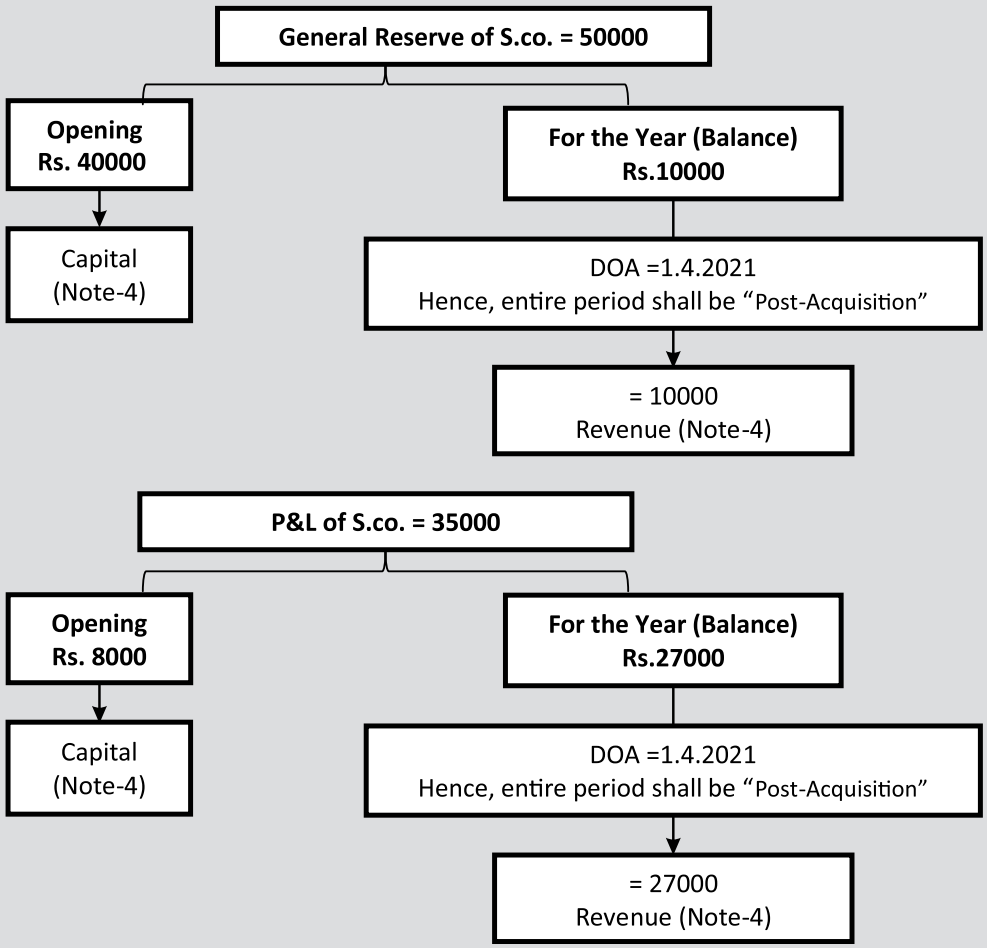
Note: 3 Distribution of Reserves and Surplus of S.co subject to special adjustment

(Here, in this example, there is special adjustment towards preliminary expenses)

Note:3(1) Treatment of Preliminary Expense

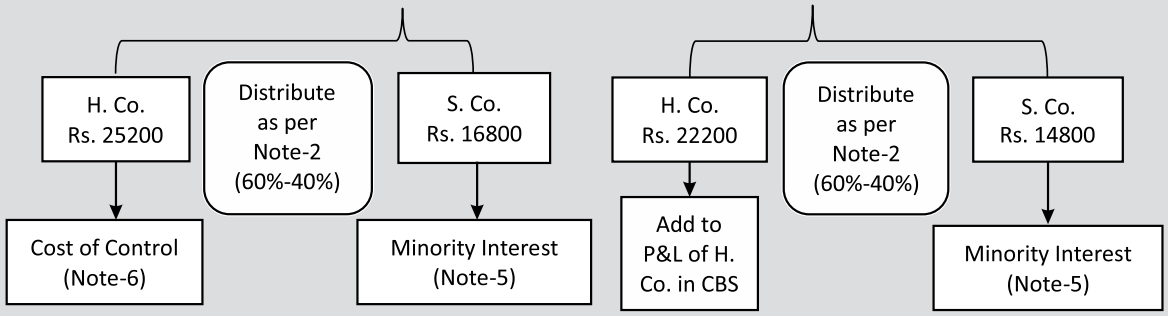
Preliminary Expense to the extent not written off-	Rs. 6000	Show Capital Note-4

Note:3(2)



Note: 4 Analysis of Profit and Loss of S.co.

Particulars	*Capital*	*Revenue*
General Reserve - Note-3(2)		
• Opening	40000	-
• For the year	-	10000
P&L – Note -3(2)		
• Opening	8000	-
• For the year	-	27000
Preliminary Expense to the extent not written off-	(6000)	-
Total	**42000**	**37000**



Note: 5 Computation of Minority Interest

• Proportion of S.co in share capital of S.co [Share Capital of S.co * Proportion of S.co(As per Note-2)] [200000*40%]	80000
• Capital Profit/Reserve (Note-4)	16800
• Revenue Profit/Reserve (Note-4)	14800
Minority Interest (Non-Controlling Interest) [Show Eq & Liability side of CBS]	**111600**

Note: 6 Computation of Cost of Control

Investment of H.co in the shares of S.co	162400
Less:	
• Proportion of H.co in share capital of S.co [Share Capital of S.co * Proportion of H.co(As per Note-2)] i.e. (200000*60%)	(120000)
• Capital Portion (Note-4)	(25200)
Goodwill (Positive) [Show Assets Side of CBS of H.co]	**17200**

Note:7 Reserves and Surplus of H. Co for CBS

Particulars	***Capital***	***P&L***	***Revenue***
Capital Reserve (If any)	-	-	-
General Reserve	-	-	100000
P&L Account	-	60000	-
Revenue Portion (Note-4)	-	22200	-
Total	**Nil (A)**	**82200 (B)**	**100000 (C)**
Total [A+B+C] **(Show under head R&S at CBS of H.co)**	**182200**		

Consolidated Balance sheet of as on 31.3.2022

Equity and Liabilities		***Amount Rs.***
Shareholders Fund		
Equity Share Capital		5,00,000
Reserves and Surplus	Note-7	1,82,200
Minority Interest (Non-Controlling Interest)	Note-5	1,11,600
Current Liabilities		
Creditors - H.co = 80000 - S.co = 60000		1,40,000
Total		**9,33,800**
Assets		
Non-Current Assets		
Goodwill	Note- 6	17,200
Fixed Assets - H.co = 3,00,000 - S.co = 1,00,000		4,00,000
Current Assets		
- H.co = 2,77,600 - S.co = 2,39,000		5,16,600
Total		**9,33,800**

CASE 5 [Based on treatment of Unrealised Profit]

On 31st March, 2022, the balance sheet of Major ltd and its subsidiary Minor ltd.

Particulars	***Major Ltd.***	***Minor Ltd.***
Liabilities:		
• Equity share capital	800000	200000
• General reserve	150000	70000
• Profit and loss account	90000	55000
• Creditors	120000	80000
	1160000	405000
Assets:		
• Fixed assets	550000	100000
• 75% shares in Minor ltd at cost	280000	
• stock	105000	177000
• Other current assets	225000	128000
	1160000	405000

Draw consolidated balance sheet as at 31st March 2022, after taking into following adjustments.

1. Major ltd acquired the shares on 31st July.
2. Minor ltd earned a profit o frs.45000 for the year ended 31st March, 2022.
3. In January, 2022, Minor ltd sold to Major ltd goods costing Rs.15000 for Rs.20000. On 31st March, 2022, the halves of the goods were lying as unsold in the godowns of Major ltd.

Solution:

Note: 1 Major Ltd – H.Co and Minor Ltd – S.co

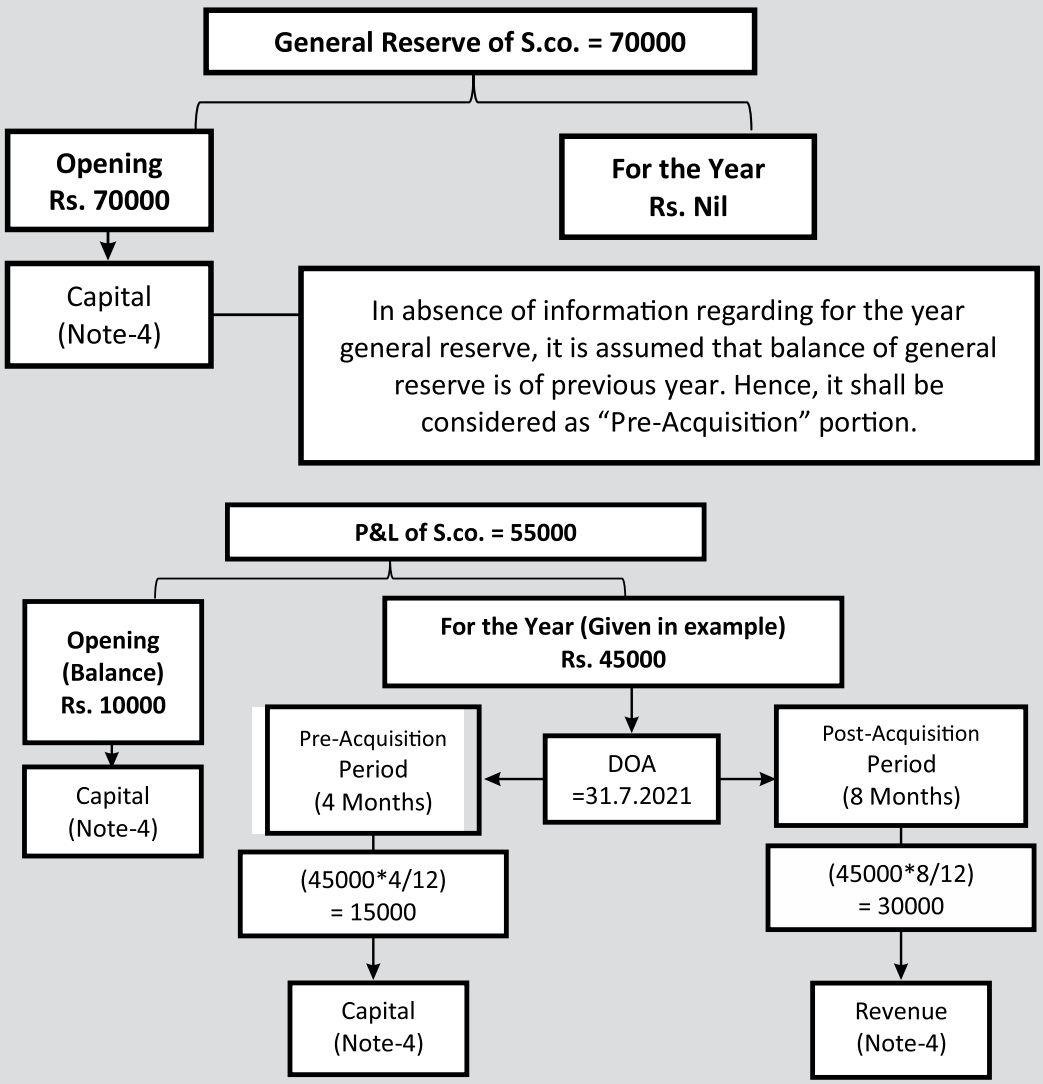
Note: 1A Date of Acquisition = 31.7.2021

Note: 2 Computation of Share Holding ratio (Already given in example)

H Ltd. =75%

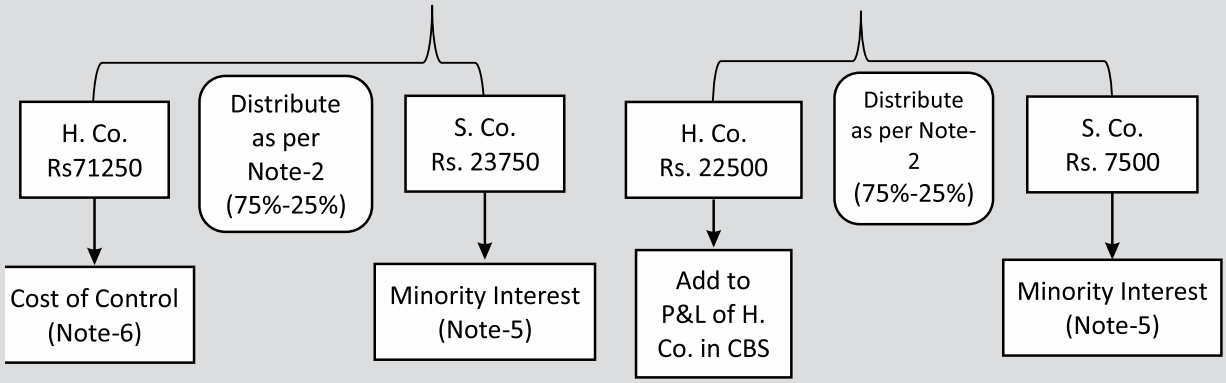
S Ltd. =25%

Note: 3 Distribution of Reserves and Surplus of S.co subject to special adjustment (Here, in this example, there is no any special adjustment)



Note: 4 Analysis of Profit and Loss of S.co.

Particulars	*Capital*	*Revenue*
General Reserve - Note-3		
• Opening	70000	-
• For the Year	-	-
P&L – Note -3		
• Opening	10000	-
• For the Year	15000	30000
Total	**95000**	**30000**



Note: 5 Computation of Minority Interest

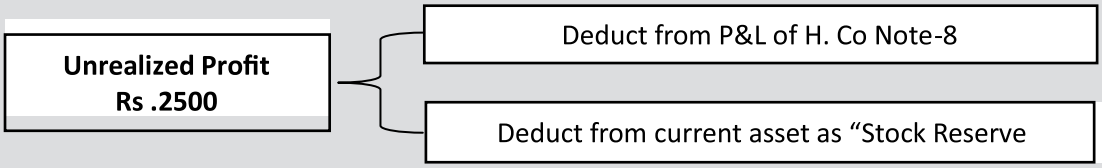
• Proportion of S.co in share capital of S.co [Share Capital of S.co * Proportion of S.co (As per Note-2)] [200000*25%]	50000
• Capital Profit/Reserve (Note-4)	23750
• Revenue Profit/Reserve (Note-4)	7500
Minority Interest (Non-Controlling Interest) [Show Eq & Liability side of CBS]	**81250**

Note: 6 Computation of Cost of Control

Investment of H.co in the shares of S.co	280000
Less:	
• Proportion of H.co in share capital of S.co [Share Capital of S.co * Proportion of H.co (As per Note-2)] i.e. (200000*75%)	(150000)
• Capital Portion (Step-4)	(71250)
Goodwill (Positive) [Show Assets Side of CBS of H.co]	**58750**

Note:7 Treatment of Unrealized profit

Unrealized Profit = Half of i.e. 50% of (20000-15000) = Rs. 2500



Note:8 Reserves and Surplus of H. Co for CBS

Particulars	*Capital*	*P&L*	*Revenue*
Capital Reserve (If any)	-	-	-
General Reserve	-	-	150000
P&L Account	-	90000	-
Revenue Portion (Note-4)	-	22500	-
Unrealised Profit (Note-7)	-	(2500)	-
Total	**Nil (A)**	**110000 (B)**	**150000 (C)**
Total [A+B+C] **(Show under head R&S at CBS of H.co)**	**260000**		

Consolidated Balance sheet of as on 31.3.2022

Equity and Liabilities		**Amount Rs**
Shareholders Fund		
Equity Share Capital		8,00,000
Reserves and Surplus	Note-8	2,60,000
Minority Interest (Non-Controlling Interest)	Note-5	81,250
Current Liabilities		
Creditors - H.co = 120000 - S.co = 80000		2,00,000
Total		**13,41,250**
Assets		
Non-Current Assets		
Goodwill	Note- 6	58,750
Fixed Assets - H.co = 5,50,000 - S.co = 1,00,000		6,50,000
Current Assets		

Stock - H.co = 1,05,000 - S.co = 1,77,000 Less: (2,500) Stock Reserve (i.e. Unrealised Profit)	Note-7	2,79,500
Other Current Assets - H.co = 2,25,000 - S.co = 1,28,000		3,53,000
Total		**13,41,250**

CASE 6 [Based on treatment of Inter Company transactions and Unrealised Profit]

On 1st October, 2021, X ltd acquired 12000 equity shares of B ltd of the face value of Rs.10 each at price of Rs.170000. Following are the balance sheet of companies.

Particulars	***X Ltd.***	***B Ltd.***
Liabilities:		
Equity share capital of Rs.10 each	1000000	200000
General reserve (1.4.21)	420000	100000
P&L a/c (1.4.2021)	90000	40000
Profit for the year	170000	45000
Creditors	240000	92000
Bills payable	80000	60000
Total	**2000000**	**537000**
Assets:		
Goodwill	300000	70000
Land and building	400000	100000
Plant and machine	500000	100000
Stock	200000	40500
Debtors	300000	134500
Investments	200000	
Bills receivables	20000	30000
Bank	60000	50000
Cash	20000	12000
Total	**2000000**	**537000**

1. Out of debtors and bills receivable of X ltd Rs.50000 and Rs.16000 respectively represented those due from B ltd.
2. The stock in hands of B ltd includes goods purchased from X ltd at Rs.20000 which includes profit charged by latter company at 25% at cost.

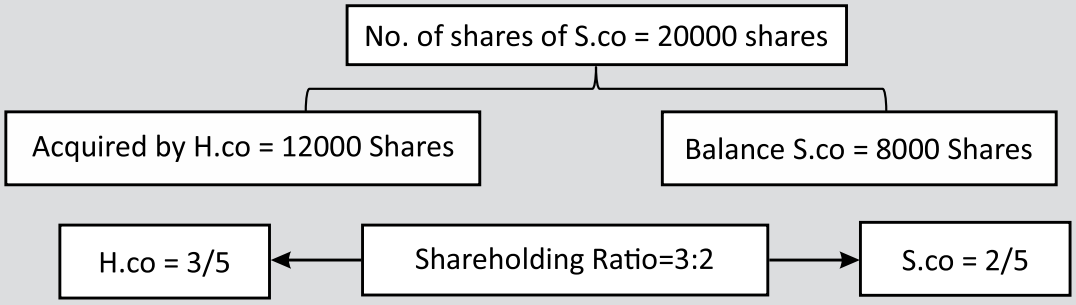
Draw consolidated balance sheet as on 31.3.2022 with necessary working notes.

Solution:

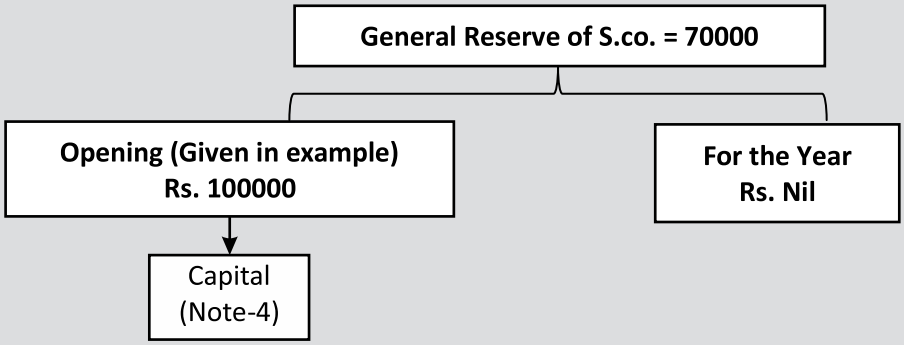
Note: 1 X – H. Co and B Ltd – S.co

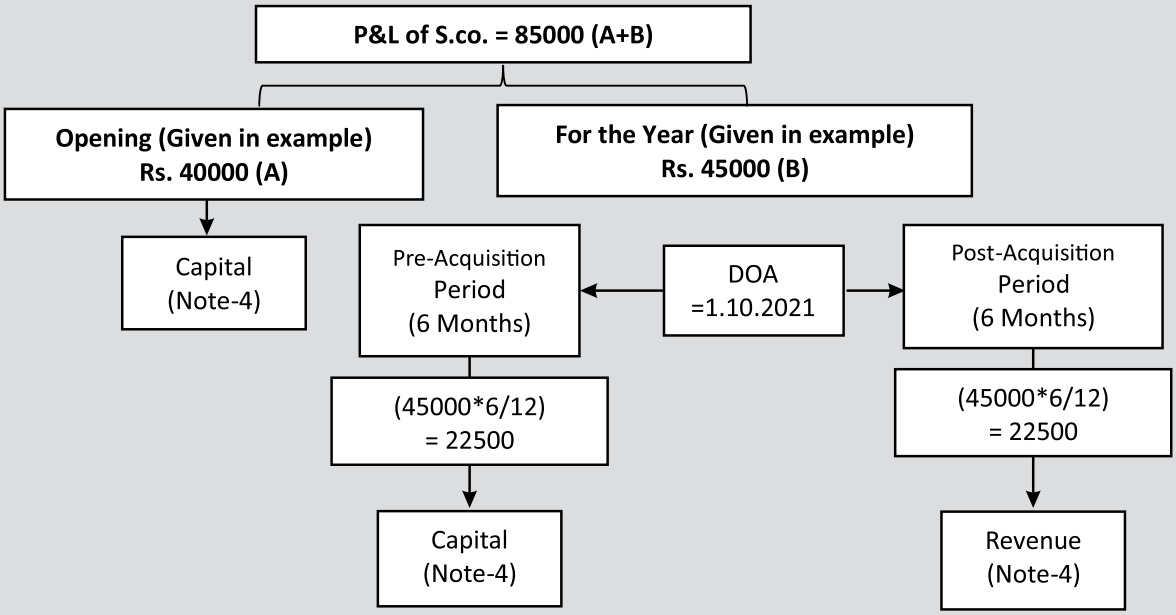
Note: 1A Date of Acquisition = 1.10.2021

Note: 2 Computation of Share Holding ratio



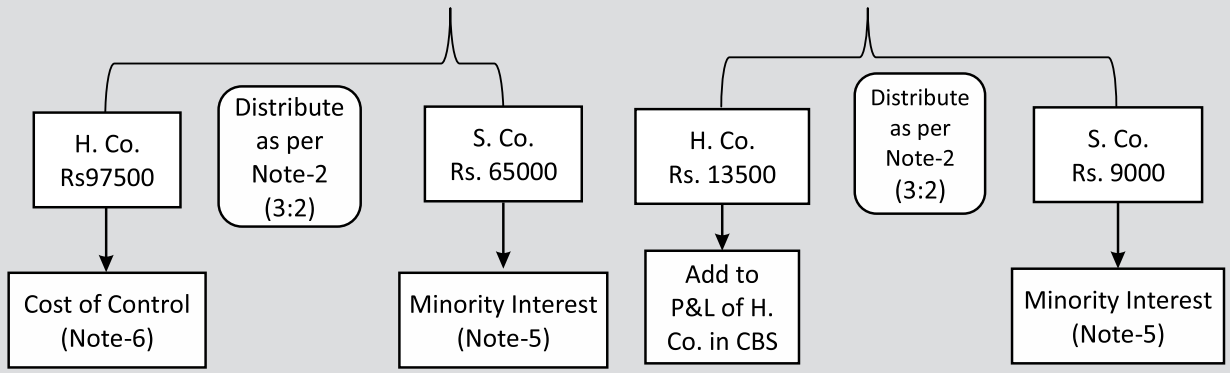
Note: 3 Distribution of Reserves and Surplus of S.co subject to special adjustment (Here, in this example, there is no any special adjustment)





Note: 4 Analysis of Profit and Loss of S.co.

Particulars	*Capital*	*Revenue*
General Reserve - Note-3		
• Opening	100000	-
• For the Year	-	-
P&L – Note -3		
• Opening	40000	-
• For the Year	22500	22500
Total	**162500**	**22500**



Note: 5 Computation of Minority Interest

• Proportion of S.co in share capital of S.co [Share Capital of S.co * Proportion of S.co(As per Note-2)] [200000*2/5	80000
• Capital Profit/Reserve (Note-4)	65000
• Revenue Profit/Reserve (Note-4)	9000
Minority Interest (Non-Controlling Interest) [Show Eq & Liability side of CBS]	**154000**

Note: 6 Computation of Cost of Control

Investment of H.co in the shares of S.co *	170000
Less:	
• Proportion of H.co in share capital of S.co [Share Capital of S.co * Proportion of H.co (As per Note-2)] i.e. (200000*3/5%)	(120000)
• Capital Portion (Step-4)	(97500)
Capital Reserve (Negative) [Show Note-9 R&S of H.co]	**47500**

**Students should understand that total investment in balance sheet would be Rs. 200000 but that is total investment. For the purpose of Cost of control, you are supposed to consider "Investment of H co in shares of S.co i.e. Rs. 170000. Hence, remaining Rs. 30000 shall be shown as Investment in Consolidated Balance Sheet.*

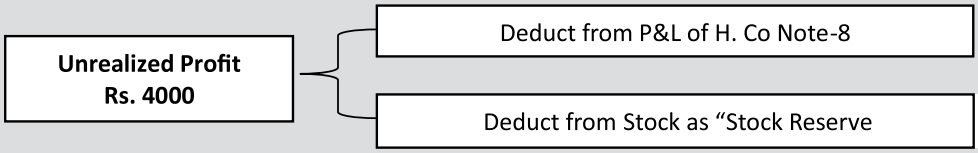
Note: 7 Treatment of Inter-Company Transactions of S.co (Debtors-Creditors) and (Bills Receivable/Bills Payable)

Debtors	***Amount***
- H.co = 300000 - S.co = 134500	434500
Less: Mutual Debt (i.e. Inter Company Transaction)	(50000)
Total	**384500**
Bills Receivables	***Amount***
- H.co = 20000 - S.co = 30000	50000
Less: Mutual Debt (i.e. Inter Company Transaction)	(16000)
Total	**34000**

Creditors	***Amount***
- H.co = 240000 - S.co = 92000	332000
Less: Mutual Debt (i.e. Inter Company Transaction)	(50000)
Total	**282000**
Bills payables	***Amount***
- H.co = 80000 - S.co = 60000	140000
Less: Mutual Debt (i.e. Inter Company Transaction)	(16000)
Total	**124000**

Note: 8 Treatment of Unrealized profit

Unrealized Profit = [20000*25/125] = Rs. 4000



Note: 9 Reserves and Surplus of H. Co for CBS

Particulars	*Capital*	*P&L*	*Revenue*
Capital Reserve (Note-6)	47500	-	-
General Reserve	-	-	420000
P&L Account (90000+170000)	-	260000	-
Revenue Portion (Note-4)	-	13500	-
Unrealised Profit (Note-8)	-	(4000)	-
Total	**47500 (A)**	**269500 (B)**	**420000 (C)**
Total [A+B+C] **(Show under head R&S at CBS of H.co)**	**737000**		

Consolidated Balance sheet of as on 31.3.2022

Equity and Liabilities		*Amount Rs*
Shareholders Fund		
Equity Share Capital		10,00,000
Reserves and Surplus	Note-9	7,37,000
Minority Interest (Non-Controlling Interest)	Note-5	1,54000
Current Liabilities		
Creditors	Note-7	2,82,000
Trade Payables	Note-7	1,24,000
Total		**22,97,000**
Assets		
Non-Current Assets		
Goodwill - H.co = 3,00,000 - S.co = 70,000		3,70,000
Land and Building - H.co = 4,00,000 - S.co = 1,00,000		5,00,000
Plant and Machinery - H.co = 5,00,000 - S.co = 1,00,000		6,00,000

Current Assets		
Stock - H.co = 2,00,000 - S.co = 40,500 Less: (4,000) Stock Reserve (i.e. Unrealised Profit)	Note-8	2,36,500
Debtors	Note-7	3,84,500
Trade Receivables	Note-7	34,000
Investment [200000-170000]		30,000
Bank - H.co = 60,000 - S.co = 50,000		1,10,000
Cash - H.co = 20,000 - S.co = 12,000		32,000
Total		**22,97,000**

LESSON ROUND-UP

- Holding company: As per section 2(46) of the Companies Act, 2013 "A company shall be deemed to be the holding company of another, if, but only if, that another is its subsidiary.
- Subsidiary company: As per section 2(87) of the Companies Act, 2013, a company is a subsidiary of another company, if, but only if:
  1. The other company controls the composition of its board of directors Or
  2. The other company
     - (a) Holds more than half in nominal values of its equity shares capital Or
     - (b) It is a subsidiary of any company which is that of other company's subsidiary consolidated P&L A/c and balance sheet mean a single P&L A/c and balance sheet of a holding company and all its subsidiaries (group).
- Steps involved in the preparation of consolidated balance sheet and profit & loss A/c (Ref: Main text).
- Various factors to be considered for the preparation of consolidated balance sheet of a holding company and its subsidiaries.
  - (i) Holding-minority ratio
  - (ii) Elimination of investment a/c
  - (iii) Minority interest
  - (iv) Cost of control/goodwill
  - (v) Pre-acquisition profit (capital profit)

(vi) Post-acquisition profit (revenue profit)

(vii) Revaluation of assets and liabilities

(viii) Depreciation

(ix) Bonus shares issued by subsidiary company

(x) Dividends from subsidiary company preference shares in subsidiary company

(xi) Preference shares in subsidiary company

(xii) Debentures in subsidiary company

(xiii) Mutual obligations

(xiv) Consignment liabilities

(xv) Unrealized profit in stock

(xvi) Post and pre-acquisition losses abnormal losses

(xvii) Preliminary expenses

GLOSSARY

Holding Company: A company is said to be the holding company of another if that other company is its subsidiary.

Subsidiary Company: A company is said to be a subsidiary of another if that another company controls the composition of its board of directors (holding more than 50% of the nominal value of equity share capital).

Minority Interest: Holding of the general public (other than holding company) in a subsidiary company is termed as "minority interest".

Goodwill: The "excess" amount paid (more than face value or book value of shares) by the holding company to acquire 'controlling interest' in the subsidiary company.

Consolidated Balance Sheet: The balance sheet prepared by the holding company by incorporating all the assets and liabilities of its subsidiary company long with its own assets and liabilities.

TEST YOURSELF

1. H Ltd. acquired 15,000 equity shares in S Ltd. on 1 April 2022. On 31 December 2022 the balance sheet of S Ltd., was as follows:

I. Equity and Liabilities	**Rs.**
Share capital:	
20,000 equity Share of Rs.100 each	20,00,000
General Reserve	4,00,000
On 1st January 2022 P&L A/c Rs.	
Balance on 1st Jan. 2017 1,00,000	

Profit for 2017 4,00,000	5,00,000
Sundry Creditors	3,00,000
	32,00,000
II. Assets	**Rs.**
Sundry Assets	32,00,000
	32,00,000

Ascertain capital profits and revenue profits.

[Ans. Capital profits: Rs. 6,00,000; Revenue profits: Rs. 3,00,000]

2. Calculate minority interest from the balance sheet of Delhi Ltd. Balance sheet of Delhi Ltd. as on 31st December 2022.

I. Equity and Liabilities	**Rs.**
Share capital:	
42,000 share of Rs.100 each	42,00,000
General Reserve on 1st January 2022	18,00,000
Sundry Creditors	9,00,000
P&L on 31 December 2022	6,00,000
	75,00,000
II. Assets	**Rs.**
Sundry Assets:	32,00,000
Plant & Machinery	21,00,000
Other Assets	4,50,000
Investment (80% of sheets)	19,50,000
	75,00,000

Mumbai Ltd. acquired 80% of the shares it Rs. 19,50,000.

[**Ans:** Minority interest: Rs. 13,20,000]

3. On 30 June 2022, two-third of the shares of S Ltd. (with a total capital of Rs. 48,00,000) was acquired by H Ltd. the balance sheet of S Ltd. showed a debit balance of Rs. 24,00,000 on 1st January 2022 and a credit balance of Rs. 14,40,000 on 31 December 2022. The investment by H Ltd. in shares of S Ltd. is Rs. 36,00,000. Calculate the cost of control or capital reserve.

[**Ans.** Cost of control/goodwill: Rs. 7,20,000]

4. S Ltd. has a capital of Rs. 45,00,000 in shares of Rs. 100 each. Out of this, H Ltd. purchased 75% shares of Rs. 52,50,000. The profit of S Ltd. at the time of purchase of shares by H Ltd. were Rs. 22,50,000. S Ltd. decided to make a bonus issue out of capital profits of one share of Rs.100 each fully paid for every three shares held. Calculate the cost of control after the issue of bonus shares.

[**Ans:** Cost of control/goodwill: Rs. 1,87,500]

5. Prepare Consolidated Balance sheet of X Ltd. & Y Ltd.

Balance Sheet of
X Ltd. and its Subsidiary Y Ltd.
As at 31 December 2022

I. Equity and Liabilities	**X Rs.**	**Y Rs.**
Share Capital:		
4,00,000 Shares of Rs. 80	320	----
40,000 shares of Rs.80 each	----	320
General Reserve	160	----
Creditors	96	6.40
P&L A/c	32	48
Total	**608**	**86.40**
II. Assets		
Land & Buildings	304	----
Plant & Machinery	44.80	6.40
Shares in Y Ltd. 36,000 shares of Rs.80 each stock	57.60	----
Debtors	96	16
Cash at Bank	64	22.40
Total	**41.60**	**41.60**

[**Ans**.: Minority interest: Rs.8,00,000; Capital reserve Rs.14,40,000; Balance sheet total: Rs.6,36,80,000

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Financial Statement Analysis

Lesson 8

KEY CONCEPTS

■ Ratios ■ Liquidity Ratio ■ Leverage Ratio ■ Turnover Ratio ■ Profitability Ratio ■ DuPont Analysis ■ Financial Statement

Learning Objectives

To understand:

- What are the characteristics of Good Financial Statement
- Identify the various types of ratios commonly used
- Calculate various ratios to assess solvency, liquidity, efficiency and profitability of the firm
- Du Pont Analysis
- Financial Statement Analysis and Interpretation
- Analysis of Auditor's Opinion and Report
- Analysis of Management Personal Judgement in preparation of Financial Statement
- Problem in Analysis of Financial Statement
- Guidelines for Financial Statement Analysis
- Go Beyond number while analysing the Financial Statements

Lesson Outline

- Introduction
- Characteristics of Good Financial Statement and its relevancy for better reporting
- Usage and Features of Ratio Analysis
- Financial Ratio
  - Liquidity Ratio
  - Leverage Ratio
  - Turnover Ratio
  - Profitability Ratio
- DuPont Analysis
- Reading and Interpretation of Financial Statement
- Lesson Round-Up
- Test Yourself
- List of Further Readings

INTRODUCTION

The process of critical evaluation of the financial information contained in the financial statements in order to understand and make decisions regarding the operations of the firm or entity is called 'Financial Statement Analysis'. It is basically a study of relationship among various financial facts and figures as given in a set of financial statements, and the interpretation thereof to gain an insight into the profitability and operational efficiency of the firm to assess its financial health and future prospects.

The term 'financial analysis' includes both 'analysis and interpretation'. The term analysis means simplification of financial data by methodical classification given in the financial statements. Interpretation means explaining the meaning and significance of the data. These two are complimentary to each other. Analysis is useless without interpretation, and interpretation without analysis is difficult or even impossible.

Financial statement analysis is a judgemental process which aims to estimate current and past financial positions and the results of the operation of an enterprise, with primary objective of determining the best possible estimates and predictions about the future conditions. It essentially involves regrouping and analysis of information provided by financial statements to establish relationships and throw light on the points of strengths and weaknesses of a business enterprise, which can be useful in decision-making involving comparison with other firms (cross sectional analysis) and with firms' own performance, over a time period.

While information found in published financial statements is often not enough to form conclusive judgments about firm performance, financial statements do provide important clues about what needs to be examined in greater detail. Analysis of financial statements is of interest to lenders (short-term as well as long-term), investors, security analysts, managers, corporate boards, regulators, and others. Financial statement analysis may be done for a variety of purposes, which may range from a simple analysis of the short-term liquidity position of the firm to a comprehensive assessment of the strengths and weaknesses of the firm in various areas. It is helpful in assessing corporate excellence, judging creditworthiness, forecasting bond ratings, predicting bankruptcy, and assessing market risk. This chapter discusses how information can be extracted from financial statements for analysing financial performance.

CHARACTERISTICS OF GOOD FINANCIAL STATEMENT AND ITS RELEVANCY FOR BETTER REPORTING

The following are all qualitative characteristics of financial statements:

- **Understandability**
- **Relevance**
- **Reliability**
- **Comparability**

Understandability

The information must be readily understandable to users of the financial statements. This means that information must be clearly presented, with additional information supplied in the supporting footnotes as needed to assist in clarification.

Relevance

The information must be relevant to the needs of the users, which is the case when the information influences their economic decisions. This may involve reporting particularly relevant information, or information whose omission or misstatement could influence the economic decisions of users.

Reliability

The information must be free of material error and bias, and not misleading. Thus, the information should faithfully represent transactions and other events, reflect the underlying substance of events, and prudently represent estimates and uncertainties through proper disclosure.

Comparability

The information must be comparable to the financial information presented for other accounting periods, so that users can identify trends in the performance and financial position of the reporting entity.

Relevancy of Better Reporting in Financial Statement

Relevance in accounting means the information we get from the accounting system will help the end-users to make important decisions. End users can be either internal or external stakeholders. Internal stakeholders include managers, employees, and business owners. By external stakeholders, we mean investors, lenders, etc. Therefore relevance in accounting indicates the capacity to influence the end-users of the financial statement in their decision-making process.

The next thing we should understand is which information would be relevant for whom?

- The company's annual report, which the company managers prepare, is important to the shareholders. Now there may be different kinds of shareholders in a company. The shareholders who hold some shares in the company are more interested in the share price per day. The share price will never be mentioned in a balance sheet or the income statement. The balance sheet and the income statement show the ability to generate future cash flows. In this way, the shareholders will find meaning in it, and it will be useful for their decision making the purpose of investment.
- A manager who is an insider of the company will be in charge of making strategic or operational decisions based on the situation. Like the manager has to estimate the price/profitability of a product. This information will directly not be available in the annual report. The annual report, which the managers generally prepare, will help the manager with the pricing of a product. So by taking the annual report, keeping in mind the accounting principles and going backward in a calculation, the manager can calculate the price/profitability of a product.
- The shareholder who holds a large number of shares in the company will be more interested in knowing the profit generated and distributed by the company. But it must also be understood that the shareholders should not jump to a conclusion by only seeing the current financial report. It should also understand the assumptions and policies followed in making the accounting report. Then by using the numbers for some time, it will be able to understand the profit generated and profit distributed, which the annual reports will also throw light on. In this way, the information will be relevant for the shareholders in making a decision.

Every stakeholder needs useful information. It is why the relevance principle is of prime importance to financial accounting.

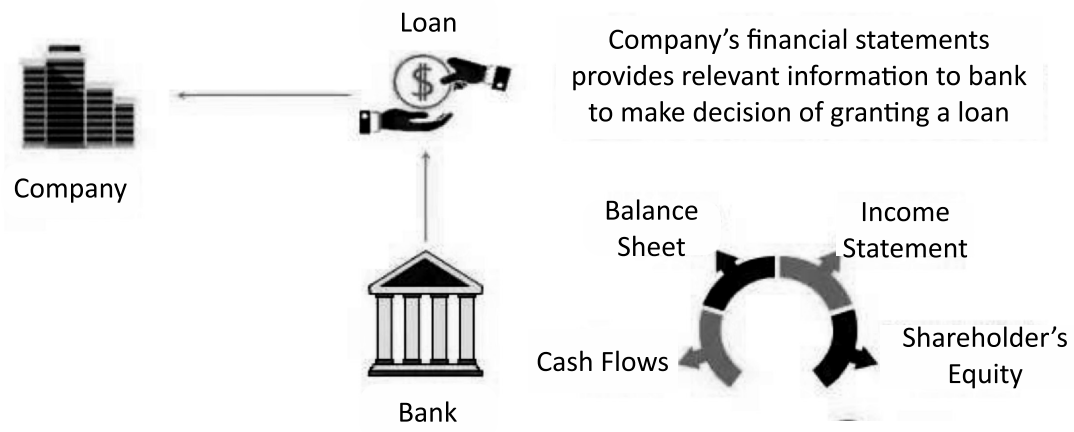
Example 1

If a company wants to take a loan from a bank, then the bank will want to know first whether the company

will be able to pay them back the loan with interest. Therefore, the company's financial statements should be relevant for the bank in making its decision regarding granting a loan to the company.

Financial statements like balance sheets, income statements, and cash flow present important information to the banker in making decisions. It should also be noted that the information should be timely. The banker will not consider the financial statements which are old.

The information should be understandable. In addition, the financial statement should be in proper accounting format. Lastly, the information should be useful for the banker in deciding whether to grant a loan to the company or not.



Example 2

A company, ABC, announces that its earning per share have increased from Rs. 40 to Rs. 45. It is important and relevant information for the investors in making their decision as growing earnings provide a good return for the investors.

Example 3

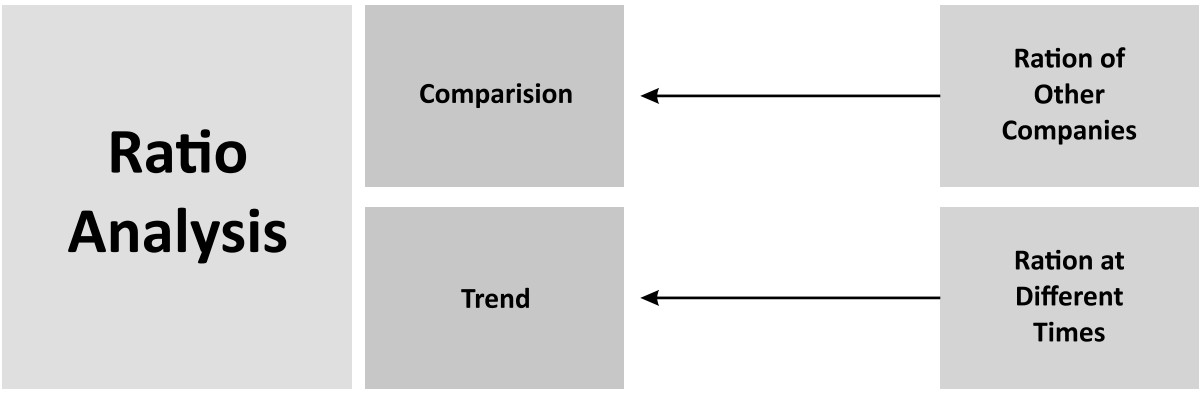
In mergers and acquisitions, the acquirer will be willing to pay the premium as it will expect the synergies (expected increase in revenue, cost savings) generated by the acquisitions. The acquirer can estimate the synergies from the enterprise value of the firm, which again will be calculated from the balance sheet of the Target Company, and EBITDA, which could be taken from the financial report of the target company. It is a piece of important and relevant information for the acquirer as it will influence its decision, whether paying a premium for the target company is worthwhile or not. If timely and accurate information is not provided, the acquirer might underestimate or overestimate the company, which will be a great loss for the acquirer.

A financial statement is relevant when it has data that is valuable enough to make predictions /estimations about future events like calculating the future cash flows, which will be important to the investors in making decisions. Many stakeholders also use past financial statements to analyze the company's future performance regarding profitability. It should be accurate data following accounting standards. Any inaccurate information may be misleading. Therefore any such false data doesn't come under the definition of accounting relevance. This kind of information cannot be of any use to the company in making decisions.

In short, accounting relevance should contain accurate and orderly information. The relevance of accounting numbers depends on the person using them. And it will hold more meaning if it has been used over some time and is more useful if one understands the generally accepted accounting principles based on which the financial report has been prepared.

USAGE AND FEATURES OF RATIO ANALYSIS

Ratio analysis refers to the analysis of various pieces of financial information in the financial statements of a business. They are mainly used by external analysts to determine various aspects of a business, such as its profitability, liquidity, and solvency.



Analysts rely on current and past financial statements to obtain data to evaluate the financial performance of a company. They use the data to determine if a company's financial health is on an upward or downward trend and to draw comparisons to other competing firms.

Uses of Ratio Analysis

1. **Comparisons**

   One of the uses of ratio analysis is to compare a company's financial performance to similar firms in the industry to understand the company's position in the market. Obtaining financial ratios, such as Price/Earnings, from known competitors and comparing it to the company's ratios can help management identify market gaps and examine its competitive advantages, strengths, and weaknesses. The management can then use the information to formulate decisions that aim to improve the company's position in the market.

2. **Trend line**

   Companies can also use ratios to see if there is a trend in financial performance. Established companies collect data from the financial statements over a large number of reporting periods. The trend obtained can be used to predict the direction of future financial performance, and also identify any expected financial turbulence that would not be possible to predict using ratios for a single reporting period.

3. **Operational efficiency**

   The management of a company can also use financial ratio analysis to determine the degree of efficiency in the management of assets and liabilities. Inefficient use of assets such as motor vehicles, land, and building results in unnecessary expenses that ought to be eliminated. Financial ratios can also help to determine if the financial resources are over- or under-utilized.

FINANCIAL RATIOS

A ratio is an arithmetical relationship between two figures. Financial ratio analysis is a study of ratios between various items or groups of items in financial statements. Financial ratios have been classified in several ways. For our purposes, we divide them into four broad categories as follows:

- Liquidity Ratios

- Leverage / Solvency Ratios
- Turnover Ratios
- Profitability Ratios

A. Liquidity Ratios

Liquidity refers to the ability of a firm to meet its obligations in the short run, usually one year. Liquidity ratios are generally based on the relationship between current assets (the sources for meeting short-term obligations) and current liabilities. The important liquidity ratios are: current ratio, acid-test ratio, and cash ratio.

1. Current Ratio: $\frac{\text{Current Assets}}{\text{Current liabilities}}$

Current assets include cash, current investments, debtors, inventories (stocks), loans and advances, and pre-paid expenses. Current liabilities represent liabilities that are expected to mature in the next twelve months. These comprise (i) loans, secured or unsecured, that are due in the next twelve months and (ii) current liabilities and provisions.

Normally, a high current ratio is considered to be a sign of financial strength. Bankers in India have used a norm of 1.33. Internationally, the norm is 2.0. In interpreting the current ratio, the composition of current assets must not be overlooked-perhaps inventories may be slow-moving and a portion of loans and advances may represent dues from associate companies which may be sticky.

Illustration 1:

Calculate Current Ratio from the following information:

Particulars	***(Rs.)***
Inventories	50,000
Trade receivables	50,000
Advance tax	4,000
Cash and cash equivalents	30,000
Trade payables	1,00,000
Short-term borrowings (bank overdraft)	4,000

Solution:

Current Ratio = Current Assets / Current Liabilities

Current Assets = Inventories + Trade receivables + Advance tax + Cash and cash equivalents

= Rs. 50,000 + Rs. 50,000 + Rs. 4,000 + Rs. 30,000 = Rs. 1,34,000

Current Liabilities = Trade payables + Short-term borrowings

= Rs. 1,00,000 + Rs. 4,000 = Rs. 1,04,000

Current Ratio = Rs.1,34,000 / Rs.1,04,000

= 1.29 :1

Significance: It provides a measure of degree to which current assets cover current liabilities. The excess of current assets over current liabilities provides a measure of safety margin available against uncertainty in realisation of current assets and flow of funds. The ratio should be reasonable. It should neither be very high or very low. Both the situations have their inherent disadvantages. A very high current ratio implies heavy investment in current assets which is not a good sign as it reflects under utilisation or improper utilisation of resources. A low ratio endangers the business and puts it at risk of facing a situation where it will not be able to pay its short-term debt on time. If this problem persists, it may affect firm's credit worthiness adversely. Normally, it is safe to have this ratio within the range of 2:1.

2. Acid-test Ratio / Quick / Liquid Ratio: $\frac{\text{Current Assets - Inventories}}{\text{Current liabilities}}$

Quick assets are defined as current assets excluding inventories and other current assets such as prepaid expenses, advance tax, etc. This is a fairly stringent measure of liquidity as it excludes inventories, perhaps the least liquid of current assets, from the numerator.

Illustration 2:

Calculate quick ratio from the information given in illustration 1.

Solution:

Quick Ratio = Quick Assets / Current Liabilities

Quick Assets = Current assets – (Inventories + Advance tax)

= Rs. 1,34,000 – (Rs. 50,000 + Rs. 4,000) = Rs. 80,000

Current Liabilities = Rs. 1,04,000

Quick Ratio = Rs. 80,000 / Rs. 1,04,000

= 0.77 :1

Illustration 3:

X Ltd., has a current ratio of 3.5:1 and quick ratio of 2:1. If excess of current assets over quick assets represented by inventories is Rs. 24,000, calculate current assets and current liabilities.

Solution:

Current Ratio = 3.5:1

Quick Ratio = 2:1

Let Current liabilities = x

Current assets = 3.5x

and Quick assets = 2x

Inventories = Current assets – Quick assets

24,000 = 3.5x – 2x

24,000 = 1.5x

x = Rs.16,000

Current Liabilities = Rs.16,000

Current Assets = 3.5x = 3.5 × Rs. 16,000 = Rs. 56,000.

Significance: The ratio provides a measure of the capacity of the business to meet its short-term obligations without any flaw. Normally, it is advocated to be safe to have a ratio of 1:1 as unnecessarily low ratio will be very risky and a high ratio suggests unnecessarily deployment of resources in otherwise less profitable short-term investments.

3. **Cash Ratio** Sometimes, financial analysts look at cash ratio, which is defined as:

$$\frac{\text{Cash and bank balances + Current investments}}{\text{Current liabilities}}$$

This is a very stringent measure of liquidity. Indeed lack of immediate cash may not matter if the firm can stretch its payments or borrow money at short notice.

B. Leverage / Solvency Ratios

Financial leverage refers to the use of debt finance. While debt capital is a cheaper source of finance, it is also a riskier source of finance. Leverage ratios help in assessing the risk arising from the use of debt capital. Two types of ratios are commonly used to analyse financial leverage: structural ratios and coverage ratios.

Structural ratios are based on the proportions of debt and equity in the financial structure of the firm. The important structural ratios are: debt-equity ratio and debt-assets ratio.

Coverage ratios show the relationship between debt servicing commitments and the sources for meeting these burdens. The important coverage ratios are: interest coverage ratio, fixed charges coverage ratio, and debt service coverage ratio.

1. **Debt-equity Ratio**

Debt-Equity Ratio measures the relationship between long-term debt and equity. If debt component of the total long-term funds employed is small, outsiders feel more secure. From security point of view, capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy. Normally, it is considered to be safe if debt equity ratio is 2 : 1. However, it may vary from industry to industry. It is computed as follows:

Debt-Equity Ratio = Long Term Debts / Shareholders' Funds

where:

Shareholders' Funds (Equity) = Share capital + Reserves and Surplus + Money received against share warrants

Share Capital = Equity share capital + Preference share capital

or

Shareholders' Funds (Equity) = Non-current Assets + Working capital – Non-current liabilities

Working Capital = Current Assets – Current Liabilities

Significance: This ratio measures the degree of indebtedness of an enterprise and gives an idea to the long-term lender regarding extent of security of the debt. As indicated earlier, a low debt equity ratio reflects more security. A high ratio, on the other hand, is considered risky as it may put the firm into difficulty in meeting its obligations to outsiders. However, from the perspective of the owners, greater use of debt (trading on equity) may help in ensuring higher returns for them if the rate of earnings on capital employed is higher than the rate of interest payable.

Illustration 4:

From the following balance sheet of a company, calculate Debt-Equity Ratio:

Balance Sheet

Particulars	*Note No.*	*Amount (Rs.)*
I. Equity and Liabilities		
1. Shareholders' funds		
(a) Share capital		8,00,000
(b) Reserves and Surplus	1	1,00,000
2. Share application money pending allotment		2,00,000
3. Non-Current Liabilities		
Long-term borrowings		1,50,000
Current liabilities		1,50,000
Total		**14,00,000**
II. Assets		
1. Non-Current Assets		
a) Fixed assets		
Tangible assets	2	11,00,000
2. Current Assets		
a) Inventories		1,00,000
b) Trade receivables		90,000
c) Cash and cash equivalents		1,10,000
Total		**14,00,000**

Notes to Accounts	*Rs.*
1. Share Capital	
Equity Share Capital	6,00,000
Preference Share Capital	2,00,000
Total	8,00,000
2. Tangible Assets:	
Plant and Machinery	5,00,000
Land and Building	4,00,000
Motor Car	1,50,000
Furniture	50,000
Total	11,00,000

Solution:

Debt-Equity Ratio = Long - term Debts / Equity (Shareholders' Funds)

Long-term Debts = Long-term Borrowings = Rs. 1,50,000

Equity = Share capital + Reserves and surplus

= Rs. 8,00,000 + Rs. 1,00,000 = Rs. 9,00,000

Debt Equity Ratio = 1,50,000 / 9,00,000

= .1667

2. **Debt to Capital Employed Ratio:** The Debt to capital employed ratio refers to the ratio of long-term debt to the total of external and internal funds (capital employed or net assets). It is computed as follows:

   Debt to Capital Employed Ratio = Long-term Debt/Capital Employed (or Net Assets)

   Capital employed is equal to the long-term debt + shareholders' funds. Alternatively, it may be taken as net assets which are equal to the total assets – current liabilities

Significance: Like debt-equity ratio, it shows proportion of long-term debts in capital employed. Low ratio provides security to lenders and high ratio helps management in trading on equity. In the above case, the debt to Capital Employed ratio is less than half which indicates reasonable funding by debt and adequate security of debt. It may be noted that Debt to Capital Employed Ratio can also be computed in relation to total assets. In that case, it usually refers to the ratio of total debts (long-term debts + current liabilities) to total assets, i.e., total of noncurrent and current assets (or shareholders', funds + long-term debts + current liabilities), and is expressed as

Debt to Capital Employed Ratio = Total Debts / Total Assets

Illustration 5:

Company A lists Rs. 40,00,000 in short-term liabilities and Rs. 70,00,000 in long-term liabilities on their balance sheet. They've also issued Rs. 20,00,000 in preferred stock, Rs. 5,00,000 in minority interest, and have around Rs. 8,00,000 outstanding shares trading at Rs. 10 per share. Using all that information, calculate the debt-to-capital ratio.

Solution:

Debt-to-Capital Ratio = (Rs. 40 lakhs + Rs. 70 lakhs) / (Rs. 40 lakhs + Rs. 70 lakhs) + (Rs. 20 lakhs + Rs. 5 lakhs) + (Rs. 8 lakhs x Rs. 10)

= 110 lakhs / 215 lakhs

= 0.512

In other words, 51.2% of Company A's operations are funded with debt, rather than capital. This makes it a relatively risky proposition, as the business is aggressively financing growth activities with debt.

3. **Interest Coverage Ratio** Also called the times interest earned, the interest coverage ratio is defined as:

$$\frac{\text{Profit before interest and taxes}}{\text{Interest on Long term debts}}$$

   Profit before interest and taxes are used in the numerator of this ratio because the ability of a firm to pay interest is not affected by tax payment, as interest on debt funds is a tax-deductible expense. A high interest

coverage ratio means that the firm can easily meet its interest burden even if earnings before interest and taxes suffer a considerable decline. A low interest coverage ratio may result in financial embarrassment when earnings before interest and taxes decline. This ratio is widely used by lenders to assess a firm's debt capacity. Further, it is a major determinant of bond rating.

Significance: It reveals the number of times interest on long-term debts is covered by the profits available for interest. A higher ratio ensures safety of interest on debts.

Though widely used, this ratio is not a very appropriate measure of interest coverage because the source of interest payment is cash flow before interest and taxes, not earnings before interest and taxes. In view of this, we may use a modified interest coverage ratio:

$$\frac{\text{Profit before interest and taxes + Depreciation}}{\text{Debt interest}}$$

Illustration 6:

From the following details, calculate interest coverage ratio: Net Profit after tax Rs. 60,000; 15% Long-term debt 10,00,000; and Tax rate 40%.

Solution:

Net Profit after Tax = Rs. 60,000

Tax Rate = 40%

Net Profit before tax = Net profit after tax × 100/(100 – Tax rate)

= Rs. 60,000 × 100/(100 – 40) = Rs. 1,00,000

Interest on Long-term Debt = 15% of Rs. 10,00,000 = Rs. 1,50,000

Net profit before interest and tax = Net profit before tax + Interest

= Rs. 1,00,000 + Rs. 1,50,000 = Rs. 2,50,000

Interest Coverage Ratio = Net Profit before Interest and Tax/Interest on long-term debt

= Rs. 2,50,000/Rs. 1,50,000

= 1.67 times

4. **Fixed Charges Coverage Ratio** This ratio shows how many times the cash flow before interest and taxes covers all fixed financing charges. It is defined as:

$$\frac{\text{Profit before interest and taxes + Depreciation}}{\text{Repayment of loan Interest + (1 – Tax rate)}}$$

In the denominator of this ratio only the repayment of loan is adjusted upwards for the tax factor because the loan repayment amount, unlike interest, is not tax deductible.

This ratio measures debt servicing ability comprehensively because it considers both the interest and the principal repayment obligations. The ratio may be amplified to include other fixed charges like lease payment and preference dividends.

The fixed charge coverage ratio has to be interpreted with care because short-term loan funds like working capital loans and commercial paper tend to be self-renewing in nature and hence do not have to be ordinarily repaid from cash flows generated by operations. Hence, a fixed charge coverage ratio of less 1 need not be viewed with much concern.

5. **Debt Service Coverage Ratio** Used by financial institutions in India, the debt service coverage ratio is defined as:

$$\frac{\text{Profit after tax + Depreciation + Other non-cash charges Interest on term loan + Lease rentals}}{\text{Interest on term loan + Lease rentals + Repayment of term loan}}$$

Significance: Financial institutions calculate the average debt service coverage ratio for the period during which the term loan for the project is repayable. Normally, financial institutions regard a debt service coverage ratio of 1.5 to 2.0 as satisfactory. The Debt Service Coverage Ratio can be a very helpful metric for assessing a company's overall financial health, and specifically how capable it is of servicing its current debt. The ratio can also assist lenders and investors in determining whether it's safe for the company to take on additional debt financing.

C. Turnover Ratios

Turnover ratios, also referred to as activity ratios or asset management ratios, measure how efficiently the assets are employed by a firm. These ratios are based on the relationship between the level of activity, represented by sales or cost of goods sold, levels of various assets. The important turnover ratios are: inventory turnover, average collection period, receivables turnover, fixed assets turnover, and total assets turnover.

1. **Inventory Turnover:** The inventory turnover, or stock turnover, measures how fast the inventory is moving through the firm and generating sales. It is defined as:

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Significance: The inventory turnover reflects the efficiency of inventory management. The higher the ratio, the more efficient the management of inventories and *vice versa*. However, this may not always be true. A high inventory turnover may be caused by a low level of inventory which may result in frequent stock outs and loss of sales and customer goodwill.

Note that as inventories tend to change over the year, we use the average of the inventories at the beginning and the end of the year. *In general, averages may be used when a flow figure (such as, cost of goods sold) is related to a stock figure (inventories).*

Illustration 7:

From the following information, calculate inventory turnover ratio :

	Rs.
Inventory in the beginning =	18,000
Inventory at the end =	22,000
Net purchases =	46,000
Wages =	14,000
Revenue from operations =	80,000
Carriage inwards =	4,000

Solution:

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory

Cost of Goods Sold = Inventory in the beginning + Net Purchases + Wages + Carriage inwards – Inventory at the end = Rs. 18,000 + Rs. 46,000 + Rs. 14,000+ Rs. 4,000 – Rs. 22,000= Rs. 60,000

Average Inventory = (Inventory in the beginning + Inventory at the end) / 2

= (Rs. 18,000 + Rs. 22,000) / 2

= Rs. 20,000

Inventory Turnover Ratio = Rs. 60,000 / Rs. 20,000 = 3 Times

Illustration 8:

From the following information, calculate inventory turnover ratio:

	Rs.
Revenue from operations =	4,00,000
Average Inventory =	55,000
Gross Profit Ratio =	10%

Solution:

Revenue from operations = Rs. 4,00,000

Gross Profit = 10% of Rs. 4,00,000 = Rs. 40,000

Cost of Revenue from operations = Revenue from operations – Gross Profit = Rs. 4,00,000 – Rs. 40,000 = Rs. 3,60,000

Inventory Turnover Ratio = Cost of Revenue from Operations / Average Inventory

= Rs. 3,60,000 / Rs. 55,000 = 6.55 times

2. **Debtors' Turnover** This ratio shows how many times sundry debtors (accounts receivable) turn over during the year. It is defined as:

$$\frac{\text{Net credit sales}}{\text{Average sundry debtors}}$$

If the figure for net credit sales is not available, one may have to make do with the net sales figure. Obviously, the higher the debtors' turnover the greater the efficiency of credit management. Average Collection Period The average collection period represents the number of days' worth of credit sales that is locked in sundry debtors. It is defined as:

$$\frac{\text{Average sundry debtors}}{\text{Average daily credit sales}}$$

Note that the average collection period and the debtors' turnover are related as follows:

Average collection period =

$$\frac{365}{\text{Debtors' turnover}}$$

The average collection period may be compared with the firm's credit terms to judge the efficiency of credit management. For example, if the credit terms are 2/10, net 45, an average collection period of 85 days means that the collection is slow and an average collection period of 40 days means that the collection is prompt. An average collection period which is shorter than the credit period allowed by the firm needs to be interpreted carefully. It may mean efficiency of credit management or excessive conservatism in credit granting that may result in the loss of some desirable sales.

Illustration 9:

Calculate the Trade receivables turnover ratio from the following information:

	Rs.
Total Revenue from operations	4,00,000
Cash Revenue from operations	20% of Total Revenue from operations
Trade receivables as at 1.4.2021	40,000
Trade receivables as at 31.3.2022	1,20,000

Solution:

Trade Receivables Turnover Ratio = Net Credit Revenue from Operations / Average Trade Receivables

Credit Revenue from operations = Total revenue from operations – Cash revenue from operations

Cash Revenue from operations = 20% of Rs. 4,00,000 = Rs. 80,000

Credit Revenue from operations = Rs. 4,00,000 – Rs. 80,000 = Rs. 3,20,000

Average Trade Receivables = (Opening Trade Receivables + Closing Trade Receivables) / 2 = (Rs. 40,000 + Rs. 1,20,000) / 2 = Rs. 80,000

Trade Receivables Turnover Ratios = Net Credit Revenue From Operations / Average Inventory

Trade Receivables Turnover Ratio = Rs. 3,20,000 / Rs. 80,000 = 4 times.

3. **Fixed Assets Turnover** This ratio measures sales per rupee of investment in fixed assets. It is defined as:

$$\frac{\text{Net sales}}{\text{Average net fixed assets}}$$

This ratio is supposed to measure the efficiency with which fixed assets are employed - a high ratio indicates a high degree of efficiency in asset utilisation and a low ratio reflects inefficient use of assets. However, in interpreting this ratio, one caution should be borne in mind. When the fixed assets of the firm are old and substantially depreciated, the fixed assets turnover ratio tends to be high because the denominator of the ratio is very low.

4. **Total Assets Turnover:** Akin to the output-capital ratio in economic analysis, the total assets turnover is defined as:

$$\frac{\text{Net sales}}{\text{Average total assets}}$$

This ratio measures how efficiently assets are employed, overall.

D. Profitability Ratios

Profitability reflects the final result of business operations. There are two types of profit ability ratios: profit margin ratios and rate of return ratios. *Profit margin ratios* show the relationship between profit and sales. Since profit can be measured at different stages, there are several measures of profit margin. The most popular profit margin ratios are: gross profit margin, operating profit margin, and net profit margin. *Rate of return ratios* reflect the relationship between profit and investment. The important rate of return measures are: return on assets, earning power, return on capital employed, and return on equity.

1. **Gross Profit Margin** The gross profit margin ratio is defined as:

$$\frac{\text{Gross profit}}{\text{Net sales / Revenue}}$$

Gross profit is defined as the difference between net sales and cost of goods sold.

This ratio shows the margin left after meeting manufacturing costs. It measures the efficiency of production as well as pricing. To analyse the factors underlying the variation in gross profit margin the proportion of various elements of cost (labour, materials, and manufacturing overheads) to sales may be studied in detail.

Significance: It indicates gross margin on products sold. It also indicates the margin available to cover operating expenses, non-operating expenses, etc. Change in gross profit ratio may be due to change in selling price or cost of revenue from operations or a combination of both. A low ratio may indicate unfavourable purchase and sales policy. Higher gross profit ratio is always a good sign.

Illustration 10:

Following information is available for the year 2022-23, calculate gross profit margin ratio:

Revenue from Operations:

Cash 25,000

Credit 75,000

Purchases:

Cash 15,000

Credit 60,000

Carriage Inwards 2,000

Salaries 25,000

Decrease in Inventory 10,000

Return Outwards 2,000

Wages 5,000

Solution:

Revenue from Operations = Cash Revenue from Operations + Credit Revenue from Operation = Rs. 25,000 + Rs.75,000 = Rs. 1,00,000

Net Purchases = Cash Purchases + Credit Purchases – Return Outwards = Rs.15,000 + Rs.60,000 – Rs.2,000 = Rs. 73,000

Cost of Revenue from operation = Purchases + (Opening Inventory – Closing Inventory) + Direct Expenses

= Purchases + Decrease in inventory + Direct Expenses = Rs.73,000 + Rs.10,000 + (Rs.2,000 + Rs.5,000) = Rs.90,000

Gross Profit = Revenue from Operations – Cost of Revenue from Operation = Rs.1,00,000 – Rs.90,000 = Rs. 10,000

Gross Profit Ratio = Gross Profit/Net Revenue from Operations ×100 = Rs.10,000/Rs.1,00,000 × 100 = 10%.

2. **EBITDA Margin** The EBITDA margin is defined as:

$$\frac{\text{Earnings before interest, taxes, depreciation, and amortisation}}{\text{Net sales}}$$

This ratio shows the margin left after meeting manufacturing expenses, selling, general, and administration expenses (SG&A). It reflects the operating efficiency of the firm.

Illustration 11:

Given the following information:

Revenue from Operations	3,40,000
Cost of Revenue from Operations	1,20,000
Selling expenses	80,000
Administrative Expenses	40,000

Calculate Gross profit ratio and EBITDA margin

Solution:

Gross Profit = Revenue from Operations – Cost of Revenue from Operations

= Rs. 3,40,000 – Rs. 1,20,000 = Rs. 2,20,000

Gross Profit Ratio = (Gross Profit / Revenue from operation) x 100

= (Rs. 2,20,000 / Rs. 3,40,000) x 100

= 64.71%

EBITDA Margin = {(Gross Profit - Selling Expenses - Administrative Expenses) / Revenue from operation} x 100

= {(Rs. 2,20,000 - 80,000 - 40,000) / 340000} x 100

= 29.41%

3. **Net Profit Margin** The net profit margin ratio is defined as:

$$\frac{\text{Net profit x 100}}{\text{Net sales}}$$

This ratio shows the earnings left for shareholders (both equity and preference) as a percentage of net sales. It measures the overall efficiency of production, administration, selling, financing, pricing, and tax management. Jointly considered, the gross and net profit margin ratios provide a valuable understanding of the cost and profit structure of the firm and enable the analyst to identify the sources of business efficiency/ inefficiency.

Illustration 12:

Gross profit ratio of a company was 25%. Its credit revenue from operations was Rs. 20,00,000 and its cash revenue from operations was 10% of the total revenue from operations. If the indirect expenses of the company were Rs. 50,000, calculate its net profit ratio.

Solution:

Cash Revenue from Operations = Rs.20,00,000 × 10/90 = Rs. 2,22,222

Hence, total Revenue from Operations are = Rs.22,22,222

Gross profit = 0.25 × 22,22,222 = Rs. 5,55,555

Net profit = Rs.5,55,555 – 50,000 = Rs.5,05,555

Net profit ratio = Net profit/Revenue from Operations × 100

= Rs.5,05,555/Rs.22,22,222 × 100 = 22.75%

4. **Return on Assets** The return on assets (ROA) is defined as:

$$\text{ROA} = \frac{\text{Profit after tax}}{\text{Average total assets}}$$

Though widely used, ROA is an odd measure because its numerator measures the return to shareholders (equity and preference) whereas its denominator represents the contribution of all investors (shareholders as well as lenders).

5. **Earning Power** The earning power is defined as:

$$\text{Earning power} = \frac{\text{Profit before interest and tax}}{\text{Average total assets}}$$

Earning power is a measure of business performance which is not affected by interest charges and tax burden. It abstracts away the effect of capital structure and tax factor and focuses on operating performance. Hence it is eminently suited for inter-firm comparison. Further, it is internally consistent. The numerator represents a measure of pre-tax earnings belonging to all sources of finance and the denominator represents total financing.

6. **Return on Capital Employed** The return on capital employed is defined as:

$$\text{ROCE} = \frac{\text{Profit before interest and tax (1 - Tax rate)}}{\text{Average total assets}}$$

The numerator of this ratio viz., profit before interest and tax (1 - Tax rate) is also called net operating profit after tax (NOPAT).

ROCE is the post-tax version of earning power. It considers the effect of taxation, but not the capital structure. It is internally consistent. Its merit is that it is defined in such a way that it can be compared directly with the post-tax weighted average cost of capital of the firm.

7. **Return on Equity** A measure of great interest to equity shareholders, the return on equity (ROE) is defined as:

$$\frac{\text{Equity earnings}}{\text{Average equity}}$$

The numerator of this ratio is equal to profit after tax less preference dividends. The denominator includes all contributions made by equity shareholders (paid-up capital + reserves and surplus). This ratio is also called the return on net worth.

The return on equity measures the profitability of equity funds invested in the firm. Because maximising shareholder wealth is the dominant financial objective, ROE is the most important measure of performance in an accounting sense. It is influenced by several factors: earning power, debt-equity ratio, average cost of debt funds, and tax rate. Because ROA and ROE are commonly used measure, you must remember that they are accounting rates of return. Hence these measures may be properly referred to as *return on book assets* and *return on book equity.*

In judging all the profitability measures it should be borne in mind that the historical valuation of assets imparts an upward bias to profitability measures during an inflationary period. This happens because the numerator of these measures represents current values, whereas the denominator represents historical values.

Comparison with Industry Averages

We have discussed a long list of financial ratios. For judging whether the ratios are high or low, one has to make a comparative analysis such as a cross-section analysis (in which the industry averages may be used as benchmarks) or time series analysis (in which the ratios of the firm are compared over time.

The table below shows the ratios of ABC Limited along with industry averages. Note that the industry averages often provide useful benchmarks for comparisons. Sometimes the ratios of few competitor firms may be used as benchmarks.

Comparison of Ratios of ABC Limited with Industry Average

Ratio	*Formula*	*ABC Limited*	*Industry Average*
Liquidity			
▪ Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	1.32	1.26
▪ Acid-test ratio	$\frac{\text{Quick assets}}{\text{Current liabilities}}$	0.73	0.69
Leverage			
▪ Debt-equity ratio	$\frac{\text{Debt}}{\text{Equity}}$	0.81	1.25
▪ Debt-ratio	$\frac{\text{Debt}}{\text{Assets}}$	0.45	0.56

Ratio	*Formula*	*ABC Limited*	*Industry Average*
▪ Interest coverage ratio	$\frac{\text{EBIT}}{\text{Interest}}$	4.23	4.14
Turnover			
▪ Inventory turnover	$\frac{\text{Net sales}}{\text{Average inventory}}$	6.24	6.43
▪ Accounts receivable turnover	$\frac{\text{Net credit sales}}{\text{Average accounts receivable}}$	7.70	7.50
▪ Fixed assets turnover	$\frac{\text{Net sales}}{\text{Average net fixed assets}}$	2.15	2.23
Total assets turnover	$\frac{\text{Net sales}}{\text{Average total assets}}$	1.582	2.26
Profitability			
▪ Gross profit margin	$\frac{\text{Gross profit}}{\text{Net sales}}$	21.0%	18.0%
▪ Net profit margin	$\frac{\text{Net profit}}{\text{Net sales}}$	4.9%	4.0%
▪ Return on assets	$\frac{\text{Net profit}}{\text{Average total assets}}$	7.7%	6.9%
▪ Earning power	$\frac{\text{PBIT}}{\text{Average total assets}}$	20.1%	17.7%
▪ Return on capital employed	$\frac{\text{PBIT (1 – T)}}{\text{Average total assets}}$	10.1%	8.8%
▪ Return on equity	$\frac{\text{Equity earnings}}{\text{Average net worth}}$	13.1%	11.9%

Comparing the ratios of ABC Limited with industry averages we find that:

- ABC Limited has a favourable liquidity position. All the liquidity ratios of ABC Limited are higher than the industry average.
- Leverage ratios of ABC Limited are a shade lower than the industry average.

- Turnover ratios of ABC Limited are more or less comparable with the industry average.
- Profit margin ratios of ABC Limited are somewhat higher than the industry average. The rate of return measures of ABC Limited are also higher than the industry average.

DU PONT ANALYSIS

The du pont analysis is used to measure the company's financial performance in more detail by showing how the net profit margin, total asset turnover and equity multiplier to determine the rate of return on equity. In conducting this du pont system analysis, it can provide information about various factors that cause financial performance ups and downs in a company. In fact, this method is almost the same as analyzing ordinary financial statements, but the approach is more integrative by using the composition of financial statements that are used as elements of its analysis, namely by analyzing financial ratios so that companies can find out various factors that can affect the effectiveness of the company in managing the resources owned by the company, so that the company's financial plan will be better in the future. The purpose of this analysis can be used to determine the extent of the effectiveness of a company in managing company assets from sales made by generating profits, so this analysis includes various financial ratios.

To make investing decisions, many a times we want to compare the business models of companies in one sector to understand if we can explain the differences in valuation and also which company has better financial metrics.

For example: A Ltd. and B Ltd. have been two big "Made in India" success stories in the FMCG sector. It would be interesting to compare these two amazing companies. The Market Cap of the two companies are very similar as the table below shows, the stock market has been recognizing the potential of these companies and the 10 year price returns of these two companies are far higher than that of Hindustan Unilever and the overall market.

Company	*Market Cap*	*10 Year Return*
A Ltd.	Rs. 797 bn	1958%
B Ltd.	Rs. 769 bn	854%
Hindustan Unilever	Rs. 3449 bn	539%
BSE Sensex	–	190%

After this phenomenal performance over the past few years, interestingly the Current Market Cap of these two companies is very similar.

Two companies, two different approaches

These two companies with long legacies of more than 120+ years each have taken different paths to achieve success. A Ltd. describes itself as "One of the Best Ayurvedic Companies in India" whereas B Ltd. calls itself the "Largest home-grown home and personal care company in India."

Both have global ambitions

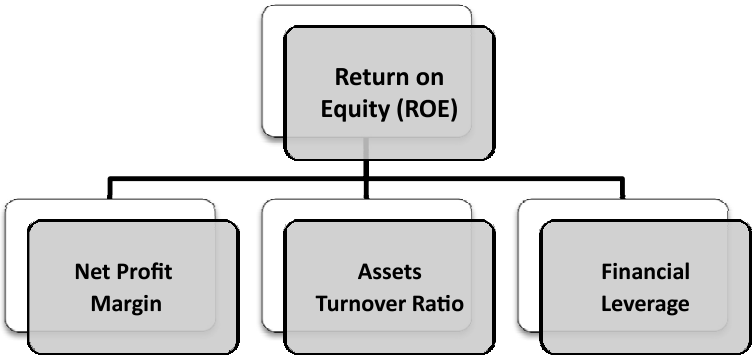
A's Ltd. products are today available in over 120 countries across the globe. A's overseas revenue today accounts for over 30% of the total turnover while B Ltd. is largest household insecticide and hair care players in emerging markets. In household insecticides, they are the leader in India, the second largest player in Indonesia and are now expanding our footprint in Africa. They are the leader in hair extensions in Africa, the number one player in hair colour in India and Sub-Saharan Africa and among the leading players in Latin America. They are the number one player in air fresheners and wet tissues in Indonesia.

Both Have a Large and Diverse Portfolio

A Ltd. today operates in key consumer product categories like Hair Care, Oral Care, Health Care, Skin Care, Home Care and Foods. A Ltd. India has portfolio of over 250 Herbal/Ayurvedic products. A's FMCG portfolio today includes five flagship brands with distinct brand identities. B Ltd. Consumer's products include soap, hair colourants, toiletries and liquid detergents.

How do the Financials of these two companies stack up?

A very interesting tool to compare the business model of two companies in similar businesses is the DuPont Analysis. The genesis of the analysis was a framework developed by the DuPont Corporation of the USA. DuPont analysis is great measure of fundamental performance of a company. This analysis decomposes the key drivers of Return on Equity (ROE). ROE is one of the most important measure of a company's profitability.



Return on Equity = Net Profit Margin x Asset Turnover Ratio x Financial Leverage

- *Net Profit Margin = (Net Income / Sales)* - The Net Profit Margin signifies the Profit that is extracted per rupee of Sales. Everything else remaining same, a company which has a higher Net Profit Margin has a higher ROE.
- *Asset Turnover Ratio = (Sales / Total Assets)* - This ratio is an efficiency measurement used to determine how effectively a company uses its assets to generate revenue. Higher the Asset Turnover Ratio, higher the ROE, everything else remaining the same.
- *Financial Leverage = (Total Assets / Total Equity)* - Financial Leverage measure whether a company finances the purchase of assets primarily through debt or equity. The higher the Financial Leverage the higher the ROE. Financial Leverage when it becomes excessive can increase the risk of bankruptcy.

So, what does the Dupont Analysis tells us for A Ltd and B Ltd.?

Consolidated (Rs. Cr)	***A Ltd. FY 2022***	***B Ltd. FY 2022***
Total Sales	8054	10045
Net Profits	5733	6258
Net Assets	6424	9852
Total Equity	1358	1671

Particulars	*A Ltd. FY 2022*	*B Ltd. FY 2022*
Net Profit Margin	16.9%	16.6%
Asset Turnover Ratio	1.25	1.02
Financial Leverage	1.12	1.57
Return on Equity	23.6%	26.6%

The ROEs of B Ltd. is 3% higher than A Ltd. So one would think that B Ltd. has better Financial metrics. However, a Deeper look at the Dupont Analysis reveals a different story.

While the Net Profit Margins for the two companies are similar, A Ltd. utilises its assets better than B Ltd. as can be seen in the Asset Turnover Ratio of A Ltd. at 1.25 vs B Ltd. at 1.02. Also, B Ltd.'s ROE is enhanced by taking a higher Financial Leverage. So in effect, A Ltd. has better financial metrics than B Ltd.

In general, the Stock Market gives a higher Valuation to a company which has better Financial Metrics. This analysis was just to highlight the simplicity of Dupont Analysis and its power.

READING AND INTERPRETATION OF FINANCIAL STATEMENT

Financial statement analysis (or financial analysis) is the process of reviewing and analyzing a company's financial statements to make better economic decisions to earn income in future. These statements include the income statement, balance sheet, statement of cash flows, notes to accounts and a statement of changes in equity (if applicable). Financial statement analysis is a method or process involving specific techniques for evaluating risks, performance, financial health, and future prospects of an organization.

It is used by a variety of stakeholders, such as credit and equity investors, the government, the public, and decision-makers within the organization. These stakeholders have different interests and apply a variety of different techniques to meet their needs. For example, equity investors are interested in the long-term earnings power of the organization and perhaps the sustainability and growth of dividend payments. Creditors want to ensure the interest and principal is paid on the organizations debt securities (e.g., bonds) when due.

There are three major financial statements: the balance sheet, profit-and-loss statement and cash-flow statement. The balance sheet tells you about the assets and liabilities of a company. The profit-and-loss statement tells you about a company's profitability and the cash-flow statement is about the flow of cash into and out of a company.

Balance sheet: The balance sheet shows the assets that a business owns, the liabilities that it owes and the funds contributed by its shareholders.

Assets = Liabilities + Owners' equity.

Assets include land, equipment, inventory, goodwill, patents, brand value, etc. Liabilities include debt (long-term and short-term) and any other payables that a business has. Shareholder funds are in the form of equity and reserves.

A weak balance sheet is one that is saddled with debt. When a business has a strong balance sheet, it has more assets and equity than liabilities. In order to know the balance-sheet strength, can look at the debt-equity ratio.

Profit and loss Statement: As its name suggests, the P&L statement tells about the profitability of a company. The simple formula to calculate profits is Profit (loss) = Revenue - Expenses.

The head 'revenue' generally has two entries: revenue from sales and other income. Other income is the revenue from sources other than the core area of the company's operations. For instance, it could be income from investments, dividends, royalties, etc.

The head 'expenses' constitutes the categories of expenditure such as cost of raw materials, employee costs, etc. On subtracting the total costs from the total revenues, we get the 'operating profit', which is nothing but a company's profit from its core operations.

In order to arrive at the final profit figure, any miscellaneous income or loss is to be added to or subtracted from the operating profit. Finally, net profit is obtained after deducting the tax applicable.

Cash-flow statement

The cash-flow statement shows the movement of cash in a business. While businesses can misstate their profits through accounting jugglery, they can't fudge the movement of cash. Hence, a cash-flow statement provides a true picture of a company's financial health. However, for banks and finance companies, the cash-flow statement is of limited use as they follow a different business model than other types of businesses.

The cash-flow statement has three components: cash flows from operating activities, from financing activities and from investing activities. The statement also mentions the current cash holding of the business.

What need to check in the data is whether flows from operating activities are positive or not. If they are positive, it means that the company is able to generate cash from its operations. If they are negative, it means that the company is losing money. While it may show profits in its P&L statement, negative flows from operations should ring an alarm.

Cash flows from financing activities show the money raised for the company's operations or the money paid towards debt repayment. The former will be a positive number on the statement, while the latter will be a negative number.

Cash flows from investing activities capture the cash used in investments. For instance, a business that has generated surplus cash may park it in a bank fixed deposit. Next year it may withdraw cash from that FD. The former will be a negative number on the statement, while the latter will be a positive number.

The balance sheet, profit-and-loss statement, as well as the cash-flow statement contain the data necessary to guide investors looking to invest in a company. Ratios used in analysing stocks also require figures and data contained in these statements, without which a thorough analysis is impossible. All these statements may be found in the annual reports of companies.

Common methods of financial statement analysis include fundamental analysis, DuPont analysis, and the use of financial ratios. Historical information combined with a series of assumptions and adjustments to the financial information may be used to project future performance.

Analysis of Auditors Report and Opinion

The objective of the reporting phase of a financial audit is to present an informed opinion about a business's financial statements, including whether they conform to generally accepted accounting principles. Even though the report contains only three sections, the impact it can have on the future of a business makes being able to read and understand its contents crucial.

A financial audit report is the final step of an external financial audit. After planning the audit and gathering necessary information, an auditor then must interpret results. Although the information an auditor collects through inquiry, observation, inspection, calculations, comparisons and analysis is "fact," the report itself expresses the opinion of the auditor.

The introductory section identifies the responsibilities of the company director and the independent auditor. Regardless of how large the company or financial accounting department, the auditor holds the company director responsible for accounting policies, the preparation of financial documents, internal business controls designed to ensure the financial documents are honest and correct and the presentation of financial statements to the auditor. The auditor takes responsibility for expressing an opinion based only on the facts and for complying with ethical and legal auditing guidelines during the planning and information-gathering stages of the financial audit.

Scope of the audit -- the area it covers -- is the second and shortest section. It provides a description of what the auditor has done and includes a blanket statement -- a statement common to and for the most part identical in every audit report -- that specifically states the auditor has examined the financial statements of the business in accordance with generally accepted auditing standards and has performed appropriate tests to make a reasonable assessment of the business's financial processes, internal controls and documents.

Auditor's Opinion

The auditor's opinion is the most important section of the audit report. Here the auditor sums up findings by expressing one of three generally accepted opinions or includes a disclaimer, which means the auditor refuses to give an opinion, most often because the business either can't or won't produce the appropriate documents or information. The most favorable opinion is an unqualified opinion, meaning the company director provided all the necessary financial documents and everything was in order and met all auditing requirements. A qualified opinion means that while the majority of documents were in order, the auditor did find one or two exceptions. An adverse opinion is an opinion no business wants; this negative opinion says the business financial records are inaccurate, incomplete or not in compliance with generally accepted accounting principles.

Analysis of Management Judgement

Management Personal judgement plays a vital role in the preparation of financial records and financial statements. The management may use their judgement in choosing the method of valuation of closing inventory, in calculating the provision for bad debts and in choosing the method of charging the depreciation of fixed assets. Likewise, the application of various accounting concepts and conventions depends upon the personal judgement of the management. Therefore, different meaning and results can be obtained from the financial statements of the same company. Based on the different results, different recommendations may be provided for the growth and development of a business concern.

Problems in Financial Statement Analysis

Lack of an Underlying Theory The basic problem in financial statement analysis is that there is no theory that tells us which numbers to look at and how to interpret them. In the absence of an underlying theory financial statement analysis appears to be ad hoc, informal, and subjective. As Horrigan put it: "From a negative viewpoint, the most striking aspect of ratio analysis is the absence of an explicit theoretical structure. As a result the subject of ratio analysis is replete with untested assertions about which ratios should be used and what their proper levels should be."

Conglomerate Firms Many firms, particularly the large ones, have operations spanning a wide range of industries. Given the diversity of their product lines, it is difficult to find suitable benchmarks for evaluating their financial performance and condition. Hence, it appears that meaningful benchmarks may be available only for firms which have a well-defined industry classification.

Window Dressing Firms may resort to window dressing to project a favourable financial picture. For example, a firm may prepare its balance sheet at a point when its inventory level is very low. As a result, it may appear that the firm has a very comfortable liquidity position and a high turnover of inventories. When window dressing of

this kind is suspected, the financial analyst should look at the average level of inventory over a period of time and not the level of inventory at just one point of time.

Price Level Changes Financial accounting, as it is currently practised in India and most other countries, does not take into account price level changes. As a result, balance sheet figures are distorted and profits misreported. Hence, financial statement analysis can be vitiated.

Variations in Accounting Policies Business firms have some latitude in the accounting treatment of items like depreciation, valuation of stocks, research and development expenses, foreign exchange transactions, installment sales, preliminary and pre-operative expenses, provision of reserves, and revaluation of assets. Due to diversity of accounting policies found in practice, comparative financial statement analysis may be vitiated.

Interpretation of Results Though industry averages and other yardsticks are commonly used in financial ratios, it is somewhat difficult to judge whether a certain ratio is 'good' or 'bad'. A high current ratio, for example, may indicate a strong liquidity position (something good) or excessive inventories (something bad). Likewise, a high turnover of fixed assets may mean efficient utilisation of plant and machinery or continued flogging of more or less fully depreciated, worn out, and inefficient plant and machinery.

Another problem in interpretation arises when a firm has some favourable ratios and some unfavourable ratios and this is rather common. In such a situation, it may be somewhat difficult to form an overall judgment about its financial strength or weakness. Multiple discriminate analysis, a statistical tool, may be employed to sort out the net effect of several ratios pointing in different directions.

Correlation among Ratios Notwithstanding the previous observation, financial ratios of a firm often show a high degree of correlation. Why? This is because several ratios have some common element (sales, for example, is used in various turnover ratios) and several items tend to move in harmony because of some common underlying factor. In view of ratio correlations, it is redundant and often confusing to employ a large number of ratios in financial statement analysis. Hence it is necessary to choose a small group of ratios from a large set of ratios. Such a selection requires a good understanding of the meaning and limitations of various ratios and an insight into the economics of the business.

Guidelines for Financial Statement Analysis

From the foregoing discussion, it is clear that financial statement analysis cannot be treated as a simple, structured exercise. The following point to be taken into consideration while analyse financial statements.

1. **Use ratios to get clues to ask the right questions:** By themselves ratios rarely provide answers, but they definitely help to raise the right questions.
2. **Be selective in the choice of ratios:** Compute scores of different ratios and easily drown into confusion. For most purposes a small set of ratios-three to seven-would suffice. Few ratios, aptly chosen, would capture most of the information that can derive from financial statements.
3. **Employ proper benchmarks:** It is a common practice to compare the ratios (calculated from a set of financial statements) against some benchmarks. These bench marks may be the average ratios of the industry or the ratios of the industry leaders or the historic ratios of the firm itself.
4. **Know the tricks used by accountants:** Since firms tend to manipulate the reported income, should learn about the devices employed by them.
5. **Read the footnotes: Footnotes sometimes contain valuable information.** They may reveal things that management may try to hide. The more difficult it is to read a footnote, the more information-laden it may be.

6. **Remember that financial statement analysis is an odd mixture of art and science:** Financial statement analysis cannot be regarded as a simple, structured exercise. It is a process requiring care, thought, common sense, and business judgment-a process for which there are no mechanical substitutes.

Going Beyond the Numbers

The tools of analysis discussed in this chapter are helpful in making business decisions, evaluating performance, and forecasting future developments. Comprehensive business analysis, however, calls for going beyond the conventional financial measures to consider qualitative factors relevant for evaluating the performance and prospects of a company. The American Association of Individual Investors (AAII) has summarised these factors as follows:

1. *Are the company's revenues tied to one key customer?* If so, the company's performance may decline dramatically if the customer goes elsewhere. On the other hand, if the relationship is firmly entrenched, this might actually stabilise sales.
2. *To what extent are the company's revenues tied to one key product?* Companies that rely on a single product may be more efficient and focused, but a lack of diversification increases risk. If revenues come from several different products, the overall bottom line will be less affected by a drop in the demand for any one product.
3. *To what extent does the company rely on a single supplier?* Depending on a single supplier may lead to unanticipated shortages, which investors and potential creditors should consider.
4. W*hat percentage of the company's business is generated overseas?* Companies with a large percentage of overseas business are often able to realise higher growth and larger profit margins. However, firms with large overseas operations find that the value of their operations depends in large part on the value of the local currency. Thus, fluctuations in currency markets create additional risks for firms with large overseas operations. Also, the potential stability of the region is important.
5. *Competition.* Generally, increased competition lowers prices and profit margins. In forecasting future performance, it is important to assess both the likely actions of the current competition and the likelihood of new competitors in the future.
6. *Future prospects.* Does the company invest heavily in research and development? If so, its future prospects may depend critically on the success of new products in the pipe line. For example, the market's assessment of a computer company depends on how next year's products are shaping up. Likewise, investors in pharmaceutical companies are interested in knowing whether the company has developed any potential blockbuster drugs that are doing well in the required tests.
7. *Legal and regulatory environment.* Changes in laws and regulations have important implications for many industries. For example, when forecasting the future of tobacco companies, it is crucial to factor in the effects of proposed regulations and pending or likely lawsuits. Likewise, when assessing banks, telecommunications firms, and electric utilities, analysts need to forecast both the extent to which these industries will be regulated in the years ahead, and the ability of individual firms to respond to changes in regulation.

LESSON ROUND-UP

- **Ratio Analysis:** An important tool of financial statement analysis is ratio analysis. Accounting ratios represent relationship between two accounting numbers.
- **Objective of Ratio Analysis:** The objective of ratio analysis is to provide a deeper analysis of the profitability, liquidity, solvency and activity levels in the business. It is also to identify the problem areas as well as the strong areas of the business.
- **Advantages of Ratio Analysis:** Ratio analysis offers many advantages including enabling financial statement analysis, helping understand efficacy of decisions, simplifying complex figures and establish relationships, being helpful in comparative analysis, identification of problem areas, enables SWOT analysis, and allows various comparisons.
- **Types of Ratios:** There are many types of ratios, viz., liquidity, solvency, activity and profitability ratios. The liquidity ratios include current ratio and acid test ratio. Solvency ratios are calculated to determine the ability of the business to service its debt in the long run instead of in the short run. They include debt equity ratio, total assets to debt ratio etc.
- **Dupont Analysis:** DuPont analysis is a useful technique used to decompose the different drivers of return on equity. An investor can use analysis tools like this to compare the operational efficiency of two similar firms. Managers can use DuPont analysis to identify strengths or weaknesses that should be addressed.
- **Reading and Interpretation of Financial Statement**

TEST YOURSELF

Short Answer Questions

1. What do you mean by Ratio Analysis?
2. What are various types of ratios?
3. What are the ratios used for this purpose?
4. What are liquidity ratios? Discuss the importance of current and liquid ratio.
5. How would you study the Solvency position of the firm?
6. What are various profitability ratios? How are these worked out?
7. The current ratio provides a better measure of overall liquidity only when a firm's inventory cannot easily be converted into cash. If inventory is liquid, the quick ratio is a preferred measure of overall liquidity. Explain.
8. How to read and analysize the Financial Statement?

Practical Questions

1. Current Ratio is 3.5 : 1

   Working Capital is Rs. 90,000.

   Calculate the amount of Current Assets and Current Liabilities.

   (Answer: Current Assets Rs. 1,26,000 and Current Liabilities Rs. 36,000)

2. Shine Limited has a current ratio 4.5 : 1 and quick ratio 3 : 1; if the inventory is 36,000, calculate Current Liabilities and Current Assets.

   (Answer: Current Assets Rs. 1,08,000, Current Liabilities Rs. 24,000)

3. Current Liabilities of a company are Rs. 75,000. If current ratio is 4:1 and Liquid Ratio is 1 : 1, calculate value of Current Assets, Liquid Assets and Inventory.

   (Answer: Current Assets Rs. 3,00,000, Liquid Assets Rs. 75,000 and Inventory Rs. 2,25,000)

4. Handa Ltd. has inventory of Rs. 20,000. Total liquid assets are Rs. 1,00,000 and quick ratio is 2 : 1. Calculate current ratio.

   (Answer: Current Ratio 2.4 : 1)

5. Calculate debt-equity ratio from the following information:

Total Assets	Rs. 15,00,000
Current Liabilities	Rs. 6,00,000
Total Debts	Rs. 12,00,000

   (Answer: Debt-Equity Ratio 2 : 1.)

6. Calculate Current Ratio if: Inventory is Rs. 6,00,000; Liquid Assets Rs. 24,00,000; Quick Ratio 2 : 1.

   (Answer: Current Ratio 2.5 : 1)

7. Compute Inventory Turnover Ratio from the following information:

Revenue from Operations	Rs. 2,00,000
Gross Profit	Rs. 50,000
Inventory at the end	Rs. 60,000
Excess of inventory at the end over inventory in the beginning	Rs. 20,000

   (Answer: Inventory Turnover Ratio 3 times)

8. From the following information calculate Gross Profit Ratio, Inventory Turnover Ratio and Trade Receivable Turnover Ratio.

Revenue from Operations	Rs. 3,00,000
Cost of Revenue from Operations	Rs. 2,40,000
Inventory at the end	Rs. 62,000
Gross Profit	Rs. 60,000
Inventory in the beginning	Rs. 58,000
Trade Receivables	Rs. 32,000

   (Answer: Gross Profit Ratio 20%; Inventory Turnover Ratio 4 times; Trade Receivables Turnover Ratio 9.375 times)

9. Calculate Inventory Turnover Ratio from the data given below:

Inventory in the beginning of the year	Rs. 10,000

Inventory at the end of the year	Rs. 5,000
Carriage	Rs. 2,500
Revenue from Operations	Rs. 50,000
Purchases	Rs. 25,000

(Answer: Inventory Turnover Ratio 4.33 times)

10. Calculate Inventory Turnover Ratio if: Inventory in the beginning is Rs. 76,250, Inventory at the end is Rs. 98,500, Sales is Rs. 5,20,000, Sales Return is Rs. 20,000, Purchases is Rs. 3,22,250.

(Answer: Inventory Turnover Ratio 3.43 times)

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Cash Flows

Lesson 9

KEY CONCEPTS

■ Cash equivalents ■ Cash inflow ■ Cash outflow ■ Operating activities ■ Investing activities ■ Financing activities

Learning Objectives

To understand:

- Meaning of Cash Flow Statement
- Utility and limitations of cash flow analysis
- Operating activities, investing activities and financing activities
- Transactions effecting inflow and outflow of cash
- Method of preparation of cash flow statement
- Objectives and uses of cash flow statement
- How to Analyze the information in Cash Flow Statement

Lesson Outline

- Introduction
- Utility of Cash Flow Analysis
- Meaning of certain terms used in the context of Cash Flow Statement
- Classification of Cash Flow Statement
- Preparation of Cash Flow Statement
- Cash Flow from Operating Activities
- Cash Flow from Investing Activities
- Cash Flow from Financing Activities
- Format of Cash Flow Statement
- Limitations of Cash Flow Statement
- How to Interpret A Cash Flow Statement
- Lesson Round-Up
- Test Yourself
- List of Further Readings

INTRODUCTION

Cash flow statement, which shows inflows and outflows of the cash and cash equivalents. This statement is usually prepared by companies which come as a tool in the hands of users of financial information to know about the sources and uses of cash and cash equivalents of an enterprise over a period of time from various activities of an enterprise. It has gained substantial importance in the last decade because of its practical utility to the users of financial information.

This statement reports a net cash inflow or net cash outflow for each activity and for the overall business. It also reports from where cash has come and how it has been spent. It explains the causes for the changes in the cash balance. In substance, the cash flow statement summarises a myriad of specific cash transactions into a few categories for a business entity. The statement of cash flows reports the cash receipts, cash payments, and net changes in cash resulting from operating, investing and financing activities of an enterprise during a period in a format that reconciles the beginning and ending cash balances.

Applicability

The applicability of Cash flow statement has been defined under the Companies Act, 2013. As per the definition in the act, a financial statement includes the following:

i. Balance sheet

ii. Profit and loss account / Income and expenditure account

iii. Cash flow statement

iv. Statement of changes in equity

v. Explanatory notes

Financial Statements are defined in Companies Act, 2013 (Section 2 (40)] and includes Cash Flow Statement prepared in accordance with Accounting Standard- 3 (AS-3) i.e. Cash Flow Statement.

As per AS 3:

For Companies - As per the Companies Act, 2013, Cash Flow Statement is required to be prepared by every company except a one person, small and dormant company.

For non-companies - AS 3 is not mandatory for entities falling in Level II and Level III.

UTILITY OF CASH FLOW ANALYSIS

A Cash flow statement shows inflow and outflow of cash and cash equivalents from various activities of a company during a specific period. The primary objective of cash flow statement is to provide useful information about cash flows (inflows and outflows) of an enterprise during a particular period under various heads, i.e., operating activities, investing activities and financing activities. This information is useful in providing users of financial statements with a basis to assess the ability of the enterprise to generate cash and cash equivalents and the needs of the enterprise to utilise those cash flows. The economic decisions that are taken by users require an evaluation of the ability of an enterprise to generate cash and cash equivalents and the timing and certainty of their generation.

A cash flow statement is useful for short-term planning. A business enterprise needs sufficient cash to meet its various obligations in the near future such as payment for purchase of fixed assets, payment of debts maturing

in the near future, expenses of the business, etc. A historical analysis of the different sources and applications of cash will enable the management to make reliable cash flow projections for the immediate future. It may then plan out for investment of surplus to meet the deficit, if any. Thus, a cash flow analysis is an important financial tool for the management. Its chief advantages are as follows:

1. **Helps in efficient cash management:** Cash flow analysis helps in evaluating financial policies and cash position. Cash is the basis for all operations; hence a projected cash flow statement will enable the management to plan and coordinate the financial operations properly. The management can know how much cash is needed, from which source it will be derived, how much can be generated internally and how much could be obtained from outside.

2. **Helps in internal financial management:** Cash flow analysis provides information about funds which will be available from operations. This will help the management in determining policies regarding internal financial management, e.g., possibility of repayment of long-term debts, dividend policies and planning the replacement of plant and machinery.

3. **Discloses the movements of cash:** Cash flow statement discloses the complete story of cash movement. The increase or decrease in cash, and the reasons therefore can be known. It discloses the reasons for low cash balance in spite of heavy operating profits or for heavy cash balance in spite of low profits. However, comparison of original forecast with the actual results highlights the trends of movements of cash which may otherwise go undetected.

4. **Discloses success or failure of cash planning:** The extent of success or failure of cash planning can be known by comparing the projected cash flow statement with the actual cash flow statement so that necessary remedial measures can be taken.

5. **Evaluate management decisions:** The statement of cash flows reports the companies' investing and financing activities and thus gives the investors and creditors about cash flow information for evaluating managers' decisions.

6. **Show the relationship of net income to changes in the business cash:** Usually cash and net income move together. High levels of income tend to lead to increase in cash and vice-versa. However, a company's cash balance can decrease when its net income is high, and cash can increase when income is low. The users want to know the difference between the net profit and net cash provided by operations. The net profit shows the progress of the business during the year while cash flow relates more to the liquidity of the business. The users can assess the reliability of net profit with the help of cash flow statement.

7. **Efficiency in cash management:** Cash flow analysis helps in evaluating financial policies and cash position. It facilitates the management to plan and co-ordinate the financial operations properly. The management can estimate how much funds are needed, from which source they will be derived, how much can be generated internally and how much should be arranged from outside.

MEANING OF CERTAIN TERMS USED IN THE CONTEXT OF CASH FLOW STATEMENT

Cash: Cash comprises cash in hand and demand deposits with banks. Demand deposits mean those deposits which are repayable by bank on demand by the depositor.

Cash equivalents: Cash equivalents are short term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value. Cash equivalents are held for the purpose of meeting short term cash commitments rather than for investments or other purposes. Examples of cash equivalents are treasury bills, commercial paper etc. Investments in shares are excluded from cash equivalents unless they are in substance cash equivalents, for example preference shares of a company acquired shortly before their specified redemption date (provided there is only an insignificant risk of failure of the company to repay the amount at maturity).

Cash flows: Cash flows are inflows and outflows of cash and cash equivalents. It means the movement of cash into the organisation and movement of cash out of the organisation. The difference between the cash inflows and outflows is known as net cash flow which can be either net cash inflow or net cash outflow. Cash flows exclude movements between items that constitute cash or cash equivalents because these components are part of the cash management of an enterprise rather than part of its operating, investing and financing activities. Cash management includes the investment of excess cash in cash equivalents.

CLASSIFICATION OF CASH FLOW STATEMENT

The cash flow statement during a period is classified into three main categories of cash inflows and cash outflows i.e. operating, investing and financing activities.

- Operating Activities
- Investing Activities
- Financing Activities

Cash Flows from Operating Activities	*Examples of Cash Flows from Operating Activities*
Operating activities are the principal revenue-producing activities of the enterprise and other activities that are not investing and financing activities. Operating activities include cash effects of those transactions and events that enter into the determination of net profit or loss.	(a) cash receipts from the sale of goods and the rendering of services; (b) cash receipts from royalties, fees, commissions, and other revenues; (c) cash payments to suppliers for goods and services; (d) cash payments to and on behalf of employees;

A business's normal operations result in both cash receipts and cash payments. Cash receipts result from selling goods and providing services. The cost of goods sold and other operative expenses result in cash disbursements. The revenues and expenses reported in the income statement, however, do not coincide with the cash receipts and payments as we prepare the income statement on an accrual basis. The receipts and payments of cash for these revenues and expenses may occur in either an earlier or later period than the period we report the revenues and expenses.	(e) cash receipts and payments of an insurance enterprise for premiums and claims, annuities and other policy benefits; (f) cash payments or refunds of income taxes unless they can be specifically identified with financing and investing activities; and (g) cash receipts and payments relating to future contracts, forward contracts, option contracts, and swap contracts when the contracts are held for dealing or trading purposes.

Cash Flows from Investing Activities	***Examples of Cash Flows from Investing Activities***
Investing activities are the acquisition and disposal of long term assets and other investments not included in cash equivalents. In other words, investing activities include transactions and events that involve the purchase and sale of long-term productive assets (e.g. land, building, plant and machinery etc.) not held for resale and other investments.	(a) cash payments to acquire fixed assets (including intangibles). These payments include those relating to capitalised research and development costs and self-constructed fixed assets; (b) cash receipts from disposal of fixed assets (including intangibles); (c) cash payments to acquire shares, warrants, or debt instruments of other enterprises and interests in joint ventures (other than payments for those instruments considered to be cash equivalents and those held for dealing or trading purposes); (d) cash receipts from disposal of shares, warrants, or debt instruments of other enterprises and interests in joint ventures (other than receipts from those instruments considered to be cash equivalents and those held for dealing or trading purposes); (e) cash advances and loans made to third parties (other than advances and loans made by a financial enterprise); (f) cash receipts from the repayment of advances and loans made to third parties (other than advances and loans of a financial enterprise); (g) cash receipts and payments relating to future contracts, forward contracts, option contracts, and swap contracts except when the contracts are held for dealing or trading purposes, or the transactions are classified as financing activities.

Cash Flows from Financing Activities	*Examples of Cash Flows from Financing Activities*
Financing activities are activities that result in changes in the size and composition of the owners' capital (including preference share capital in the case of a company) and borrowings of the enterprise	(a) cash proceeds from issuing shares or other similar instruments; (b) cash proceeds from issuing debentures, loans notes, bonds and other short term borrowing; (c) cash repayments of amounts borrowed i.e. redemption of debentures, bonds etc.; (d) cash payments to redeem preference shares; (e) payment of dividend.

Treatment of Some Peculiar Items

Foreign Currency Cash Flows

Cash flows arising from transactions in a foreign currency should be recorded in an enterprise's reporting currency by applying to the foreign currency amount the exchange rate between the reporting currency and foreign currency at the date of cash flow. A rate that approximates actual rate may be used if the result is substantially the same as would arise if the rates at the date of cash flows were used. Unrealised gains and losses arising from changes in foreign exchange rates are not cash flows. However, the effect of exchange rate changes on cash and cash equivalents held or due in foreign currency is reported in the cash flow statementin order to reconcile cash and cash equivalents at the beginning and the end of the period. This amountis presented separately from cash flows from operating, investing and financing activities and includes the differences, if any, had those cash flows been reported at the end of period exchange rates.

Reporting of foreign currency cash flows	
Cash flows arising from transactions in a foreigncurrency	**Effects of changes in exchange rates on cash and cash equivalents held in a foreign currency**
To be recorded in the reporting currency of the enterprise using the exchange rate on the date ofcash flow	To be reported as a separate part of the reconciliation of the changes in cash and cashequivalents during the Period

Extraordinary Items

Extraordinary items are not the regular phenomenon, e.g., loss due to theft or earthquake or flood. Extraordinary items are non-recurring in nature and hence cash flows associated with extraordinary items should be classified and disclosed separately as arising from operating, investing or financing activities. This is done to enable users to understand their nature and effect on the present and future cash flows of an enterprise.

Interest and Dividend

According to Accounting Standard-3 (Revised), the treatment of interest and dividends, received and paid, depends upon the nature of the enterprise, that is, financial enterprises and other enterprises.

- In the case of financial enterprises: Cash flows arising from interest paid, interest received and dividendsreceived, should be classified as cash flows from operating activities. While dividend paid is a financing activities.

<table>
<tr><td></td><td>

- In the case of other enterprises: Cash flows arising from interest paid should be classified as cash flows from financing activities. Cash flows arising from interest and dividends received should be classified as cash flows from investing activities; dividends paid should be classified as cash flows from financing activities.

<table>
<tr><th colspan="4">Non-Financial Enterprises</th></tr>
<tr><td>Interest paid</td><td>Interest received</td><td>Dividend Paid</td><td>Dividend received</td></tr>
<tr><td>Financing Activities</td><td>Investing Activities</td><td>Financing Activities</td><td>Investing Activities</td></tr>
<tr><th colspan="4">Financial Enterprises</th></tr>
<tr><td>Interest paid</td><td>Interest received</td><td>Dividend Paid</td><td>Dividend received</td></tr>
<tr><td>Operating Activities</td><td>Operating Activities</td><td>Financing Activities</td><td>Operating Activities</td></tr>
</table>

</td></tr>
<tr><td>Taxes on Income and Gains</td><td>

Taxes may be income tax (tax on normal profit), capital gains tax (tax on capital profits), dividend tax (tax on the amount distributed as dividend to shareholders). Cash flows arising from taxes on income should be separately disclosed and should be classified as cash flows from operating activities unless they can be specifically identified with financing and investing activities. This clearly implies that:

- tax on operating profit should be classified as operating cash flows.
- dividend tax, i.e., tax paid on dividend should be classified as financing activity along with dividend paid.
- Capital gains tax paid on sale of fixed assets should be classified under investing activities.

</td></tr>
<tr><td>Acquisition and Disposals of Subsidiaries and other Business Units</td><td>

The aggregate cash flows arising from acquisitions and from disposals of subsidiaries or other business units should be presented separately and classified as investing activities.

</td></tr>
<tr><td>Non-cash Transactions</td><td>

Investing and financing transactions that do not require the use of cash or cash equivalents should be excluded from a cash flow statement. Examples of such transactions are – acquisition of machinery by issue of equity shares or redemption of debentures by issue of equity shares. Such transactions should be disclosed elsewhere in the financial statements in a way that provide all the relevant information about these investing and financing activities. Hence, assets acquired by issue of shares are not disclosed in cash flow statement due to non-cash nature of the transaction.

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PREPARATION OF A CASH FLOW STATEMENT

Cash Flow Statement	
A. Cash flows from operating activities	xxx
B. Cash flows from investing activities	xxx
C. Cash flows from financing activities	xxx
Net increase (decrease) in cash and cash equivalents (A + B + C)	**xxx**
+ Cash and cash equivalents at the beginning	xxx
= Cash and cash equivalents at the end	**xxx**

A. Cash Flows from Operating Activities

Operating activities are the main source of revenue and expenditure in an enterprise. Therefore, the ascertainment of cash flows from operating activities need special attention. An enterprise should report cash flows from operating activities either by using following method:

Direct Method: whereby major classes of gross cash receipts and gross cash payments are disclosed

Indirect Method: whereby net profit or loss is duly adjusted for the effects of

(1) transactions of a non-cash nature,

(2) any deferrals or accruals of past/future operating cash receipts, and

(3) items of income or expenses associated with investing or financing cash flows.

It is important to mention here that under indirect method, the starting point is net profit/loss before taxation and extra ordinary items as per Statement of Profit and Loss of the enterprise. Then this amount is for non-cash items, etc., adjusted for ascertaining cash flows from operating activities.

Direct Method

Under direct method, cash receipts from operating revenues and cash payments for operating expenses are arranged and presented in the cash flow statement. The difference between cash receipts and cash payments is the net cash flow from operating activities. It is in effect a cash basis Statement of Profit & Loss. In this case each cash transaction is analysed separately and the total cash receipts and payments for the period is determined. The summarised data for revenue and expenses can be obtained from the financial statements and additional information. We may convert accrual basis of revenue and expenses to equivalent cash receipts and payments. Make sure that a uniform procedure is adopted for converting accrual base items to cash base items.

The following are some examples of usual cash receipts and cash payments resulting from operating activities:

- Cash sales of goods and services;
- Cash collected from debtors (customers);
- Cash receipts of interest or dividends;
- Cash receipts of royalties, fees, commission and other revenues;
- Cash payments to suppliers (creditors);
- Cash payments for various operating expenses i.e. rent, rates, power etc.;
- Cash payments for wages and salaries to employees;
- Cash payments for income tax etc.

Some of the items to be shown in the cash flow statement are illustrated below:

Collections from Customers: If a business has only cash sales, the amount of sales revenue in the income statement is the amount of cash collected from the customers. However, when the business has credit sales we have to adjust the amount of sales revenue for changes in debtors and bills receivable. The opening balance of debtors or bills receivable represents uncollected amount from a previous period and it is presumed that cash has been collected during the current accounting period. The closing balance of debtors or bills receivable represents uncollected amount in the current accounting period. Therefore in order to calculate the cash received from debtors, the opening balance (debtors/bills receivable) should be added to the amount of credit sales and closing balance should be subtracted therefrom.

Alternatively, Cash Collected from Debtors can also be calculated as given below:

Cash Collected from Debtors = Credit Sales + Decrease in Accounts Receivable or - Increase in Accounts Receivable.

Payment to Suppliers: The analysis of cash payments to suppliers begins with cost of goods sold from the Statement of Profit & Loss. The amount of purchases is calculated by adding closing stock and subtracting opening stock form the cost of goods sold. The cash payment made to suppliers is calculated by making adjustments for change in sundry creditors/bills payable.

Purchases = Cost of Goods Sold + Closing Stock - Opening Stock

OR

Purchases = Cost of Goods Sold + Increase in Stock or - Decrease in Stock

Cash Paid to Suppliers = Purchases + Opening Balance of Creditors (Bills Payable) - Closing Balance of Creditors (Bills Payable).

OR

Cash Paid to Suppliers = Purchases + Decrease in Accounts Payable or - Increase in Accounts Payable.

Payment to Employees:

Cash Paid for Wages and Salaries = Wages and Salaries Expenses + Opening Balance of Outstanding Wages and Salaries - Closing Balance of Outstanding Wages and Salaries.

OR

Cash Paid for Wages and Salaries = Wages and Salaries Expenses + Decrease in Wages and Salaries Payable or - Increase in Wages and Salaries Payable.

Rent Received: The analysis of rent received is similar to cash collected from customers.

Rent Received = Rent Revenue + Opening Balance of Rent Receivable - Closing Balance of Rent Receivable.

OR

Rent Received = Rent Revenue + Decrease in Rent Receivable or - Increase in Rent Receivable.

Interest Paid: The analysis of interest paid is similar to the analysis of payments to employees.

Interest Paid = Interest Expenses + Opening Balance of Outstanding Interest - Closing Balance of Outstanding Interest.

OR

Interest Paid = Interest Expenses + Decrease in Interest Payable, or - Increase in Interest Payable.

A similar treatment is applied for various other income and expenses to find out the cash inflows or outflows.

Insurance: Different procedure is adopted for insurance expense because insurance is usually purchased (and recorded as an asset) before it becomes an expense. The treatment is as follows:

Cash Paid for Insurance = Insurance Expenses + Closing Balance of Unexpired Insurance - Opening Balance of Unexpired Insurance.

OR

Cash Paid for Insurance = Insurance Expenses + Increase in Unexpired Insurance or - Decrease in Unexpired Insurance.

A similar treatment is applied for other prepaid expenses also.

In direct method of calculating cash flow from operations, the following points should be noted:

(i) The necessary adjustments should be made for bad debts, sales returns, purchases returns, discount allowed, discount received etc. while calculating the amount received from the customers or paid to suppliers, as the case may be.

(ii) Items like depreciation, amortisation of intangible assets (such as goodwill, patent, trade mark etc.) or of debenture discount, preliminary expenses, premium on redemption of debentures and preference shares are ignored from the cash flow statement since the method analyses and includes only cash transactions and therefore, non-cash items are omitted from a statement of cash flows.

(iii) No adjustment is made for loss or gain on the sale of fixed assets and investments since operating cash receipts and payments are reported directly on the cash flow statement.

Indirect Method

Indirect method of ascertaining cash flow from operating activities begins with the amount of net profit/loss. This is so because statement of profit and loss incorporates the effects of all operating activities of an enterprise. However, Statement of Profit and Loss is prepared on accrual basis (and not on cash basis). Moreover, it also includes certain non-operating items such as interest paid, profit/loss on sale of fixed assets, etc.) and non-cash items (such as depreciation, goodwill written-off, dividend declared, etc. Therefore, it becomes necessary to adjust the amount of net profit/loss as shown by Statement of Profit and Loss for arriving at cash flows from operating activities.

A summary of adjustments required to convert the net profit to net cash flow from operating activities through indirect method is as follows:

Particulars	*Amount (Rs.)*
A. Net profit before tax and extraordinary item	
B. Adjustments for non-cash and non-operating items:	
Add: Amount written off in respect of depreciation, goodwill, preliminary expenses, underwriting commission etc.	
Add/Less: Other non-operating items	
C. Adjustment for gains and losses on sale of fixed assets and investments:	
Add: Loss on sale of fixed assets/investments Less: Profit on sale of fixed assets/ investments	
D. Adjustments for changes in current assets (except cash and cash equivalents) and current liabilities (except bank overdraft)	
Add: Decrease in accounts of current assets e.g. debtors, bill receivable, stock, prepaid expenses etc.Less: Increase in accounts of current assets.	
Add: Increase in accounts of current liabilities; e.g., creditors, bills payable, outstanding expenses, etc.	
Less: Decrease in accounts of current liabilities.	
E. Cash generated from operations	
Less: Income tax paid.	
F. Adjustments for extra-ordinary items if any	
G. Net cash from (used in) operating activities	

Note: The computation of net cash inflow or cash outflow from operating activities by the indirect method takes a path that is very different from the computation by the direct method. However, the two methods arrive at the same amount of net cash flow from operations.

The logic behind the treatment of various items are explained as follows:

1.	***Adjustment for Depreciation and other Non-cash and Non-operating items*** Depreciation, depletion and amortisation of expenses (amortisation of goodwill, preliminary expenses, premium on redemption of debentures, underwriting commission, etc.) do not affect cash and thus should be added back to the net profit in the cash flow statement. When depreciation is provided it has no effect on cash. However, depreciation is deducted from revenues for the computation of income. Therefore, in going from net profit to cash flow from operations, we add depreciation back to net profit. Likewise, all expenses with no cash effects are added back to net profit in the cash flow statement. In the same manner, revenues that do not provide cash inflow are subtracted from net profit.
2.	***Adjustment for Gains and Losses on Sale of Fixed Assets/Investments*** When fixed assets or investments are sold, there may be either profit or loss on sale. Such profit or loss affects the amount of net profit. For instance, when fixed assets, with a book value of Rs. 75,000 was sold for Rs. 90,000, the actual inflow of cash is Rs. 90,000 which would be reflected in the cash flow statement including a profit of Rs. 15,000. But this profit on sale of fixed asset has already increased the net profit indicating an inflow of cash from operating activities. In order to avoid this duplication, this profit of Rs. 15,000 must be deducted from the net profit. Moreover sale of fixed assets is an investing activity and therefore effect of this profit on sale must be removed from cash flow from operations. Likewise, a loss on sale of fixed assets or investment also require an adjustment to the net profit in the cash flow from operations. This loss is added back to the net profit to compute cash flow from operations.
3.	***Changes in Current Assets and Liabilities*** Most current assets and current liabilities result from operating activities. Sundry debtors and bills receivable result from sales, inventory generates revenues and prepaid expenses are used in operations. On the liabilities side sundry creditors and bills payable are ordinarily incurred to buy inventory and outstanding liabilities relate to salaries, utilities and other expenses. Changes in these current assets and liabilities are reported as adjustments to net profit on the cash flows statement. The following rules apply: (a) An increase in current assets other than cash is deducted from net profit to calculate cash flow from operations: **For example,** when sundry debtors (net) increase during the year, this means that revenues on accrual basis are higher than revenues on cash basis since goods sold on credit are treated as revenues on accrual basis. In other words, the business operations in the period covered resulted in more revenues but not all these revenues resulted in corresponding increase in cash. Some of the revenues resulted in an increase in debtors only. In order to convert the net profit to net cash provided by operating activities the increase in debtors must be deducted from the reported net profit. However, a decrease in current assets has opposite effect and has to be added back to net profit to determine cash provided for the period. (b) An increase in current liability is added to net profit to arrive at the cash from operation.

	For example, when sundry creditors increase during the period covered, it means that expenses on accrual basis are more than they are on cash basis because expenses are incurred for which no payment has been made. So this increase must be added to net profit. However, a decrease in a current liability is subtracted from net profit since more cash has been paid than the expenses recorded on accrual basis.

B & C - CASH FLOWS FROM INVESTING AND FINANCING ACTIVITIES

The details of item leading inflows and outflows from investing and financing activities have already been outlined. While preparing the cash flow statement, all major items of gross cash receipts, gross cash payments, and net cash flows from investing and financing activities must be shown separately under the headings 'Cash Flow from Investing Activities' and 'Cash Flow from Financing Activities' respectively.'

FORMAT OF CASH FLOW STATEMENT

There seems to be flexibility in the presentation of cash flow statements. However, a widely accepted format under direct method and indirect method is given below:

Cash Flow Statement (Direct Method)	
A. Cash flows from operating activities	
Cash receipts from customers	
Cash paid to suppliers and employees	
Cash generated from operations	
Income taxes paid	
Cash flow before extraordinary item	
Proceeds from earthquake disaster settlement	
Net Cash from Operating Activities	
B. Cash flows from investing activities	
Purchase of fixed assets	
Proceeds from sale of equipment	
Interest received	
Dividend received	
Net Cash from Investing Activities	
C. Cash flows from financing activities	
Proceeds from issuance of share capital	
Proceeds from long-term borrowings	
Repayments of long-term borrowings	
Interest paid	
Dividend paid	

Net Cash from Financing Activities	
Net Increase (Decrease) in Cash and Cash Equivalents (A + B + C)	
Cash and Cash Equivalents at Beginning of Period	
Cash and Cash Equivalents at End of Period	

Cash Flow Statement (Indirect Method)	
A. Cash flows from operating activities	
Net profit before tax and extraordinary items Adjustments for:	
Depreciation Foreign exchange Investments	
Gain or loss on sale of fixed assets	
Interest/dividend	
Operating profit before working capital changes.	
Adjustments for:	
Trade & other receivables	
Inventories	
Trade payables	
Cash generation from operations	
Interest paid	
Direct taxes	
Cash before extraordinary items	
Deferred revenue	
Net Cash from Operating Activities.	
B. Cash flows from investing activities	
Purchase of fixed assets	
Sale of fixed assets	
Sale of investments	
Purchase of investments	
Interest received	
Dividend received	
Loans to subsidiaries	
Net Cash from Investing Activities	
C. Cash flows from financing activities	
Proceeds from issue of share capital	

Proceeds from long term borrowings	
Repayment to finance/lease liabilities	
Dividend paid	
Net Cash from Financing Activities	
Net Increase (Decrease) in Cash and Cash Equivalents (A + B + C)	
Cash and Cash Equivalents at the Beginning of the Period	
Cash and Cash Equivalents at the End of the Period	

Alternatively the Cash Flows from Operating Activities (Indirect Method) may be summarised as below:

Net profit before tax and extra-ordinary items

Adjustments for non-cash and non-operating items

(+) Depreciation

(+) Amortization of intangible assets, preliminary expenses, debenture discount and the like.

(+) or (-) Other non-cash and non-operating items included in net profit

Adjustments for gains and losses on sale of fixed assets and investments

(-) Gains on sale of fixed assets and investments

(+) Loss on sale of fixed assets and investments

Adjustments for changes in current assets and current liabilities

(-) Increases in current assets

(+) Decreases in current assets

(+) Increases in current liabilities

(-) Decreases in current liabilities

(-) Income-tax paid

(-) Extraordinary items

Net Cash Flows from Operating activities

Illustration 1

From the following balances calculate cash from operations:

Profit made during the year	***31st December***	
	2021	***2022***
Bills receivable	5,000	4700
Debtors	1000	1250
Bills payable	2000	2500

Creditors	800	600
Outstanding Expenses	100	120
Prepaid Expenses	80	70
Accrued Income	60	75
Income received in advanced	80	25
Profit made during the year	–	7,000

Solution:

Cash Flow Statement

Calculation of cash from Operating Activities

	Particulars	***Amount (Rs.)***	***Amount (Rs.)***
	Profit made during the year		7,000
Add :	Decrease in current assets and increases in current liabilities :		
	Decrease in bills receivable (C.A.)	300	
	Increase in bills payable (C.L.)	500	
	Increase in outstanding expenses (C.L.)	20	
	Decrease in prepaid expenses (C.A.)	10	830
	Total		7,830
Less :	Increase in current assets and decrease in current liabilities :		
	Increase in debtors (C.A.)	250	
	Decrease in creditors (C.L.)	200	
	Increase in accrued income (C.A.)	15	
	Decrease in income received in advance (C.L.)	55	520
	Cash from Operating Activities		7,310

[C.A. = Current Asset, C.L. = Current Liability]

Illustration 2

Given below are the balance sheets of Veer & Sons.

I. Equity and Liabilities	***01 Jan 2022 Rs.***	***31 Dec. 2022 Rs.***
Creditors	4,000	4,400
Mrs. A's Loan	2,500	-
Loans from Bank	4,000	5000
Capital	12,500	15300
Total	**23,000**	**24,700**
II. Assets		
Cash	1,000	700
Debtors	3,000	5,000
Stock	3,500	2,500
Machinery	8,000	5,500
Land	4,000	5,000
Building	3,500	6,000
Total	**23,000**	**24,700**

During the year a machine costing Rs. 1000 (accumulated depreciation Rs. 300) is sold for Rs. 500. The provisions for depreciation against machinery as on 01 January 2022 was Rs. 2500 and on 31 December 2022 Rs. 4000. Net profit for the year amounts to Rs. 4500.

You are required to prepare a Cash Flow Statement.

Solution

Cash Flow Statement

For the year ending 31-12-2022

(i) Cash flow from operating activities

Profit made during the year		4500
Add : Depreciation on machinery	1800	
Loss on sales of machinery*	200	

Decrease in stock	1000	
Increase in creditors	400	3400
		7900
Less : Increase in debtors		(-) 2000
Cash inflows from operating activities		5900
Cash flow from investing activities		
Sale of machinery*	500	
Purchase of land (5,000 – 4,000)	(-) 1000	
Purchase of building (6,000 – 3,500)	(-) 2500	(-) 3000
Net cash outflow from investing activities		
Cash flow from financing activities : Loan from Bank	1000	
Mrs. A's loan repaid	(-) 2500	
Drawings Net cash outflow from financial activities	(-) 1700	(-) 3200
Net decrease in cash and cash equivalents		(-) 300
Cash and cash equivalents on Jan 1, 2022		1000
Cash and cash equivalents on Dec 31, 2022		700

***Working Notes:**

Machinery Account (At Cost)

Particulars	***Amount***	***Particulars***	***Amount***
To Balance b/d	10500	By Bank	500
		By Loss on sale of Machinery	200
		By Provision for Depreciation	300
		By Balance c/d	9500
	10500		**10500**

Depreciation Account

Particulars	*Amount*	*Particulars*	*Amount*
To Machinery	300	By Balance b/d	2500
To Balance c/d	4000	By P & L A/c (balancing figure)	1800
	4300		**4300**

Illustration 3

Following is the Balance Sheet of ABC Co. Ltd., on at 01st January, 2022 and 31st December 2022.

(Amount In Rs.)

Particulars	*01-01-2022*	*31-12-2022*
I. Equity and Liabilities :		
Equity share capital	30,000	35000
Share premium	--	3000
General Reserve	4500	6500
Profit and Loss	3000	8080
6% Debentures	--	7000
Sundry creditors	8500	9070
Provision for taxation	2250	4050
Proposed Divided	3000	3500
Total	**51250**	**76200**
II. Assets :		
Land and building	23,000	39000
Plant and machinery	8540	14000
Furniture	550	650
Stock	8240	9570
Sundry debtors	7500	8550
Bank balance	3420	4430
Total	**51250**	**76200**

Additional Information :

Depreciation written off during the year

Land and building	6000
Plant and machinery	5000
Furniture	120

You are required to prepare a cash flow statement

Solution :

Note : The following accounts have been prepared to determine the relevant information.

Land and Building Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance b/d	23000	By Depreciation	6000
To Bank (purchase)	22000	By Balance c/d	39000
	45000		**45000**

Plant and Machinery Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance b/d	8540	By Depreciation	5000
To Bank (purchase)	10460	By Balance c/d	14000
	19000		**19000**

Furniture Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance b/d	550	By Depreciation	120
To Bank (purchase)	220	By Balance c/d	650
	770		**770**

Provision for Taxation Account

Particulars	*Amt*	*Particulars*	*Amt*
To Bank (tax paid)	2250	By Balance b/d	2250
To Balance c/d	4050	By P & L A/c	4050
	6300		**6300**

Cash Flow Statement for the year ended 31-12-2022

(i) Cash Flow from Operating Activities			
Particulars		***Rs.***	***Rs.***
	Profit during the year (8080-3000)	5080	
Add :	**Depreciation on :**		
	Land and building	6000	
	Plant and machinery	5000	
	Furniture	120	
	General reserve (6,500 - 4,500)	2000	
	Taxation provision	4050	
	Proposed dividend	3500	
	Increase in creditors (9070 – 8500)	570	
Less :	Increase in stock (9570 – 8240)	(-) 1330	
	Increase in debtors (8550 – 7500)	(-) 1050	
Less :	Income tax paid	(-) 2250	
	Cash inflow from operating activities		**21690**
(ii) Cash Flow from Investing Activities			
Less :	Purchase of land and building	(-)22000	
	Purchase of plant and machinery	(-)10460	
	Purchase of furniture	(-) 220	
	Cash outflow from investing activities		**(-)32680**
(iii) Cash Flow from Financing Activities			
Add :	Issue of equity shares	5000	
	Share premium	3000	
	Issue of debentures	7000	
		15000	
Less :	Payment of dividend	(-) 3000	
	Cash inflow from financing activities		**12000**
	Net increase in cash		**1010**
Add :	Cash balance in the beginning		3420
	Cash balance at the end		4430

Illustration 4

The following Balance Sheets are given :

I. Equity and Liabilities	***2021 (Rs.)***	***2022 (Rs.)***
Equity Share Capital	30000	40,000
Redeemable Pref. Capital	15000	10,000
General Reserve	4000	7000
Profit and Loss Account	3000	4800
Proposed Dividend	4200	5000
Creditors	5500	8300
Bills Payable	2000	1600
Provision for Taxation	4000	5000
Total	**67700**	**81700**
II. Assets		
Goodwill	11500	9000
Land and Building	20000	17000
Plant	8000	20000
Debtors	16000	20000
Stock	7700	10900
Bills Receivable	2000	3000
Cash in Hand	1500	1000
Cash at Bank	1000	800
Total	**67700**	**81700**

It is also given that :

(a) Depreciation of Rs. 2000 on land and building and Rs.1000 on plant has been charged in 2022.

(b) Interim dividend of Rs. 2000 has been paid in 2022.

(c) Income tax Rs.3500 has been paid during 2022.

Prepare Cash Flow Statement for the year 2022.

Solution :

Cash Flow Statement for the year 2022

(i)	**Cash from Operating Activities**	***Amt (Rs.)***	***Amt (Rs.)***
Add :	Profit during the year (4800 – 3000)	1800	
	Depreciation on plant	1000	
	Depreciation on building	2000	
	Goodwill written off (11500 – 9000)	2500	
	Proposed dividend	5000	
	Interim dividend	2000	
	General reserve (7000 – 4000)	3000	
	Provision for taxation (3500 + 5000 – 4000)	4500	
	Increase in creditors (C.L.) (8300 – 5500)	2800	
		24600	
Less:	Decrease in bills payable (C.L.) (1600 – 2000)	(-) 400	
	Increase in debtors (C.A.) (16000 – 20000)	(-) 4000	
	Increase in stock (C.A.) (7700 – 10900)	(-) 3200	
	Increase in bills receivable (C.A.) (2000 – 3000)	(-) 1000	
	Income tax paid	(3500)	
	Cash inflow from operating activities		12500
(ii)	**Cash from Investing Activities**		
	Purchase of plant (8000 – 20000 – 1000)	(-) 13000	
	Sale of building (20,000 – 17000 – 2000)	1000	
	Cash outflow from investing activities		(-) 12000
(iii)	**Cash from Financing Activities**		
	Issue of share capital (40000 – 30000)	10000	
	Redemption of pref. shares (10000 – 15000)	(-) 5000	
	Dividend paid	(-) 4200	
	Interim dividend paid	(-) 2000	

	Cash outflow from financing activities		(-) 1200
	Net decrease in cash		**(-) 700**
	Cash balance in the beginning (1500 + 1000)		2500
	Cash balance at the end (1000 + 800)		1800

Illustration 5

From the following condensed comparative Balance Sheets of Hotel Hills Ltd., and additional information, prepare a Cash Flow Statement for the year 2022.

I. Equity and Liabilities	***2021 (Rs.)***	***2022 (Rs.)***
Share Capital	7000	8000
Share Premium	900	1100
Retained earnings	2382	3082
7% Mortgage loan	--	2000
Creditors	690	600
Outstanding salaries	200	140
Provision for taxation	100	140
Total	**11272**	**15062**
II. Assets		
Plant & Machinery	6200	6600
Accumulation Dep. on plant and mach	(3700)	(2620)
Building	9500	11600
Accumulation depreciation on Building	(4300)	(4500)
Land	1000	1200
Stock	1022	962
Debtors	860	760
Prepaid expenses	72	80
Cash	618	980
Total	**11272**	**15062**

Additional information:

1. Plant costing Rs. 1600 (accumulated depreciation Rs. 1480) was sold during the year for Rs. 120.
2. Building was acquired during the year at a cost of Rs. 2100. In addition to cash payment of Rs. 100 a 7% mortgage loan was raised for the balance.
3. Dividend of Rs. 800 was paid during the year.
4. A sum of Rs. 1390 was transferred to provision for taxation account in 2022.

Solution :

Cash Flow Statement for the year 2022

(i) Cash flow from operating activities :		***Amount (Rs.)***
Net profit during the year (before divided payment and provision for tax)		2890
Add : Depreciation – Building (4500 – 4300)	200	
Plant (6600 – 6200)	400	
Decrease in stock (C.A.) (1022 – 962)	60	
Decrease in debtors (C.A.) (860 – 760)	100	
Less : Decrease in creditors (600 – 690)	(-) 90	
Decrease in outstanding salaries (140 – 200)	(-) 60	
Increase in prepaid expenses (72 – 80)	(-) 8	
Income tax paid (– 1390 – 100 + 140)	(-) 1350	(-) 748
Net cash inflow from operating activities		**2142**
(ii) Cash flow from investing activities :		
Purchase of Building	(-) 100	
Purchase of plant and machinery	(-) 2000	
Purchase of land	(-) 200	
Sale of plant	120	
Net cash outflow from investing activities		(-) 2180
(iii) Cash flow from financing activities :		
Issue of shares	1000	
Share premium	200	

Dividend paid	(-) 800	
Net cash inflow from financing activities		400
Net Increase in cash		362
Cash in the beginning		618
Cash at the end of 2015		980

Working Notes :

Retained Earnings Account

Particulars	*Amt*	*Particulars*	*Amt*
To Dividend paid	800	By Balance b/d	2382
To Balance c/d	3082	By Profit during the year (B.F.)	1500
	3882		**3882**

Plant and Machinery Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance b/d	6200	By Sale of plant	120
To Bank-Purchase (B.F.)	2000	By Dep. on plant sold	1480
		By Balanced c/d	6600
	8200		**8200**

Accumulated Depreciation on Plant & Mach. Account

Particulars	*Amt*	*Particulars*	*Amt*
To Plant (Dep.)	1480	By Balance b/d	3700
To Balance c/d	2620	By P & L A/c (Dep.)	400
	4100		**4100**

Building Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance b/d	9500	By Balance b/d	11600
To Bank (purchase) To Mortgage	100		
Loan (Purchase)	2000		
	11600		**11600**

Accumulated Depreciation on Building Account

Particulars	*Amt*	*Particulars*	*Amt*
To Balance c/d	4500	By Balance b/d	4300
		By P & L A/c (Dep.)	200
	4500		**4500**

Provision for Taxation Account

Particulars	*Amt*	*Particulars*	*Amt*
To Income tax paid (B.F.)	1350	By Balance b/d	100
To Balance c/d	140	By P & L A/c (provision during the year)	1390
	1490		**1490**

LIMITATIONS OF CASH FLOW ANALYSIS

Cash flow analysis is a useful tool of financial analysis. However, it has its own limitations. These limitations are as under:

1. Cash flow statement cannot be equated with the income statement. An income statement takes into account both cash as well as non-cash items; therefore, net cash does not necessarily mean net income of the business.
2. The cash balance as disclosed by the cash flow statement may not represent the real liquid position of the business since it can be easily influenced by postponing purchases and other payments.
3. Cash flow statement cannot replace the income statement or the funds flow statement. Each of them has a separate function to perform.

In spite of these limitations it can be said that cash flow statement is a useful supplementary instrument. It discloses the volume as well as the speed at which the cash flows in the different segments of the business. This helps the management in knowing the amount of capital tied up in a particular segment of the business. The technique of cash flow analysis, when used in conjunction with ratio analysis, serves as a barometer in measuring the profitability and financial position of the business.

HOW TO INTERPRET A CASH FLOW STATEMENT

Whenever review any financial statement, we should consider it from a business perspective. Financial documents are designed to provide insight into the financial health and status of an organization.

For example, cash flow statements can reveal what phase a business is in: whether it's a rapidly growing startup or a mature and profitable company. It can also reveal whether a company is going through transition or in a state of decline.

Using this information, an investor might decide that a company with uneven cash flow is too risky to invest in; or they might decide that a company with positive cash flow is primed for growth. Similarly, a department head might look at a cash flow statement to understand how their particular department is contributing to the health and wellbeing of the company and use that insight to adjust their department's activities. Cash flow might also impact internal decisions, such as budgeting, or the decision to hire (or fire) employees.

Cash flow is typically depicted as being positive (the business is taking in more cash than it's expending) or negative (the business is spending more cash than it's receiving).

POSITIVE CASH FLOW

It indicates that a company has more money flowing into the business than out of it over a specified period. This is an ideal situation to be in because having an excess of cash allows the company to reinvest in itself and its shareholders, settle debt payments, and find new ways to grow the business. Positive cash flow does not necessarily translate to profit, however, business can be profitable without being cash flow-positive, and can have positive cash flow without actually making a profit.

NEGATIVE CASH FLOW

It means cash outflow is higher than cash inflow during a period, but it doesn't necessarily mean profit is lost. Instead, negative cash flow may be caused by expenditure and income mismatch, which should be addressed as soon as possible. Negative cash flow may also be caused by a company's decision to expand the business and invest in future growth, so it's important to analyze changes in cash flow from one period to another, which can indicate how a company is performing overall.

Cash Flow Analysis Example – *IronMount* vs. *BronzeMetal*

IronMount Corp and BronzeMetal Corp had identical cash positions at the beginning and end of 2022. Each company also reported a net income of Rs. 225,000 for 2022.

Particulars	***Iron Mount***	***Bronze Metal***
Operating Activities		
Net Income	225000	225000
Adjustment to reconcile net income		
Depreciation and Amortization	30000	240000
Gain on sale of equipment	(277800)	0
Increase in accounts receivable	(67500)	65550
Decrease in Inventory	56250	(131250)
Increase in accounts payable	17100	(12150)
Decrease in income tax payable	(4500)	(12900)
Net cash provided by operating activities	(21450)	374250
Investing Activities		
Sale of equipment	307350	(30600)
Net cash used for investing activities	307350	(30600)
Financing Activities		

Proceeds from Long term borrowing	30000	(27750)
Net cash provided by (used for) financing activities	30000	(27750)
Increase or Decrease in cash and cash equivalent	315900	315900
Beginning of the year	50000	50000
End of the year	365900	365900

IronMount and Bronze Medal, both companies, have the same end-of-the-year cash of 365,900. Additionally, changes in cash during the year are the same at 315,900. Which company is displaying elements of cash flow stress?

Solution: We note that Cash Flow from Operations is negative for IronMount at -21,450. Gain on equipment sales is deducted as this is not an operating cash flow. IronMount sale of equipment adds 307,350, contributing to the cash increase.

On the other hand, when we look at BronzeMetal, we note that its cash flow from operations is strong at 374,250 and seems to be doing great in its business. They are not relying on the one-time sale of equipment to generate cash flows.

With this, we conclude that IronMount is showing signs of stress due to low core operating income and its reliance on other one-time items to generate cash.

LESSON ROUND-UP

- Cash Flow Statement is in statement of changes in cash position from the beginning and till end of the accounting period.
- As per the Companies Act, 2013, Cash Flow Statement is required to be prepared by every company except a one person, small and dormant company.
- Cash comprises cash on hand and demand deposits with banks.
- Cash equivalents are short term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value.
- Accounting Standard (AS) -3 on Cash Flow Statement issued by ICAI is mandatory, AS-3 requires that cash flow statement should report cash flow during the period classified by operating activities, investing activities and financing activities.
- Cash flow means cash inflow and cash outflow.
- Cash inflow means source of cash, and it increases the total cash available at the disposal of the firm.
- Cash outflow means use of cash which decreases the total cash available at the disposal of the firm.
- Net cash flow is the difference between cash inflow and cash outflow.
- Operating activities are the principal revenue activities of the enterprise. These pertain to cash generated by sales and all the operating expenses and are most often the biggest source of cash fl
- Investing activities pertain to the acquisitions and disposal of long-term assets, such as plant, machinery, land and building and other investments.
- Financing activities are those that result in changes in the size and composition of the owner's capital and borrowings of the enterprise.

TEST YOURSELF

1. What is a cash flow statement? State its uses and limitations.
2. Which are the various sources and uses of cash flows from operating activities?
3. What do you mean by cash from operating activities? How is this calculated?
4. Discuss briefly the major classification of cash flows as per AS-3 (Revised).
5. From the following Balance Sheets of Roop Ltd., prepare a cash flow statement.

I. Equity and Liabilities	***2021 (Rs.)***	***2022 (Rs.)***
Equity Share Capital	15000	2,0000
12% Preference share capital	7500	5000
General Reserve	2000	3500
P & L A/c	1500	2400
Creditors	3750	4950
Total	**29750**	**35850**
II. Assets		
Goodwill	3600	2000
Building	8000	6000
Plant	4000	10000
Debtors	11900	15450
Stock	1000	1500
Cash	1250	900
Total	**27950**	**35850**

Depreciation charged on plant was Rs. 1000 and on building Rs. 6000.

[**Ans.** Cash from operations Rs. 8150; Net decrease in cash Rs. 350.

Purchase of plant Rs. 7000; purchase of building Rs. 4000].

6. Calculate Cash Flow from Operating Activity

Balance Sheet

As on 1st January, 2023

I. Equity and Liabilities	***Rs.***
Equity	50,000
Capital	10,000
General Reserve	5,000
Profit & Loss Balance Debentures	20,000
Sundry Creditors	20,000
Proposed Dividend	5,000
Total	**1,10,000**

II. Assets	
Fixed Assets	40,000
Investments	10,000
Sundry Debtors	20,000
Stock	20,000
Cash	15000
Goodwill	5000
Total	**1,10,000**

7. Calculate Cash Flow from Operating Activity

Balance Sheet

As on 1st December, 2022

I. Equity and Liabilities	***Rs.***
Equity	65,000
Capital General Reserve	15,000
Profit & Loss	15,000
Balance Debentures	20,000
Sundry Creditors	20,000
Proposed Dividend	6000
Total	**141500**
II. Assets	***Rs.***
Fixed Assets	50,000
Less : Dep.	45,000
Investment	5,000
Sundry	10,000
Debtors	30,000
Stock	25,000
Cash	31,500
Total	**1,41,500**

[**Ans.** Cash from operations Rs. 16,500; Net increase in cash Rs. 16,500]

8. The Balance Sheets of a Prem Limited Company at 31.3.2021 and 31.3.2022 were as follows :

I. Equity and Liabilities	***31.3.2021 (Rs.)***	***31.3.2022 (Rs.)***
Equity Share Capital	4500	6500
General Reserve	500	750
Profit and Loss Account	1000	1500
Debentures	1000	2000
Sundry	870	1100
Creditors	7870	11850
Assets	Rs.	Rs.
Fixed Assets	4600	8300
Stock	1100	1300
Debtors	1870	1950
Cash	200	2500
Preliminary Expenses	100	50
Total	**7870**	**11850**

Additional information :

Depreciation on fixed assets for the year 2021-22 was Rs. 1170. Prepare a Cash Flow Statement [Ans. Cash from operations Rs. 1850; Net increase in cash Rs. 50]

9. Balance sheet of XYZ is as follows:

I. Equity and Liabilities	***2021 (Rs.)***	***2022 (Rs.)***
Share	7000	7400
Capital Debentures	1200	600
Sundry	1036	1184
Creditors	70	80
Provision for doubtful debts P & L A/c	1004	1056
Total	**10310**	**10320**

II. Assets		
Cash	900	780
Sundry Debtors	1490	1770
Stock	4920	4270
Land	2000	3000
Goodwill	1000	500
Total	**10310**	**10320**

Additional Information :

(i) Dividend totaling Rs. 350 was paid.

(ii) Land was purchased for Rs. 1000 and amount provided for the amortization of goodwill totaled Rs. 500.

(iii) Debentures of Rs. 600 were redeemed. Prepare a Cash flow statement.

[**Ans.** Cash from operations Rs. 1430; Net Decrease in cash Rs. 120]

[Hint : Provision for doubtful debts has been added back to profit to calculate cash from operations]

10. The Balance Sheet of Smartkart Ltd, as at March 31st 2021 and 2022 are given follows :

I. Equity and Liabilities	***2021 (Rs.)***	***2022 (Rs.)***
Accumulated Depreciation	2000	2150
Creditors	720	900
Taxes Payable	600	600
Bills payable	1400	2600
Debentures	3500	3500
Equity capital	5000	6000
Profit and Loss Account	2640	2090
Total	**15860**	**17840**
II. Assets		
Cash	600	800
Debtors	700	1200
Prepaid	360	240
Rent Stock	3200	2800
Investments	4000	4000
Fixed Assets	7000	8800
Total	**15860**	**17840**

Additional information

1. Purchased a new fixed asset costing Rs. 2500; paid Rs. 1300 cash and given short-term bills payable for the remainder.
2. Net loss for the year ending 31-3-2022 was Rs. 150.
3. One fully depreciated asset of an original cost of Rs. 700 and no salvage value was abandoned.

[**Ans.** Cash inflow from operating activities Rs. 900 ; Net increase in cash Rs. 200]

[Hint: Tax paid Rs. 600, Dividend paid Rs. 400 [i.e. 2640 – 150-2090]

11. Anand Ltd., arrived at a net income of Rs. 5,00,000 for the year ended March 31, 2022. Depreciation for the year was Rs. 2,00,000. There was a profit of Rs. 50,000 on assets sold which was transferred to Statement of Profit and Loss account. Trade Receivables increased during the year Rs. 40,000 and Trade Payables also increased by Rs. 60,000. Compute the cash flow from operating activities by the indirect approach.

12. From the information given below you are required to calculate the cash paid for the inventory:

Particulars	***(Rs.)***
Inventory in the beginning	40,000
Credit Purchases	1,60,000
Inventory in the end	38,000
Trade payables in the beginning	14,000
Trade payables in the end	14500

[**Ans.:** Rs. 1,59,500]

13. For each of the following transactions, calculate the resulting cash flow and state the nature of cash flow, viz., operating, investing and financing.

    (a) Acquired machinery for Rs. 2,50,000 paying 20% by cheque and executing a bond for the balance payable.

    (b) Paid Rs. 2,50,000 to acquire shares in Informa Tech. and received a dividend of Rs. 50,000 after acquisition.

    (c) Sold machinery of original cost Rs. 2,00,000 with an accumulated depreciation of Rs. 1,60,000 for Rs. 60,000.

Ans.:

(a) Rs. 50,000 investing activity (outflow);

(b) Rs. 2,00,000 investing activity (outflow);

(c) Rs. 60,000 investing activity (inflow)].

14. State the meaning of the terms: (i) Cash Equivalents, (ii) Cash flows.

LIST OF FURTHER READINGS

- **Advanced Accounts**

  Author: M.C. Shukla, T.S. Grewal & S.C. Gupta

  Publisher: S. Chand & Company Ltd.
- **Corporate Accounting**

  Author: Dr. S. N. Maheshwari & Dr. Suneel K Maheshwari

  Publisher: Vikas Publishing House
- **Fundamentals of Corporate Accounting**

  Author: Bhushan Kumar Goyal

  Publisher: Taxmann
- **Treatise of Ind AS**

  Author: CA. (Dr.) Alok K. Garg

  Publisher: Bloomsbury

Forecasting Financial Statements

Lesson 10

KEY CONCEPTS

■ Financial Statements ■ Financial Forecasting ■ Budgeting ■ Balance Sheet ■ Profit & Loss A/c ■ Cash Flow Statements

Learning Objectives

To understand:

- What is Financial Statements?
- What is Financial Forecasting? Meaning & Introduction
- Importance of Financial Forecasting
- Financial Forecasting vs. Budgeting
- What are the Components and Factors for Financial Forecasting
- Forecasting of Profit & Loss A/c, Cash Flow Statement & Balance Sheet

Lesson Outline

- Introduction
- Financial Statements
- Financial Forecasting – Meaning & Introduction
- Financial Forecasting Components & Factors
- Financial Statement Forecasting
- Forecasting of Profit & Loss A/c
- Forecasting of Cash Flow Statement
- Forecasting of Balance Sheet
- Lesson Round-Up
- Test Yourself

INTRODUCTION

The financial health and performance of entities shall be a matter of great concern for every stakeholder especially for government, regulators and investors reason being the scale and degree of illegal and unethical corporate practices which traumatize the entire world's business. Corporate scandals and failures in several corporations like Enron, WorldCom, and Arthur Andersen and Satyam scam (often termed as 'India's Enron') that raises debates whether entities should issue or use new-fangled perspectives to measure firm performance to maximize shareholders' wealth. The measurement of the financial health of an entity with the help of financial statements provides a qualitative analysis of the entities' position along with how the entities have effectively employed its capital in production. Similar view has been found in the research of Bhunia et al. (2011) that quantitative financial performance analysis through reported results in financial statements would be an indication of effectiveness and efficiency of resources utilization by management. Financial analysis encompasses the use of quantitative information from financial statements in order to establish relationships of the items that are reported by the company according to the accounting standards. By doing this, the entity is able to evaluate "Heart of Business Entity". It gauges the financial health of a potential investment. It provides detailed information about Strength and weakness of entity, Quality of Profit, Quality of Incomes and Revenues to its stakeholders.

According to section 2(40) of Companies Act, 2013 defines "financial statement" in relation to a company, includes a balance sheet as at the end of the financial year, a profit and loss account, or in the case of a company carrying on any activity not for profit, an income and expenditure account for the financial year, cash flow statement for the financial year, a statement of changes in equity, if applicable; and any explanatory note annexed to, or forming part of, any document.

However, every action or inaction of entities / corporate is perceptible from financial statements. Hence, it got practical reliance since Kautilya's time Arthashastra which was written about 2400 years ago. In reality, there has been immense pressure on management to consistently report promising and favorable results of entities which does not reflect economic reality. Similar view has been found in research of Kneer, Reckers & Jennings (1996) that entities have to report flattering results due to management pressure and further suggested that rosy picture of financial statements mostly keep shareholders satisfied with smooth income flows and consistent growth. Albrecht, Wernz & Williams (1995) opined strong financial pressure acted as typical incentives for management fraud and perceiving opportunity to commit and conceal a fraud.

FINANCIAL STATEMENTS

According to section 2(40) of Companies Act, 2013 defines "financial statement" in relation to a company, includes

- a Balance Sheet as at the end of the financial year,
- a Profit and Loss account, or (In the case of a company carrying on any activity not for profit, an income and expenditure account for the financial year),
- Cash Flow Statement for the financial year,
- a Statement of Changes in Equity, if applicable, and
- any explanatory note annexed to, or forming part of, any document.

Financial Statements shall be considered as horoscope if one knows how to read and analyze it then probably by addressing the various early warning signal available in statements would have helped to great extent. The financial statement analysis investigates past, present and future financial, capital and income situation of entities based on information from various detailed components provided through financial statements. It also helps to depict and to interpret the financial situations and developments. The accounting financial

statements are considered as an open source of information as per legislation and their composition, disclosure and presentation structure would be unified by basic parameters. In fact, it provides basis for decision making and reflect the cumulative effects of all management's past decisions for different stakeholders. In nutshell, the purpose of financial statement is to facilitate the possibility of Multiple-Criteria Decision Analysis and to evaluate the effectiveness of the performance of entities.

Korableva and Kalimullina (2014) have observed in their research that timely and high-quality financial statements provide a universal picture of a legal entity's performance, effectiveness, financial stability and health. In fact, it diagnoses the causes of deviations from the previously established indicators and expose the idle resources of production. The essence of financial statements' analysis from the position of a user is to assess and evaluate most significant characteristics of entities which testify, in particular, about its success or the risk of bankruptcy. The analysis of financial statements depends on a specific goal for different users subject to the scale of its implementation and hence the analysis and direction of work can be different and useful for different interested stakeholders. Before we understand and learn about financial forecasting, it is very important to understand following terminologies in order to avoid confusions and ambiguities:

Forecast	A probable event where in the business is likely headed (Estimate of what is likely to happen.)
Budget	Future financial target or goals, which may or may not be equal to the forecast.
Projection	A blueprint of forward-looking business options in answer to "What would happen if". (Scenario: What -if)
Pro Forma	The effects of a future transaction on past financial statements.

FINANCIAL FORECASTING: MEANING AND INTRODUCTION

Financial Forecasting is a process of estimating or predicting a company's financial future by examining historical performance of data like revenue, cash flow, expenses, or sales. It is at the heart of driving business performance and stakeholder's confidence. Financial projections performed to facilitate any decision-making relevant for determining future business performance. It is emphasized on concept of "Today's Commitment for Tomorrow's actions". It basically includes the analysis of past business performance, current business trends, and other relevant factors. In fact, Business honchos who adopt and maintain financial forecasting best practices are better positioned to grow and to weather unexpected setbacks. Moreover, a financial plan that estimates the projected income and projected expenses of a business, and a solid financial forecast contains both macroeconomic factors and conditions that are specific to the organization. A thorough forecast includes but is not limited to short and long-term outlooks on conditions that could impact revenues and contingencies for expenditures not currently viewed as necessary.

Importance of Financial Forecasting

Financial forecasts are a crucial part of business planning, budgeting, operations, funding that help leaders and outside stakeholders make better choices. Few important points have been pointed:

- It serves as the basis for budgeting decisions.
- It gives businesses access to cohesive reports, allowing finance departments to establish business goals that are both realistic and feasible.
- It provides management valuable insights into the way the business performed in the past and the way it will compare in the future.

- It provides a barometer for those making material financial decisions.
- It facilities to build investor relations and Show investors and creditors that your corporate has well and structured plan and is prepared for any unforeseen events impacting revenues and budgets.
- It provides customizable approach based on the core set of foundational components.
- To make accurate budget and facilitates to establish realistic business goals.
- With the help of accurate financial forecasting, problem areas can easily be traced out and company with remedial action plan can reduce the financial risk.
- Many times, accurate and authenticate financial forecast reflecting higher Return on Investment and that helps to build and enhance the investor's confidence.

Financial Forecasting vs. Budgeting

Based on research and expert arguments, a concrete financial plan is built on both forecasting and sound spending guidance. It is important to note that the terms "financial forecasting" and "budgeting" are separate process and can't be used interchangeably. Financial forecasting is a critical first step in the budgeting process. Organizations that work hard to create reliable financial forecasts are more likely to build realistic budgets. Financial forecasting should always precede the budgeting process to ensure spending is in line with factors that can impact overall financial performance. Those who create budgets without financial forecasts are at risk of overspending and not having enough available cash for unexpected costs or shortfalls in revenue. Lacking a forecast may also keep the business from greenlighting a new capital investment or launching a product that may have ended up being a growth driver.

Basis	***Forecast***	***Budget***
Meaning	Mere estimate of what is likely to happen.	Shows that policy and program to be followed in future period under planned conditions
Nature of Event	Probable	Proposed
Tool of control	No	Yes
Base	It's a preliminary step or base for budgeting	Forecasts are converted into budget
Hierarchy	It ends with forecast of likely events	It begins when forecasting ends.
Scope	Wider	Limited

Financial Forecasting Vs Financial Projection

Financial forecast is a statement of management's expectations which is based on what top management reasonably expects will happen to and in the company and the expected financial impacts. This is the information that is published by publicly traded companies for stakeholders and the general public's review. While on the other hand, a financial projection essentially projects the likely outcome of one or more hypothetical scenarios or assumptions. It is a tool used to explore business and market scenarios and predict outcomes before adjusting the company's plans. A financial projection is a snapshot of a possible business outcome that is often weighed in terms of probability.

In nut shell, both financial forecasts and financial projections are forward-looking statements and predict future outcomes based on specific assumptions. But it is important to understand demarcation line of difference between them:

Financial forecasts reveal what is likely to happen based on expected events and business conditions (i.e. Financial forecasts are ***what management expects to happen***.)

Financial projections are ***what might happen in any number of hypothetical scenarios***. For example, keeping in the mind of current market conditions, and seasonal trends, the management of a wholesaler expects sales to increase by 7% over the next quarter. Therefore, a 7% sales increase is his financial forecast for the period. Whereas, company wants to make more profit than that, so he aims for an 10% sales increase. Therefore, his budget calls for an 10% sales increase. The management still expects the company to achieve only 7%, but he hopes for 10%, so he budgets accordingly and aims the sales team at that number. But rather than just crack a whip over the sales team, the Management runs several financial projections to find a way to improve their odds of reaching an 8% or larger sales increase.

FINANCIAL FORECASTING COMPONENTS AND FACTORS

Following components and factors should be considered and incorporated for financial forecasting:

- **Define the purpose of financial forecasting**
- **Collection of historical data and accuracy of data sources**
- **A forward-looking time horizon (12-18-24 Month span)**
- **Formulas to determine how much weight to give any piece of data**
- **Consideration of an Internal and Macro-economic risk**
- **Best/Worst case (Revenue and Expenses) scenarios**
- **Selection of financial forecast method**
- **Documentation/Monitoring/Analysis of data**

FINANCIAL STATEMENT FORECASTING

A common type of forecasting in financial accounting is based on pro forma statements. It focuses on a business's future reports which are highly dependent on assumptions made during preparation, such as expected market conditions. Because the term "pro forma" refers to projections or forecasts, pro-forma statements apply to any financial document incorporating Statement of P&L, Balance sheet and Cash flow statements. Various methods are used for forecasting financial statements. Basically there are two methods namely Quantitative methods and Qualitative methods. Quantitative forecasting methods are used to make assumptions about the future based on historical data. Whereas, Qualitative forecasting relies on experts' knowledge and experience to predict performance rather than historical numerical data. These forecasting methods are often called into question, as they're more subjective than quantitative methods and they can provide valuable insight into

forecasts and account for factors that can't be predicted using historical data. Both the methods are discussed below:

(1) Based on Revenue (% of Turnover)

As per this method, items like costs of goods sold (COGS), Stock and cash are calculated as a percentage of sales. Those percentages are then applied to future sales estimates to project each line item's future value. For example, COGS is likely to increase proportionally with turnover; therefore, it's to apply the same % estimate to each. To forecast the percent of sales, examine the percentage of each account's historical profits related to sales. To calculate this, divide each account by its sales, assuming the numbers will remain steady. For example, if COGS has historically been 30% of sales, assume that trend will continue.

(2) Moving Average Method

It is categorized into two parts namely, **The average or Weighted average** of previous periods to forecast the future. It is closely scrutinizing a business's high or low demands. Hence, it is more suitable for short-term forecasting. For example, you can use it to forecast next month's sales by averaging the previous quarter. Using weighted averages to incorporate current periods can increase the accuracy of moving average forecasts. For Moving Average:

$$P1+P2+P3.../N$$

P = Average for a period

N = Total number of periods

(3) Constant Growth Rate

It assumes a company's historical growth rate will remain constant. Forecasting future revenue involves multiplying a company's previous year's revenue by its growth rate. Say, if Growth rate was 12% in 2021-22 (i.e. P.Y), then, Constant rate @12% forecasting for 2022-23 (Next year) shall be considered as it excludes market fluctuations or supply chain issues.

(4) Regression Method

This method is based on a relationship between two variables : dependent and independent. The dependent variable represents the forecasted amount, while the independent variable is the factor that influences the dependent variable. E.g. Advertisement expense (Independent Variable) and Sales (Dependent). It means change in advertisement expense would lead to change in sales. It is based on equation:

$$Y = BX + A$$

Y= Dependent variable (Forecasted number)

B = Slope line

X = Independent variable

A = Y-intercept

(5) Delphi Method

The Delphi method i.e. Estimate-Talk-Estimate Technique (ETE) is a systematic and qualitative method of forecasting by collecting opinions from a group of financial experts through several rounds of questions. The Delphi method relies on experts who are knowledgeable about a specific area so they can forecast the outcome of future scenarios, predict the likelihood of an event, or reach consensus about a particular

topic. The financial experts then fill out another questionnaire that gives them the opportunity to provide updated opinions based on what they understand from the summary report. It is one of most important qualitative method.

FORECASTING OF PROFIT & LOSS (PROFITABILITY PROJECTIONS)

Typically, the starting point for Profit & Loss forecasting is to forecast of sales revenue. Moreover, the sales production is closely interrelated. Hence they should be estimated together. Few points should be considered while projection of profitability:

- It is advisable not to assume full Capacity utilization in the beginning year of operation. It means capacity utilization should be low in beginning years and rise gradually to reach the maximum level.
- It may be assumed that sales and production would be equal. Hence, adjustments towards finish goods stock is not required.
- Revenue shall be considered net of excise duty.
- So far as, the cost of production is concerned, the requirements of material per unit of output shall be considered and prices of are defined in Cost, Insurance and Freight (CIF) terms.
- Inflation factor shall be ignored and present cost of material shall be considered.
- Seasonal fluctuations in prices must be considered while estimation.

Following statement may be used for Profitability Projections :

Particulars	***Amount Rs***
Revenue (Sales)	***
Less: Variable Cost	***
Contribution	***
Less: Fixed Cost • Depreciation • Other	***
EBIT	***
Less: Interest	***
EBT	***
Less: Tax	***
EAT (PAT) [Profit for the Year]	***

Case: 1

You are the Company Secretary of DP ltd and assigned task of profitability projections of difference scenarios based on historical data provided: (Rs in Cr.)

Revenue (Sales)	200
Variable cost (60% of Sales)	120
Fixed Cost (others)	20
Depreciation	25
Taxes	10
Cash flow from operation	50
Net Cash flow	50

Company is forecasting that sales will be increased by 37.5% approximately keeping in the mind of Market forces whereas, the variable cost will be forecasted at 56% of sales. Company is in the anticipation of having fixed cost of Rs.15 cr. On the other side (i.e.) on worst situation, Company is forecasting the that sales will be curb by 25% approximately keeping in the mind of Market forces whereas, the variable cost will be forecasted at 65% of sales. Company is in the anticipation of having fixed cost of Rs. 25 cr. It is forecasted that depreciation remains unchanged in case of any scenario and tax rate shall be applicable at 28.57%.

Solution:

Statement showing Profitability Projection (Rs in Cr.)

Particulars	***Historical Data***	***Optimistic Scenario***	***Pessimistic Scenario***
Sales	200	275 (200+37.5%)	150 (200-25%)
Less: Variable cost	(120) (60% of sales)	(154) (56% of 275)	(97.5) (65% of 150)
Contribution	80	121	52.5
Less: Fixed Cost			
• Other	(20)	(15)	(25)
• Depreciation	(25)	(25)	(25)
EBIT/EBT	35	81	2.5
Less: Tax (28.57%)	(10)	(23.14)	(0.71)
EAT	25	57.86	1.79

So, it can be seen from the above forecasting that, in case of optimistic scenario, company may earn profit Rs. 57.86 crores (i.e. increase in profitability 131% approx) against the historical data. While, profitability will be lower projected in worst situation i.e. around Rs. 1.79 cr. (i.e., Decrease in profitability 93% approx as

FORECASTING OF CASH FLOW STATEMENT

It is a statement of change in Cash and cash equivalents. Statement covers three activities namely Net Cash from Operating Activities, Net Cash from Investing Activities, and Net Cash from Financing Activities. Basically, Cash Flows are Inflows and Outflows of cash and cash equivalents. It is normally prepared and presented for each period for which financial statements are presented. Cash Flow arises when the net effect of transaction is either increase or decrease the amount of cash and cash equivalents. Let's understand different activities briefly:

(1) Operating Activities:

So far as operating activities is concerned, they are the principal revenue producing activities of business and generally result from the transactions and other event that enter into the determination of net profit or loss. It reflects Company's ability to generate adequate operating cash flow helps in gaining confidence of the external parties like lenders and investors. Company with high surplus cash flow from operation has high market capitalization and which indicates quality of earnings.

Net Profit Vs Cash from Operating Activities

Points	*Net Profit*	*Cash from Operating Activities*
Meaning	It indicates net result of operating and non-operating activities carried out during accounting year.	It indicates cash flow as result of operating activities.
Non-Cash Items	It is computed after taking into consideration the effect of Non-cash items.	It is computed excluding the effect of Non-cash items as it is merely book entries.

Note:

- It's not profit that repays loan; it is the cash that repays loan.
- Non-cash items (shown as foot note) include
- . Depreciation
  - ii. Issue of shares/dentures for consideration other than cash
  - iii. Conversion of debentures into equity shares
  - iv. Purchase of business by issue of shares

(2) Investing Activities:

It basically deals with Proceeds from sale/disposal of Non-Current Assets (whether Tangible/Intangible/Depreciable/Non-Depreciable) and Non-Operating incomes from investments shall be added such as :

i. Dividend received on shares held as investment

ii. Interest received on debentures held as investment

iii. Rent received from property held as investment

Lenders will be able to know where company has deployed the cash. Whether company has acquired assets related to business, purchased machinery or made investment outside business. If company keeps investing in the CAPEX that indicates the company is focused on capacity building for future growth. If company keeps investing in financial assets like shares, debentures etc would indicate that management is not very much focused on expansion.

(3) Financing Activities:

It demonstrates the nature of capital structure of entity and reflects the picture of borrowers financing policy. As a lender, it is inevitable to match dividend pay-out with operating cash flow. Amount of dividend should not exceed the operating cash flow.

Following statement may be used for Cash Flow Forecasting :

Particulars	***Amount Rs***
Net Cash From Operating Activities [A]	***
Net Cash From Investing Activities [B]	***
Net Cash From Financing Activities [C]	***
Total A+B+C	***
Add: Opening balance of Cash and Cash Equivalents	***
Closing balance of Cash and Cash Equivalents	***

Following Points to be considered while preparing cash flow projections

- It's not profit that repays loan; it is the cash that repays loan.
- It is important to disassociate the cash position from the profit of business entity.
- Timing of revenue recognition and expenses don't match with timing of cash inflow and outflow.
- Banks should shift to cash flow-based lending from traditional assets-based lending.
- If company is not doing well, sales and net profit may increase due to window dressing of account but quality of earning (i.e., operating cash flow) may decline.
- If Net operating cash flow shows consistently declining trend over the period of 3-5 years, it's an indication of incipient sickness.
- If company keeps investing in the CAPEX that indicates the company is focused on capacity building for future growth.
- If company keeps investing in financial assets like shares, debentures etc would indicate that management is not very much focused on expansion.
- As a lender, it is inevitable to match dividend pay-out with operating cash flow.
- Amount of dividend should not exceed the operating cash flow.

Case:2

Following is the balance sheet of XL ltd at the end of 2022 is as follows and you are required to forecast Cash flow for 2023. (Rs. in cr.)

Liabilities	***Amount Rs***	***Assets***	***Amount Rs***
Share Capital	100	Fixed Assets	180
Reserves and Surplus	20	Current Assets:	
Secured Loans	80	Cash	20

Unsecured Loans	50	Trade Receivables	80
Current liabilities	90	Inventories	80
Provisions	20		
Total	**360**	**Total**	**360**

The projected Profit & Loss for the year 2023 is given below:

Revenue from operation	400
Cost of Goods Sold	300
Depreciation	20
Profit Before Interest and taxes	80
Interest	20
PBT	60
Tax	30
PAT	30
Dividend	10
Retained Earnings	20

During the year 2023, company has forecasted to raise secured term loan of Rs. 20 crore and repay of previous term loan to the extent of Rs. 5 crore and increase unsecured loan by Rs. 10 crore. It is forecasted that current liabilities and provisions remains unchanged. While, company is planning to buy fixed assets worth Rs. 30 crore and increase the inventories and receivables by Rs. 10 crore and Rs. 15 crore respectively. Company is in the projection of paying dividend of Rs. 10 crore. Assuming other asset would remain unchanged except cash.

Solution:

Statement showing forecasted Cash Flow

Particulars	***Amount (Rs.)***
Profit before Interest and Taxes	80
Add: Depreciation	20
Operating Profit before Working Capital Changes	100
Less:	
• Increase in Inventories	(10)
• Increase in receivables	(15)

Cash Generated from Operation	75
Less: Tax	(30)
Net Cash Flow from Operating Activities [A]	**45**
Increase in Fixed Assets (CAPEX)	(30)
Net Cash flow from Investing Activities [B]	**(30)**
Increase in Secured Loan (20-5)	15
Increase in Unsecured Loan	10
Interest	(20)
Dividend	(10)
Net Cash flow from Financing Activities [C]	**(5)**
A+B+C	**10**
Add: Opening balance of Cash and Equivalents (Refer Balance sheet)	20
Closing balance of Cash and Equivalents	**30**

FORECASTING OF BALANCE SHEET

The balance sheet, showing the balances in various assets, equity and liabilities of corporates and which reflects the financial conditions of firms at given point of time. The forecasted balance sheet may be prepared based on following format.

Particulars	*Note No.*	*Figures for Historical data*	*Figures for forecasted data*
I. EQUITY AND LIABILITIES			
1. Shareholders Fund a. Share capital b. Reserves and Surplus (e.g., Debit balance of P&L as negative figure) c. Money received against share warrants **2. Share application Money Pending Allotment** **3. Non-Current Liabilities** a. Long term borrowings b. Deferred Tax Liabilities c. Other Long-term liabilities d. Long term Provisions			

4. Current Liabilities a. Short term Borrowings b. Trade payables c. Other Current Liabilities d. Short term Provisions			
Total			
II. ASSETS			
(1) Non-Current Assets a. Fixed Assets i. Tangible assets ii. Intangible assets iii. Capital Work in progress iv. Intangible assets under Developments b. Non-current Investments c. Deferred Tax Assets (Net) d. Long term loans and Advances e. Other Non-current Assets **(2) Current Assets** a. Current Investments b. Inventories c. Trade Receivables d. Cash and Cash Equivalents e. Short term loans and advances f. Other Current Assets			
Total			

Case:3

Following is the balance sheet of Wye ltd at the end of 2022 is as follows and you are required to forecast Cash flow for 2023. (Rs in cr.)

Liabilities	***Amount Rs***	***Assets***	***Amount Rs***
Share Capital	100	Fixed Assets	180
Reserves and Surplus	20	Current Assets:	
Secured Loans	80	Cash	20
Unsecured Loans	50	Trade Receivables	80

Unsecured Loans	50	Trade Receivables	80
Current liabilities	90	Inventories	80
Provisions	20		
Total	**360**	**Total**	**360**

The projected Profit & Loss for the year 2023 is given below:

Revenue from operation	400
Cost of Goods Sold	300
Depreciation	20
Profit Before Interest and taxes	80
Interest	20
PBT	60
Tax	30
PAT	30
Dividend	10
Retained Earnings	20

During the year 2023, company has forecasted to raise secured term loan of Rs. 20 crore and repay of previous term loan to the extent of Rs. 5 crore and increase unsecured loan by Rs. 10 core. It is forecasted that current liabilities and provisions remains unchanged. While, company is planning to buy fixed assets worth Rs. 30 crore and increase the inventories and receivables by Rs. 10 crore and Rs.15 crore respectively. Company is in the projection of paying dividend of Rs. 10 crore. Assuming other assets would remain unchanged except cash.

Solution:

Statement showing forecasted Balance Sheet

Equity and Liabilities	***Note***	***Historical (Rs. in core)***	***Forecasted (Rs. in core)***	
Shareholders Fund:			***Changes***	***Rs***
Share Capital		100	-	100
Reserves and Surplus		20	20 (Retained Earning)	40
Non-Current Liabilities				
Secured Loans		80	+20 (Addition) -5 (Repayment)	95
Unsecured Loans		50	+10 (Addition)	60
Current Liabilities		90	-	90

Provisions		20		20
Total				**405**
Assets				
Non-Current Assets:				
Fixed Assets		180	+30 (CAPEX) -20 (Depreciation)	190
Current Assets:				
Cash		20		**30** (Balancing Amount)
Inventories		80	+10 (Increase)	90
Trade Receivables		80	+15 (Increase)	95
Total				**405**

Cash Flow Projections

Points to be considered:		
Estimation of Cash Flow	• Cash outflow (Cash outlay) • Cash Inflow	
Cash Outflow	• Estimated by Engineering & Product Development	
Revenue Projection	• Estimated by Marketing Group	
Operating Cost	• Estimated by Production people, CMA, Purchase Managers, Personnel executives, tax payers and others	
Overall coordination	• By Finance Managers	
Cash flow stream	Initial Investment	• After tax Cash outlay on **CAPEX & NWC** (At the time of Set up of Project)
	Operating Cash inflows	• After tax cash inflow from **operation of project** *during economic life*.
	Terminal Cash inflows	• After tax cash inflow from **Liquidation of project** *at the end of economic life*.
Time horizon of cash flow analysis	1. Physical life of plant 2. Technological life of plant 3. Product Market Life of plant 4. Investment planning horizon of the firm	
Best Measurement Criteria (Cash flow)	• Profit cannot be spent • Profit is subjective and Judgment based	

Factors focusing cash flow	• Depreciation • Change in Working capital • Deferred tax • Capitalization of R&D Expenses • Opportunity costs
List of Relevant cash flows for decision making	• Cost of New Plant/Machine • Scrap Value (Salvage/Residual Value) of old/New Plant/Machine • Working Capital • Cost reduction/Saving • Tax liability/Benefits
List of Irrelevant cash flows:	• Sunk Cost • Allocated overheads • Committed cost (Fixed Cost) • Non-cash items (Depreciation)

Note:

Particulars	***Free Cash Flow to Firm (FCFF)***		***Free Cash Flow to Equity (FCFE)***	
Meaning	Cash Flow available to both equity and debt holders		Cash Flow available to common equity shares holders	
Leverage	Excludes (i.e. unlevered Cash Flow)		Includes	
Application	To compute Enterprise Value		To compute Equity Value	
Risk Factor	WACOC (i.e. Ko)		Ke	
Formula	Profit after Tax 'PAT'	**	Profit after Tax 'PAT'	**
	Add: Depreciation and NC*	**	*Add:* Depreciation and NC*	**
	Cash Flow After Tax	**	**Cash Flow After Tax**	**
			Less: Preference Dividend	
	Less: Change in Working Capital	**	*Less:* Change in Working Capital	**
	Less: Change in investment$	**	*Less:* CAPEX	**
	FCFF	**	*Less:* Repayment of Debt/Pref.	**
	OR		*Add:* Proceeds from Debt/Pref.	
	Cash Flow from operation	**	*Add:* New debt issue	
	Add: Interest*(1-t)	**	**FCFE**	**
	Less: CAPEX	**		
	FCFF	**		
	$ investment includes total debt and preference share capital also. *NC – Non-cash charges			

Basic Principles and Biases of Cash flow Estimation

Separation Principle

- Cash flow associated with Investment side and financing side should be separated.
- Focus on Net Operating Profit After Tax [i.e. PAT + Interest(1-t)]

Incremental Principle

- Focus on Cash flow for firm with project less without project.

Post Tax Principles

- Cash flow should be measured on "After Tax Basis".
- Important issues:
  1. What tax rate should be used to assess tax liability?
  2. How to treat losses?
  3. What is the effect of non-cash charges?

[1] What tax rate should be used to assess tax liability?

- Use Marginal Rate of tax instead of Average Rate of Tax

[2] How to treat losses?

Alt	Project	Firm	Action
1	Loss	Loss	Defer Tax Saving
2	Loss	Profit	Take tax saving in yr of loss
3	Profit	Loss	Defer taxes until firm makes profit
4	Profit	Profit	Consider tax in yr of profit
Stand alone	Loss	-	Defer tax saving until project makes profit

[3] What is the effect of non-cash charges?

Examples:

i. Depreciation
ii. Issue of shares/dentures for consideration other than cash
iii. Conversion of debentures into equity shares
iv. Purchase of business by issue of shares
v. Deferred Tax Charge (or Benefit) and MAT Credit entitlement.

Note: Tax benefit of depreciation (Depreciation*Marginal Tax Rate)

Deferred Tax Liability or Assets:

- There is a difference between taxable income (As per Income Tax Regulations) and Accounting Profit (As per GAAP)
- Difference may be permanent or temporary
- Permanent Difference (i.e. Some income is exempted but included in accounting profit)
- Temporary Difference (Timing Difference)

	➢ Depreciation charged as per WDV for taxable income but as per SLM for accounting profit. ➢ Differences are found on year to year but total depreciation charges over the life of asset would be same under both the methods. ● When Deferred Tax Liability or Assets arises? Because of temporary difference between taxable income and accounting profit. Deferred Tax Liability (Assets) is recognized when charge in the financial statements is less (More) than the amount allowed for the tax purpose.
Consistency Principle	● Cash flow and discount rates applied to these cash flows must be in consistent with respect to investor group and inflation. ● Free Cash Flow to Firm ● Free Cash Flow to Equity ● Incorporate the expected inflation in the estimates of future cash flow and apply nominal discount rate (NDR). ● NDR=[(1+RDR) *(1+EIR)]-1 Where, RDR=Real Discount Rate EIR = Expected Inflation Rate
Biases in Cash Flow Estimation	Because of the nature of cash flow estimation, it deals with future and errors in estimation are bound to occur. Hence, critical importance of forecasting of cash flow is given and adequate care should be given to guard against certain biases which may lead to overstatement or understatement of profitability and don't reflect true and fair view of corporate performance. Overstatement of profitability in terms of executives faulty planning, over optimism which mainly deals with cognitive bias and organizational pressure. Whereas Understatement of profitability deals with under estimation of salvage value, ignorance of intangible benefits and sometimes value of future options will be overlooked.

Case:4

Y Ltd recently reported the following income Statement Rs in Cr.

Sales	700
Operating Cost	500
EBIT	200
Interest	40
EBT	160
Taxes@40%	64

EAT (Net Income)	96
Dividend	32
Retained Earnings	64

This year company is forecasting 25% increase in sales and it expects that its year end operating cost will be around 70% of sales. It is expected that tax rate, interest and dividend pay-out ratio will be constant. You are required to compute projected Net Income and expected growth rate in dividend.

Solution:

Statement showing Projected Profit & Loss

Particulars	**Amount (Rs in cr.)**
Sales (700+25%)	875
Less: Operating Cost (70% of 875)	612.5
EBIT	262.5
Less: Interest	40
EBT	222.5
Less: Tax @40%	89
EAT (Net Income)	133.5
Dividend (33.33% *133.5)	44.50

Note: 1

Dividend Pay-out Ratio (Existing Year) = [Dividend/Net Income] *100

= [32/96] *100 = 33.33%

Note: 2 Expected Growth in Dividend

= [(44.5-32)/32] *100

= 39.06%

Case: 5

At the end of last year, X ltd reported the following income statement (Rs in Cr.)

Sales	3000
Operating Cost excluding depreciation	2450
EBITDA	550
Depreciation	250
EBIT	300
Interest	125

EBT	175
Taxes @40%	70
EAT (Net Income)	105

Looking ahead to the following year, the company management has assembled the following information.

- Year-end sales are expected to be 10% higher than last year.
- Year-end Operating Cost excluding depreciation are expected to equal 80% of year-end sales.
- Depreciation is expected to increase at the same rate as sales.
- Interest costs are expected to remain unchanged.
- Interest costs are expected to remain unchanged.
- Tax rate is expected to remain at 40%.

Based on the above information, what will be the forecast for year-end net income?

Solution:

Statement showing Projected Profit & Loss (Rs in cr.)

Sales (3000+10%)	3300
Less: Operating Cost (80% of 3300)	2640
EBITDA	660
Less: Depreciation (250+10%)	(275)
EBIT	385
Less: Interest	(125)
EBT	260
Less: Tax @40%	(104)
EAT (Net Income)	**156**

Practice Case: 6

X ltd recently reported the following 2022 income statement (Rs in cr.)

Sales	1528
Operating Cost	933
EBIT	595
Interest	95
EBT	500
Taxes@40%	200
EAT (Net Income)	300
Dividend (25%)	75
Retained Earnings	225

This year company is forecasting 20% increase in sales and it expects that its year end operating cost will be around 60% of sales. It is expected that tax rate, interest and dividend pay-out ratio will be constant. You are required to compute projected Net Income and expected growth rate in dividend.

[Answer: 383.06, 27.69%]

LESSON ROUND-UP

- According to section 2(40) of Companies Act, 2013 defines "financial statement" in relation to a company, includes
    a. a Balance Sheet as at the end of the financial year,
    b. a Profit and Loss account, or (In the case of a company carrying on any activity not for profit, an income and expenditure account for the financial year)
    c. Cash Flow Statement for the financial year,
    d. a Statement of Changes in Equity, if applicable; and
    e. Any explanatory note annexed to, or forming part of, any document.
- Forecast: A probable event where in the business is likely headed (Estimate of what is likely to happen.)
- Importance of Forecasting
- Financial Forecasting vs Budgeting
- Financial Forecasting Components and Factors
    a. Based on Revenue
    b. Moving Average Method
    c. Constant Growth Rate
    d. Regression Method
    e. Delphi Method

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation)

Descriptive Questions

1. What is Financial Forecasting? Explain its Importance.
2. Difference between Financial Forecasting vs budgeting.
3. What are the Components and Factors of Financial Forecasting?
4. Methods of Financial Forecasting? Explain with example.

Practical Question

1. You are the Company Secretary of DP ltd and assigned task of profitability projections of difference scenarios based on historical data provided: (Rs in Cr.)

Revenue (Sales)	200
Variable cost (60% of Sales)	120

Fixed Cost (others)	20
Depreciation	25
Taxes	10
Cash flow from operation	50
Net Cash flow	50

Company is forecasting that sales will be increased by 37.5% approximately keeping in the mind of Market forces whereas, the variable cost will be forecasted at 56% of sales. Company is in the anticipation of having fixed cost of Rs.15 cr. On the other side (i.e.) on worst situation, Company is forecasting the that sales will be curb by 25% approximately keeping in the mind of Market forces whereas, the variable cost will be forecasted at 65% of sales. Company is in the anticipation of having fixed cost of Rs. 25 cr. It is forecasted that depreciation remains unchanged in case of any scenario and tax rate shall be applicable at 28.57%.

2. Following is the balance sheet of XL ltd at the end of 2022 is as follows and you are required to forecast Cash flow for 2023. (Rs in cr.)

Liabilities	***Amount Rs***	***Assets***	***Amount Rs***
Share Capital	100	Fixed Assets	180
Reserves and Surplus	20	Current Assets:	
Secured Loans	80	Cash	20
Unsecured Loans	50	Trade Receivables	80
Current liabilities	90	Inventories	80
Provisions	20		
Total	360	Total	360

The projected Profit & Loss for the year 2023 is given below:

Revenue from operation	400
Cost of Goods Sold	300
Depreciation	20
Profit Before Interest and taxes	80
Interest	20
PBT	60
Tax	30
PAT	30
Dividend	10
Retained Earnings	20

During the year 2023, company has forecasted to raise secured term loan of Rs. 20 crore and repay of previous term loan to the extent of Rs. 5 crore and increase unsecured loan by Rs. 10 crore. It is forecasted that current liabilities and provisions remains unchanged. While, company is planning to buy fixed assets worth Rs. 30 crore and increase the inventories and receivables by Rs. 10 crore and Rs. 15 crore respectively. Company is in the projection of paying dividend of Rs. 10 crore. Assuming other asset would remain unchanged except cash.

Introduction (Financial Management)

Lesson 11

KEY CONCEPTS

■ Nature, Scope & Objectives of Financial Management ■ Shareholder Value ■ Public Finance ■ Personal Finance ■ Corporate Finance ■ Profit Maximization vs. Wealth Maximization

Learning Objectives

To understand:

- Nature, Scope and Objectives of Financial Management
- Risk and Return and its impact on the value of the firm
- Objectives of the firm- Profit Maximisation vs. Wealth Maximisation
- Emerging Role of the Finance Managers
- Challenges for Finance Managers
- Investment Decision Analysis

Lesson Outline

- Introduction
- Nature, Scope and Objectives of Financial Management
- Risk-Return and Value of the Firm
- Objective of the Firm : Profit Maximisation vs. Wealth Maximisation
- Emerging role of Finance Managers
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

FINANCIAL FRAMEWORK

1. Elements of Investment Decisions
2. Elements of Financing Decisions
3. Elements of Dividend Decisions
4. Costing and Risk
5. Profit Maximisation Vs. Shareholder Wealth Maximisation
6. Relationship of Finance to Economics and Accounting

INTRODUCTION

Suppose a person is planning to commence business and no matter what the nature of the proposed business be and how it is organised, he needs to address the following pertinent questions:

i) What capital investments he needs to make? That is, what kinds of real estate, machineries, R&D programmes, IT infrastructure, and so on should he invest in?

ii) How will he procure capital to pay for the proposed capital investments? That is, what will be the fusion of equity and debt in the proposed capital structure or financial plan?

iii) How will he deal with the day-to-day financial activities such as collection of receivables and paying to the suppliers of raw materials and other key services?

Now as already mentioned, the above mentioned vital questions are witnessed by every entrepreneur, companies, organisations etc. in starting and managing the business. In this regard, the extensive knowledge of financial management can assist substantially in forming robust financial decisions.

Financial management emerged as a distinct field of study at the turn of the 20th century. Its evolution may be divided into three broad phases (though the demarcating lines between these phases are somewhat arbitrary)- the traditional phase, the transitional phase, and the modern phase.

The traditional phase lasted for nearly four decades. The following were its important features:

a) The focus of financial management was mainly on certain episodic events like formation, issuance of capital, major expansion, merger, reorganisation, and liquidation in the life cycle of the firm.

b) The approach was mainly descriptive and institutional. The instruments of financing the institutions and procedures used in capital markets, and the legal facets of the financial events formed the core of financial management.

c) The outsider's point of view was dominant. Financial management was viewed mainly from the point of view of the investment bankers, lenders, and other outside interests.

A typical work of the traditional phase is the *The Financial Policy of Corporations* by Arthur S. Dewing. This book discusses at length the forms of securities, procedures used in issuing these securities, bankruptcy, reorganisations, mergers, consolidations, and combinations.

The treatment of these topics is essentially descriptive, institutional, and legalistic.

The *transitional phase* began around the early 1940s and continued through the early 1950s. Though the nature of financial management during this phase was similar to that of the traditional phase, higher emphasis was placed on day-to-day problems faced by financial managers in the areas of funds analysis, planning, and control. The focus shifted to working capital management. A representative work of this phase is *Essays on Business Finance* by Wilford J. Eitman *et al.*

The *modern phase* began in the mid 1950s and has witnessed an accelerated pace of development with the infusion of ideas from economic theory and application of quantitative methods of analysis. The distinctive features of the modern phase are-

a) The central concern of financial management is considered to be a rational matching of funds to their uses so as to maximise the wealth of current shareholders.

b) The approach of financial management has become more analytical and quantitative.

Since the beginning of the modern phase many significant and seminal developments have occurred in the domain of capital budgeting, asset pricing theory, capital structure theory, efficient market theory, option pricing theory, agency theory, valuation models, dividend policy, working capital management, financial modelling, and behavioural finance. Many more exciting developments are in the offing making finance an attractive and challenging field.

MEANING OF FINANCE

Finance is the backbone of any business. It helps in defining the feasible area of operation for any type of business activities and therefore is the foundation for any strategic planning. It may also be defined as an art or a science of managing money. Finance function is the procurement of funds and their effective utilization in business concerns.

In other words, finance is considered to be the foundation of basic activities of any business. Particularly in production and marketing activities, finance functions in the same way as oil functions in the operation of machines or blood functions in the human body. In the absence of finance, nobody can imagine either of setting up a business or its operations and development. The term finance is derived from the Latin word 'finis' which means end/finish. Finance can also be interpreted in many ways such as fund, money, investment, capital, amount etc. Finance act as a medium for business which involves the acquisition and usage of funds in various departments such as production department, purchase department, research and development etc.

Finance also refers to the science that describes the management, creation and study of money, banking, credit, investments, assets and liabilities. Finance consists of financial systems, which include public, private and government bodies and the study of finance and financial instruments, which can relate to countless assets and liabilities.

Webster's Ninth New Collegiate Dictionary defines finance as the 'Science on study of the management of funds' and the management of fund as the system that includes the circulation of money, the granting of credit, the making of investments, and the provision of banking facilities.

Finance is a term for matters regarding the management, creation, and study of money and investments. It involves the use of credit and debt, securities, and investment to finance current projects using future income flows. Because of this temporal aspect, finance is closely linked to the time value of money, interest rates, and other related topics.

Finance can be broadly divided into three categories:

- Public finance
- Corporate finance
- Personal finance

A brief description of the above mentioned broad categories of finance is provided below-

i) **Public finance:** Central government, State government and Local government—all use finances which are obtained from various sources and which are used according to predetermined policies and

procedures. Governments have the right to collect finances or revenues through taxation and other means and have authorities to use such finances within the constitutional limits.

However, the objectives of Governmental activities are not to earn profit like private institutions, the objectives are to achieve social and economic upliftment. Government raises and uses finances for attaining the objective of maximum social advantage. That is why 'public finance' has been made a separate branch of study, wherein government financial matters are studied thoroughly and formally.

ii) **Corporate finance**: Corporate finance is the subfield of finance that deals with how corporations address funding sources, capital structuring, accounting, and investment decisions.

Corporate finance is often concerned with maximizing shareholder value through long- and short-term financial planning and the implementation of various strategies. Corporate finance activities range from capital investment to tax considerations. Corporate finance is concerned with how businesses fund their operations in order to maximize profits and minimize costs. It deals with the day-to-day operations of a business' cash flows as well as with long-term financing goals (e.g., issuing bonds) and in addition to capital investments, corporate finance is concerned with monitoring cash flows, accounting, preparing financial statements, and taxation.

iii) **Personal finance:** Personal finance is a term that covers managing your money as well as saving and investing. It encompasses budgeting, banking, insurance, mortgages, investments, and retirement, tax, and estate planning. The term often refers to the entire industry that provides financial services to individuals and households and advises them about financial and investment opportunities.

Individual goals and desires—and a plan to fulfil those needs within your financial constraints—also impact how you approach the above items. To make the most of your income and savings, it's essential to become financially savvy—it will help you distinguish between good and bad advice and make intelligent financial decisions.

DEFINITION OF FINANCIAL MANAGEMENT

Financial management is an integral part of overall management. The term financial management has been defined by different experts as under :

"It is concerned with the efficient use of an important economic resource namely, capital funds". – **Solomon**

Financial management "as an application of general managerial principles to the area of financial decision-making. – **Howard and Upton**

Financial management "is an area of financial decision-making, harmonizing individual motives and enterprise goals". – **Weston and Brigham**

Financial management "is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations. – **Joseph and Massie**

"Financial management is the activity concerned with planning, raising, controlling and administering of funds used in the business." – **Guthman and Dougal**

"Financial management is that area of business management devoted to a judicious use of capital and a careful selection of the source of capital in order to enable a spending unit to move in the direction of reaching the goals." – **J.F. Brandley**

"Finance is the art and science of managing money". – **Khan and Jain**

S.C. Kuchal – "Financial Management deals with procurement of funds and their effective utilization in the business".

According to the **Wheeler**, "Business finance is that business activity which concerns with the acquisition and conversation of capital funds in meeting financial needs and overall objectives of a business enterprise".

E.W Walker- "Business finance is to planning, coordinating, controlling and implementing of financial activities of business institution."

Henry Hoagland- "Business Finance is concerned with the financing and investment decisions made by the management of companies in pursuit of corporate goals."

Professor Gloss and Baker- "Business finance is concerned with the sources of funds available to enterprises of all sizes and the proper use of money or credit obtained from such sources."

Parhter and Wert- "Business finance deals primarily with raising, administering and disbursing funds by privately owned business units operating in non-financial fields of industry".

According to the Encyclopedia of Social Sciences, "Corporation finance deals with the financial problems of corporate enterprises. These problems include the financial aspects of the promotion of new enterprises and their administration during early development, the accounting problems connected with the distinction between capital and income, the administrative questions created by growth and expansion, and finally, the financial adjustments required for the bolstering up or rehabilitation of a corporation which has come into financial difficulties".

Thus, financial management is broadly concerned with raising of funds, creating value to the assets of the business enterprise by efficient allocation of funds. It is the study of integration of the flow of funds in the most optimal manner to maximize the returns of a firm by taking proper decisions in utilizing the funds. In other words, raising of funds should involve minimum cost and to bring maximum returns.

NATURE, SCOPE AND OBJECTIVES OF FINANCIAL MANAGEMENT

In modern times, we cannot imagine a world without the use of money. In fact, money is the life-blood of business because all our economic activities are carried out through the use of money. For carrying on business, we need resources which are pooled in terms of money. It is used for obtaining physical and material resources for carrying out productive activities and business operations which affect sales and pay compensation to suppliers of resources, physical as well as monetary. Hence financial management is considered as an organic function of a business and has rightly become an important one.

Finance is an essential and indispensable part of any organization. It is difficult for organizations, whether profit-making or otherwise, to sustain themselves for long without proper finances. Not just that, the efficient management of these financial resources is essential to be sustainable and viable in the long-run.

A group of experts defines Financial Management as simply the task of providing funds needed by the business or enterprise on terms that are most favourable in the light of its objectives. The approach, thus, is concerned almost exclusively with the procurement of funds and could be widened to include instruments, institutions and practices through which funds are raised. It also covers the legal and accounting relationship between a company and its sources of funds. Financial Management is certainly broader than procurement of funds.

Financial management is strategic planning, organising, directing, and controlling of financial undertakings in an organisation. It also encompasses applying management principles to the financial assets of an organisation, while also playing a significant part in fiscal management.

Financial management refers to the effective and efficient planning, organizing, directing and controlling the financial activities and processes of an organization. This includes but is not limited to fund procurement, allocation of financial resources, utilization of funds, etc.

It is to be noted that financial management is pervasive and is applicable to all forms of organisations, i.e.,

business organisations, philanthropic organisations, educational organisations, religious organisations and so on and so forth. In nutshell, wherever finance is involved, financial management is crucial for effective planning, procurement and utilisation of funds.

Thus, financial management is related not only to 'fund-raising' but encompasses wider perspective of managing the finances for the company efficiently. In the developed state of a capital market, raising funds is not a problem; the real problem is to put the capital resources to efficient use through effective financial planning, financial organisation and financial control and to deal with tasks like ensuring the availability of funds, allocating them for different uses, managing them, investing funds, controlling costs, forecasting financial requirements, doing profit planning and estimating rate of return on investment and assessing working capital etc.

TYPES OF FINANCIAL DECISIONS

INVESTMENT DECISIONS

Investment decision is the most important decision for value creation. Investment ordinarily means utilisation of money for profits or returns. This could be done by creating physical assets with the money and carrying on business or purchasing shares or debentures of a company.

Investments necessarily involve uncertainty, and are therefore quite risky. Within a firm, a finance manager decides that in which activity resources of the firm needs to be channelized.

For example, a marketing manager may like to have a new show room, a production manager a new lathe machine and a personnel manager may propose for higher wages or salaries for labour or staff, with the objective of enhancing productivity. . Top management may like to foray into new areas of business or territories (national / international) or proposed to launch a new product with the aim of increasing profits or capturing a lion share in the industry will trigger the need for investments and in view of this, investment decisions becomes significant. .

It is to be noted that in financial management, investment decisions relates to capital budgeting. In other words, investment decisions are concerned with the question whether adding to capital assets today will increase the revenues of tomorrow to cover costs. Thus investment decisions are commitment of money resources at different time in expectation of economic returns in future dates.

Categories of Investment Decisions

The most common categories of investment decisions are as under-

1. *Inventory Management* : Holding of stocks of materials is unavoidable for smooth running of a business. The expenditure on stocks comes in the category of investments.
2. *Strategic Investment*: In this case, the firm makes investment decisions in order to strengthen its market power. The return on such investment will not be immediate.
3. *Investment on Modernisation*: In this case, the firm decides to adopt a new and better technology in place of the old one for the sake of cost reduction. It is also known as capital deepening process.
4. *Investment in New Business*: In this case, the firm decides to start a new business or diversify into new lines of production for which a new set of machines are to be purchased.
5. *Replacement Investment* : In this category, the firm takes decisions about the replacement of worn out and obsolete assets by new ones.
6. *Expansion Investment* : In this case, the firm decides to expand the productive capacity for existing products and thus grows further in a uni-direction. This type of investment is also called capital widening.

Thus, investment decisions encompass wide and complex matters involving the following areas:

- capital budgeting
- cost of capital
- measuring risk
- management of liquidity and current assets
- expansion and contraction involving business failure and re-organisations
- buy or hire or lease an asset.

Factors Determining Investment Decisions

The three key factors that influence investment decisions are as under:

(i) Estimation of capital outlays and the future earnings of the proposed project focusing on the task of value engineering and market forecasting.

(ii) Availability of capital and considerations of cost of capital focusing attention on financial analysis.

(iii) A set of standards by which to select a project for implementation and maximising returns therefrom focusing attention on logic and arithmetic.

As mentioned that investment decisions mainly focus on capital expenditure decisions, in view of this, it is imperative to have a discussion on the mentioned topic.

Capital budgeting – Capital Budgeting refers to the planning process which is used for decision making of the long term investment that whether the projects are fruitful for the business and will provide the required returns in the future years or not and it is important because capital expenditure requires huge amount of funds so before doing such expenditure in capital, the companies need to assure themselves that the spending will bring profits in the business.

Capital Budgeting is a decision-making process where a company plans and determines any long term Capex whose returns in terms of cash flows are expected to be received beyond a year. Investment decisions may include any of the below:

i) Expansion

ii) Acquisition

iii) Replacement

iv) New Product

v) R&D (Research & Development)

vi) Major Advertisement Campaign

vii) Welfare investment

The capital budgeting decision making remains in understanding whether the projects and investment areas are worth the funding of cash through the capitalization structure of the company debt, equity, retained earnings – or not. The characteristics of capital budgeting are as under:

a) It involves high risk

b) Large profits are estimated

c) Long time period between the initial investments and estimated returns

(For more details on capital budgeting, please refer to Lesson 13- Capital Budgeting)

Investment decisions have, thus, become the most important area in the decision making process of a company. Such decisions are essentially made after evaluating the different proposals with reference to growth and profitability projections of the company. The choice helps achieve the long term objectives of the company i.e., survival and growth, preserving market share of its products and retaining leadership in its production activity.

Investment Decision Analysis

The investment decision process:

- Generate cash flow forecasts for the projects,
- Determine the appropriate opportunity cost of capital,
- Use the cash flows and the cost of capital to compute the relevant investment criteria.

Issues:

- Why use cash flows and not accounting earnings? - can we "spend" earnings?
- Which cash flows do we use?
  - total vs. incremental cash flows,
  - how to treat sunk costs
- Which investment criterion do we use, and why?
  - Net Present Value (NPV),
  - Payback / Discounted payback period
  - Average Accounting Return
  - Internal Rate of Return (IRR)
  - Profitability Index
- Mutually exclusive vs. independent projects.
- Sensitivity analysis.
- How sensitive are the criterion to changes in key assumptions.

Earnings vs. Cash Flows

- You cannot spend earnings! Need cash to build a plant, not earnings.
- Earnings can be manipulated by creative accounting.

Classic Example: The movie Forrest Gump (Paramount Pictures, 1994)

Winston Groom, the author of the book on which the movie is based, was promised 2% of the net income on the movie. The movie grossed over $650 million worldwide. However, Groom got nothing! Paramount reported a $62 million loss on the movie, because of a 32% commission the studio charged the movie to cover costs on future films that might fail!!

Now the question is whether Paramount didn't made a cash profit on the movie?

The answer is earnings can be what you want them to be, while cash flows are what you receive in your bank account, and are hence much more real and transparent.

Things to check from Cash Flow from Investing Activities

1. **Source of investments made during the year:** Cash flow from Investing activity is generally a negative cash flow component of the cash flow statement. One should observe whether the investments made by the company are coming on the back of sufficient cash flow from operations or retained earnings, or whether the company has borrowed money or raised additional capital to raise the money needed for the investments made. In any case, what is important is that the return on investment is greater than the cost of capital. Going a step further would be to understand how that return is then distributed amongst various stakeholders, a component of cash flow from financing activities.

2. **Qualitative nature of the investments made by the company:** Imagine a non-finance company employing capital raised from external sources for making non-current investments in debt or equity securities rather than investing that capital in buying core business growth assets such as plant and machinery etc. It raises a couple of questions regarding the attractiveness of the industry in which the company operates, the growth and expansion strategy of the company, the possibility of expansion, company's ability to expand and the appropriate timing for the same etc.

   The inter-period and intra-firm pattern of investments made by companies in an industry read with management discussion and analysis not only draws a picture about the company's future plans but also indicates the prospects of profitability in the industry and direction of development of business at an industry level considering all players in that industry.

   In case of capital- intensive industries wherein huge capex is needed for expansion and maintenance, one must observe that a persistently large negative cash flow from investing activity component over many years could indicates that the company is undertaking expansion in the business and must further analyse the nature of such an expansion. This can be observed in case of other businesses as well wherein there is surge in cash outflow from investment activity.

3. **Does business have high capital expenditure requirements?:** In the book "Investment Checklist" by Michael Shearn, he gives a detail account of how one can approach this question. He emphasises that "if the capital requirements are high, then the cash flows of the business need to be continually reinvested in the business just to maintain existing assets. High capital expenditures reduce cash flow, which is what the value of a business is based on". One can observe this by looking at the ratio of capital expenditure to sales. One must also observe the capital requirements in terms of maintenance capital expenditure and growth capital expenditure and determining how long the assets last before they need to be replaced, as highlighted in the book.

4. **Capitalisation of Operating Expenses:** Capitalisation of operating expenses not only shows higher earnings but also a higher cash flow from operations. These capitalised expenses are shown under cash flow from investing activities. In the book "Financial Shenanigans" by Howard M Schilt, he gave the example of WorldComm, where some senior executives classified billions of dollars (a whopping 58.588 billion dollars) of normal operating costs as capital equipment purchases, thereby inflating profits and cash flow from operations.

   He also recommends that one must keep an eye on growing fixed asset accounts or "soft" asset accounts (eg. Other assets), which may show signs of aggressive capitalisation. Another recommendation by him was to keep a check if some companies are classifying inventory purchases under investing activity.

5. **Inorganic Expansion of Business:** Cash flow from investing activities includes cash payments made to and received from inorganic expansion and development of business in the form of merger and acquisitions, takeovers etc. It is pertinent to observe the efficiency of such inorganic acquisitions and synergies resulting from such deals. Inorganic acquisition of a business which is unrelated to the core business of the acquiring company should be further investigated and evaluated for value to

shareholders and other relevant stakeholders. One can also look at the pattern of acquisitions and mergers by the company and how effective they have been in the past.

One classic example of such an inorganic expansion was the acquisition of Sterling Drugs, a pharmaceutical company by Kodak, an imaging and photography company in 1987. The acquisition was a massive failure and eventually resulted in a big loss of value to the shareholders, ending up with sale of Sterling Drugs to the Sanofi Group and partly to SmithKline Beecham in 1993 and 1994.

6. **Churn in Business and Sale of Business Units or Assets:** While the cash flow from investing activities is an indicator of how new cash or existing cash is employed to generate future profitability, it also includes the cash flow from sale of assets, sale of business units etc. One should note the strategic direction of the company as well as the implication of such divestitures on the value of the shareholders. Under the Companies Act, 2013, there are specific provisions regarding sale of assets and business units to related parties especially directors of the company. One must pay attention on whether the transactions have taken place at a fair price and that all necessary compliances are in place.

7. **In-house expenditure and research and development:** In terms of the accounting standards, Investing Activities refers to "acquisition and disposal of long-term assets and other assets not included in cash equivalents". It must be noted that only those expenditures that result in recognition of an asset in the balance sheet are eligible for classification as investing activities. Therefore, expenditures such as advertising and promotional activities or research and development, especially in-house development expenditure, typical in case of pharma or technological companies warrant special attention.

Understanding Cash Flow from Investing Activities

In many cases, a firm may have a negative overall cash flow for a given quarter. If the company cannot generate positive cash flow from its business operations, a negative overall cash flow is not necessarily a bad thing.

An item on the cash flow statement belongs in the investing activities section if it is the result of any gains (or losses) from investments in financial markets and operating subsidiaries.

An investing activity also refers to cash spent on investments in capital assets such as property, plant, and equipment, which is collectively referred to as capital expenditure, or CAPEX. Below is a more comprehensive list of cash flows that can stem from a firm's investing activities:

Inflows from Investing Activities	*Outflows from Investing Activities*
Proceeds from disposal of property, plant, and equipment	Payments for acquisition of property, plant, and equipment
Cash receipts from the disposal of debt instruments of other entities	Payments for purchase of debt instruments of other entities
Receipts from sale-of-equity instruments of other entities	Payments for purchase of equity instruments of other entities
	Sales/maturities of investments
	Purchasing and selling long-term assets and other investments

The following items are not covered under the cash flow from investing activities:

- Interest payments or dividends

- Debt, equity, or other forms of financing
- Depreciation of capital assets (even though the purchase of these assets is part of investing)
- All income and expenses related to normal business operations

FINANCING DECISIONS

Determining the best capital structure or financing decision is the next step in financial management for executing the investment decision once taken. A look at the balance-sheet of a company shows its sources of long-term finance i.e., how much funds it has procured from equity shareholders, preference shareholders, debentureholders, term loans from banks / financial institutions etc.

Financing decisions are concerned with the determination of how much funds to procure from the various avenues available i.e., the financing mix or capital structure. Let us quickly have a look on some definitions of capital structure in order to develop a basic understanding on the term.

> ***"Capital structure is essentially concerned with how the firm decides to divide its cash flows into two broad components, a fixed component that is earmarked to meet the obligations toward debt capital and a residual component that belongs to equity shareholders***"-**P. Chandra**.

Capital structure refers to the amount of debt and/or equity employed by a firm to fund its operations and finance its assets. A firm's capital structure is typically expressed as a debt-to-equity or debt-to-capital ratio.

From a technical perspective, the capital structure is the careful balance between equity and debt that a business uses to finance its assets, day-to-day operations, and future growth. Capital Structure is the mix between owner's funds and borrowed funds.

- Funds = Owner's funds + Borrowed funds
- Owner's funds (Equity) = Equity share capital + Preference share capital + Reserves and Surplus + Retained Earnings
- Borrowed funds = Loans + Debentures + Public Deposits

In short, Capital Structure is the mixture of long-term sources of funds. Capital Structure is optimal when the proportion of debt and equity maximizes the value of the equity share of the company.

In lesson 15, we would study in detail how the change in capital structure can impact the valuation of a firm.

In business organisations , financing decision today, has become fully integrated with top-management policy formulation via capital budgeting, long-range planning, evaluation of alternate uses of funds, and establishment of measurable standards of performance in financial terms.

Financial decision making is concerned more and more with the questions as to how cost of funds be measured, proposals for capital using projects be evaluated, or how far the financing policy influences cost of capital or should corporate funds be committed to or withheld from certain purposes and how the expected returns on projects be measured.

(*Note: In lesson 14, the technique of cost of capital has been elaborated*).

Optimal use of funds is one of the biggest concern of financing decisions and top managements in corporate sector are more concerned with planning the sources and uses of funds and measuring performance. New measurement techniques, utilising computers, have facilitated efficient capital allocation through financing decisions. Both Investment decision and financial decisions are jointly made as an effective way of financial management in corporate units. No doubt, the purview of these decisions is separate, but they affect each other. Financial decisions, as discussed earlier, encompass determination of the proportion of equity capital

to debt to achieve an optimal capital structure, and to balance the fixed and working capital requirements in the financial structure of the company. This important area of financing decision making, aims at maximising returns on investment and minimising the risk. The risk and return analysis is a common tool for investment and financing decisions for designing an optimal capital structure of a corporate unit. It may be mentioned that debt adds to the riskiness of the capital structure of a firm. This part of financial management is the analysis of company through earnings before interest and taxes, variable costs, contribution. It is called a study of operating leverages. Further, the earnings per share to be given to shareholders is analysed through the technique of financial leverage. When study of both these aspects is made it is known as combined leverage. The leverage concepts have been discussed in detail in lesson 15.

Factors affecting Financing Decision

While taking financing decisions the finance manager keeps in mind the following factors:

1. **Cost:** The cost of raising finance from various sources is different and finance managers always prefer the source with minimum cost.
2. **Risk:** More risk is associated with borrowed fund as compared to owner's fund securities. Finance manager compares the risk with the cost involved and prefers securities with moderate risk factor.
3. **Cash Flow Position:** The cash flow position of the company also helps in selecting the securities. With smooth and steady cash flow companies can easily afford borrowed fund securities but when companies have shortage of cash flow, then they must go for owner's fund securities only.
4. **Control Considerations:** If existing shareholders want to retain the complete control of business then they prefer borrowed fund securities to raise further fund. On the other hand if they do not mind to lose the control then they may go for owner's fund securities.
5. **Floatation Cost:** It refers to cost involved in issue of securities such as broker's commission, underwriters fees, expenses on prospectus, etc. Firm prefers securities which involve least floatation cost.

Understanding Cash Flow from Financing Activities

The financing activity in the cash flow statement focuses on how a firm raises capital and pays it back to investors through capital markets. These activities also include paying cash dividends, adding or changing loans, or issuing and selling more stock. This section of the statement of cash flows measures the flow of cash between a firm and its owners and creditors.

A positive number indicates that cash has come into the company, which boosts its asset levels. A negative figure indicates when the company has paid out capital, such as retiring or paying off long-term debt or making a dividend payment to shareholders.

Examples of common cash flow items stemming from a firm's financing activities are:

- Receiving cash from issuing stock or spending cash to repurchase shares
- Receiving cash from issuing debt or paying down debt
- Paying cash dividends to shareholders
- Proceeds received from employees exercising stock options
- Receiving cash from issuing hybrid securities, such as convertible debt

DIVIDEND DECISIONS

The dividend decision is another major area of financial management. The financial manager must decide whether the firm should distribute all profits or retain them or distribute a portion and retain the balance. Theoretically, this decision should depend on whether the company or its shareholders are in the position to better utilise the funds, and to earn a higher rate of return on funds. However, in practice, both dividends and retention of profits are important financial signals to the market, which continuously tries to assess the future profitability and risk of a company. A number of other factors like the market price of shares, the trend of earning, the tax position of the shareholders, cash flow position, requirement of funds for future growth, and restrictions under the Companies Act etc. also play an important role in the determination of dividend policy of business enterprise. The finance manager has to take a decision regarding optimum dividend payout ratio, he also has to take decisions relating to bonus issue and interim dividend.

It can be said that investment, financing and dividend decision are inter-related to each other. Financial Management is concerned with all three investment, financing and dividend decisions in relation to objectives of the company. Investment ordinarily means profitable utilization of funds. Investment decisions are concerned with the question whether adding to capital assets today will increase the net worth of the firm. Financing is next step in financial management for executing the investment decision once taken. Financial decision making is concerned with the question as to how funds requirements should be met keeping in view their cost, and how far the financing policy influences cost of capital. The dividend decision is another major area of financial management. It helps the financial manager in deciding whether the firm should distribute all profits or retain them or distribute a portion and retain the balance. Management needs to ensure that enough funding is available at the right time to meet the needs of the business. Hence, making of financial policy in taking three important decision of business viz. Financing, Investing and Dividend are always helpful to the management to take key corporate decision like expansion, diversification etc.

The following are the some major factors which influence the dividend policy of the firm.

1. Legal requirements

There is no legal compulsion on the part of a company to distribute dividend. However, there certain conditions imposed by law regarding the way dividend is distributed. Basically there are three rules relating to dividend payments. They are the net profit rule, the capital impairment rule and insolvency rule.

2. Firm's liquidity position

Dividend payout is also affected by firm's liquidity position. In spite of sufficient retained earnings, the firm may not be able to pay cash dividend if the earnings are not held in cash.

3. Repayment need

A firm uses several forms of debt financing to meet its investment needs. These debt must be repaid at the maturity. If the firm has to retain its profits for the purpose of repaying debt, the dividend payment capacity reduces.

4. Expected rate of return

If a firm has relatively higher expected rate of return on the new investment, the firm prefers to retain the earnings for reinvestment rather than distributing cash dividend.

5. Stability of earning

If a firm has relatively stable earnings, it is more likely to pay relatively larger dividend than a firm with relatively fluctuating earnings.

Dividend Decision Matrix

Factors	*FCFE> Dividends*	*FCFE<Dividends*
ROE> Cost of Equity	i) Good Projects ii) Cash flow surplus iii) No Change	i) Good Projects Decrease ii) Dividends Invest in Projects
ROE< Cost of Equity	i) Poor Projects ii) Cash flow surplus iii) Increase Dividends iv) Reduce Investment	i) Poor Projects ii) Cash flow Deficit iii) Decrease Dividends iv) Reduce Investment

Stable Dividend Policy: A Policy of Dividend Smoothing

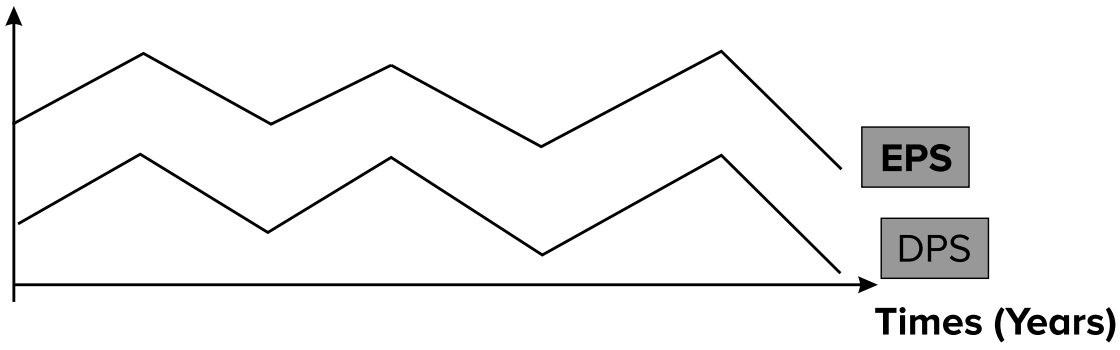
Lintner (1956) had observed that managers tend to value stable dividend policies and corporations tend to smooth dividends relative to earnings. That is, dividends are increased gradually and rarely cut, resulting in a much lower variability of dividends as compared to the variability in earnings.

Most Companies adapt a basic policy of maintaining its internal reserves to ensure stable income far into the future, while at the same time seek to distribute a sufficient amount of earnings to shareholders in accordance with business results. with a decrease in EPS, DPS has decreased and with increase in earnings the dividend per share has increased. However increase in dividends is lagging behind increase in earnings in order to 'smoothen' or 'stabilize' dividend payments over the time.

Firm may adapt any of the following stable dividend policies:

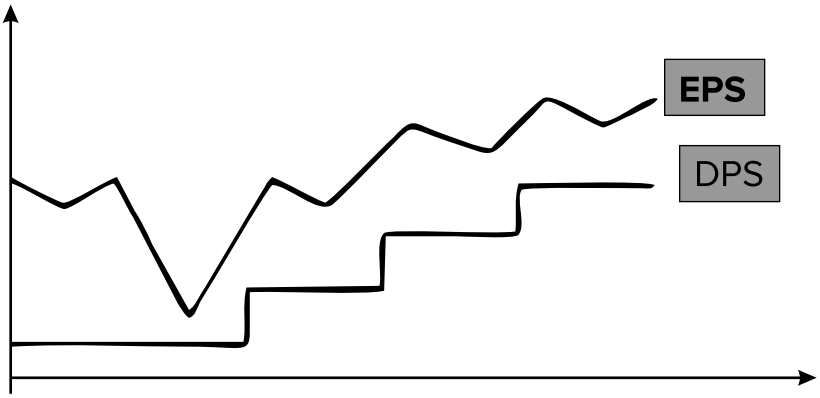
- Stable dividend payout ratio
- Stable dividends per share
- A regular plus extra dividend policy

(i) **Stable Dividend Payout Ratio:** As per this policy the percentage of dividends paid out of earnings remains constant.



Example: if a company adopts a 30% payout ratio and if EPS is Rs 100, then shareholder having 10 shares will receive Rs.300 as dividend under this policy.

ii) **Stable Dividends Per Share:** According to this policy, the firm pays a certain fixed amount of dividend per share every year. Annual dividend per share is increased only when the company reaches a new level of earnings and expects to maintain it.



iii) **A Regular Plus Extra Dividend Policy:** According to this policy a certain fixed percentage or a minimum amount of dividend is paid every year, which is referred to as regular dividend. The firm pays 'additional' or 'extra' dividend if earnings are higher than normal in any year.

Rationale for stable dividend policy:

Most firms adapt a stable dividend policy. If a firm's earnings are temporarily depressed or if it needs a substantial amount of funds for investment, then it might well maintain its regular dividend using borrowed funds to meet its needs, until things returned to normal. The logic or rationale for stable dividend policy is:

i) Stockholders like stable dividends – many of them depend on dividend income, and if dividends were cut, this might cause serious hardship to them. A stable dividend policy is desirous for many investors such as retired persons, who take dividends as a source to meet their current living expenses.

ii) A stable dividend policy would reduce investor uncertainty, and reductions in uncertainty are generally associated with lower capital costs and higher stock prices, other things being equal.

iii) Institutional investors generally prefer to invest in companies having stable dividend records.

iv) Adoption of stable dividends is advantageous for a company interested in raising funds from external sources as shareholders willingly invest in companies having stable dividends as they have more confidence in such companies.

The disadvantage is that such a policy might decrease corporate flexibility. Once a company has adapted a stable dividend policy, any change in such a policy may have adverse effects on the company image and may result in creating serious doubts in the minds of investors about financial standing of the company, which might prove to be very dangerous for the company at a later stage.

DECISION CRITERIA

Decision criteria depends upon the objective to be achieved through the instrumentality of decision making process. The main objectives which a business organisation pursues are maximisation of return and minimisation of costs.

A fair decision criterion should distinguish between acceptable and unacceptable proposals and solve the problem of selection of the best alternatives from amongst the various alternatives available in a given situation to achieve the above objectives. A fair decision criterion should follow the following two fundamental principles

i.e. (1) **the "Bigger and Better"** principle; (2) **"A Bird in Hand is Better than Two in the Bush"** principle. The first principle suggests that bigger benefits are preferable to smaller ones; whereas the second one suggests that early benefits are preferable to later benefits.

Decision criteria in financial management can be studied under two separate heads viz. The criteria for investment decisions; and the criteria for the financing decisions.

Criteria for investment decisions are mainly concerned with planning and control of capital expenditure through budgeting process following the tools of analysis viz. pay back period, accounting rate of return, discounted cash flow methods e.g., net present value method, etc. We shall discuss these methods for evaluating investment decisions in detail in the study relating to capital budgeting in Lesson 13. However, the essence and the inherent spirit in these techniques is based on logic which helps in the decision making process.

Both the above principles are based on the assumption "other things being equal" which is a rare reality. But in practice the decision process very much adheres to these principles particularly in the areas of capital budgeting decisions and determining the cost of capital in project financing proposals.

As a matter of fact, these techniques have been founded on the following decision criteria:

1. ***Urgency:*** The use of 'urgency' is treated as criterion for selection of investment projects in many corporate units/ business enterprises/government set up. Urgency is assessed on the following basis:

   (a) it provides sufficient justification for undertaking a project;

   (b) it provides immediate contribution for attainment of objectives of the project; and

   (c) it maximises profits.

   Although urgency as criterion lacks objectivity, being non-quantifiable, yet it definitely provides an ordinal ranking scale for selection of projects on preferential pre-exemption basis.

2. ***Pay back:*** Time is of essence while selecting this criterion for investment decisions. The decision is taken on the basis of quickness in pay off of the investments. Pay back simply measures the time required for cash flows from the project to return the initial investment to the firm's account. Projects, on the basis of this criterion, having quicker pay backs are preferred. For example, imagine a company invests £200,000 in new manufacturing equipment which results in a positive cash flow of £50,000 per year.

   Payback Period = £200,000 / £50,000. In this case, the payback period would be 4 years because 200,000 divided by 50,000 is 4.

   Another example of payback period.

   1. The ABC company is planning to purchase a machine known as machine X. Machine X would cost $25,000 and would have a useful life of 10 years with zero salvage value. The expected annual cash inflow of the machine is $10,000. Compute payback period of machine X and conclude whether or not the machine would be purchased if the maximum desired payback period of ABC company is 3 years.

      Solution

      Since the annual cash inflow is even in this project, we can simply divide the initial investment by the annual cash inflow to compute the payback period. It is shown below:

      Payback period = $25,000/$10,000

      = 2.5 years.

According to payback period analysis, the purchase of machine X is desirable because its payback period is 2.5 years which is shorter than the maximum payback period of the company.

2. Due to increased demand, the management of XYZ Beverage Company is considering to purchase a new equipment to increase the production and revenues. The useful life of the equipment is 10 years and the company's maximum desired payback period is 4 years. The inflow and outflow of cash associated with the new equipment is given below:

   Initial cost of equipment: $37,500

   Annual cash inflows:

   Cost of ingredients: $45,000

   Salaries expenses: $13,500

   Maintenance expenses: $1,500

   Should XYZ Beverage Company purchase the new equipment? Use payback method for deriving answer.

   Step 1:

   In order to compute the payback period of the equipment, we need to work out the net annual cash inflow by deducting the total of cash outflow from the total of cash

   inflow associated with the equipment.

   Computation of net annual cash inflow:

   $75,000 – ($45,000 + $13,500 + $1,500) = $15,000

   Step 2:

   Now, the amount of investment required to purchase the equipment would be divided by the amount of net annual cash inflow (computed in step 1) to find the payback period of the equipment.

   = $37,500/$15,000

   =2.5 years

   According to payback method, the equipment should be purchased because the payback period of the equipment is 2.5 years which is shorter than the maximum desired payback period of 4 years.

3. The management of ABC company wants to reduce its labor cost by installing a new machine. Two types of machines are available in the market – machine X and machine Y. Machine X would cost $18,000 where as machine Y would cost $15,000. Both the machines can reduce annual labor cost by $3,000. Which is the best machine to purchase according to payback method?

   Solution:

   Payback period of machine X: $18,000/$3,000 = 6 years

   Payback period of machine y: $15,000/$3,000 = 5 years

   According to payback method, machine Y is more desirable than machine X because it has a shorter payback period than machine X.

   Pay back decision criterion does not follow the principles laid down above viz. "the bigger and better" and "bird in hand". It ignores the first principle completely as it does not take into account

the cash flows after investment has been recovered. It also does not satisfy entirely the second principle as it assigns zero value to the receipts, subsequent to recovery of the amount.

3. ***Rate of return:*** It provides another decision criterion based on accounting records or projected statements to measure profitability as annual percentage of capital employed. Rate of return is arrived at following two different methods for treating income in the analysis which give different results. In the first case, average income generated from investment is taken after deduction of depreciation charge. In second case, the original cost is taken as denominator rather than average investment. This gives the simple yearly rate of return. This is based on "bigger and better" principle. This criterion can be applied either against average investment in the year selected for study or simply against initial cost.

   In other words, a Rate of Return (ROR) is the gain or loss of an investment over a certain period of time. In other words, the rate of return is the gain (or loss) compared to the cost of an initial investment, typically expressed in the form of a percentage. When the ROR is positive, it is considered a gain, and when the ROR is negative, it reflects a loss on the investment.

   The standard formula for calculating ROR is as follows:

$$\text{Rate of Return} = \frac{\text{Ending Value of Investment} - \text{Beginning Value of Investment}}{\text{Beginning Value of Investment}} *100$$

   Example:

   1. Amit is a retail investor and decides to purchase 10 shares of Company A at a per-unit price of $20. Adam holds onto shares of Company A for two years. In that time frame, Company A paid yearly dividends of $1 per share. After holding them for two years, Adam decides to sell all 10 shares of Company A at an ex-dividend price of $25. Adam would like to determine the rate of return during the two years he owned the shares.

      Solution:

      To determine the rate of return, first, calculate the amount of dividends he received over the two-year period:

      10 shares x ($1 annual dividend x 2) = $20 in dividends from 10 shares

      Next, calculate how much he sold the shares for:

      10 shares x $25 = $250 (Gain from selling 10 shares)

      Lastly, determine how much it cost Adam to purchase 10 shares of Company A:

      10 shares x $20 = $200 (Cost of purchasing 10 shares)

      Plug all the numbers into the rate of return formula:

      = (($250 + $20 – $200) / $200) x 100 = 35%

      Therefore, Adam realized a 35% return on his shares over the two-year period.

      Further, it is also essential to comprehend the concept of Annualized Rate of Return also. The annualized ROR, also known as the Compound Annual Growth Rate (CAGR), is the return of an investment over each year.

The formula for annualized ROR is as follows:

$$\text{Annualized Rate of Return} = \left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{1/n} - 1$$

Similar to the simple rate of return, any gains made during the holding period of this investment should be included in the formula.

Example: Let's assume that an individual placed their money into two different investment products:

1. A $100,000 investment into a high-interest savings account with a variable interest rate. With no additional contributions, six years later, the account balance amounts to $115,900.
2. An investment property in Miami that was bought for $350,000 in 2015. Five years later, the property is now worth $410,000.

   With two completely different investments, which one provides the best return? We can use the annualized rate of return formula to calculate the rate of return for both investments on an annual basis.

   Using the formula given above, we substitute the figures:

   1) ARR = (115,900 / 100,000) (1/6) – 1

      ARR = 0.02489 ≃ 2.50%

   2) ARR = (410,000 / 350,000) (1/5) – 1

      ARR = 0.03215 ≃ 3.21%

By using the annualized rate of return formula, we are now able to compare the returns for both investments over the same time frame. Therefore, we can conclude that the investment property in Miami provides the best return at an annualized rate of **3.21%**.

4. ***Undiscounted benefit-cost ratio:*** It is the ratio between the aggregate benefits and the cost of project. Benefits are taken at face value. The ratio may be "gross" or "net". It is "gross" when calculated with benefits without deducting depreciation. In the net version, depreciation is deducted from benefits before computing the results. Both ratios give identical ranking. Net ratio equals the gross ratio minus 1. This relationship makes it simple to calculate gross ratio and then to arrive at net ratio.

   This criterion is compatible with the "bigger and better" principle. But it does not follow the second principle of "bird in hand" as early receipts are given identical weights to later receipts in the project's life.

5. ***Discounted benefit-cost ratio:*** This ratio is more reliable as it is based on present value of future benefits and costs. It may also be gross or net like the one discussed earlier. It takes into account all incomes whenever received and to this extent complies with "bigger and better" principle. Early receipts are given more weight than late receipts on account of introduction of discount factor.

   This ratio satisfies the requirements of both the principles and is a good criterion for decision making.

   Example of Benefit Cost Ratio:

Cash flow projections for a project are provided below. The relevant discount rate is 10%.

Time	*t=0*	*t=1*	*t=2*	*t=3*
Costs	-$5000	-$10,000	-$10,000	-$15,000
Benefits	-	-	$50,000	$75,000
Net Cash Flow	-$5000	-$10,000	$40,000	$60,000

What is the benefit-cost ratio of the project?

Solution:

Time	*Discounted Costs*	*Discounted Benefits*
t=0	-$5000	0
t=1	-$10,000 (1+10%)1 = $9,090.91	0
t=2	-$10,000 (1 + 10%)2 = $8,264.46	$50,000 / (1 + 10%)2 = $41,322.21
t=3	-$15,000 / (1 + 10%)3 = $11,269.72	$75,000 / (1 + 10%)3 = $56,348.61
Total		$97,670.92

6. ***Present value method:*** This concept is useful as a decision criterion because it reveals the fact that the value of money is constantly declining, as a rupee received today is more in value than the rupee at the end of a year. Besides, if the rupee is invested today it will fetch a return on investment and accumulate to Re. 1 (1+i) at the end of 'n' period. Hence a rupee received at the end of 'n' period is worth 1/(1+i)n now. Investment decisions require comparison of present value with the cost of assets, and if the present value exceeds the cost, the investment is rendered acceptable. The practical application of concept of time value of money would be discussed in chapter 12.

   Another off-shoot of this criterion is net present value method which is closely related to cost-benefit ratio. It takes into account all income and its timing with appropriate weights. Here difference of present value of benefits and costs is considered as against the ratio in cost-benefit analysis. This criterion is useful for acceptance of projects showing positive net present value at the company's cost of capital rate. It can be used for choosing between mutually exclusive projects by considering whether incremental investment yields a positive net present value.

   Example

   Company A ltd wanted to know their net present value of cash flow if they invest 100000 today. And their initial investment in the project is 80000 for the 3 years of time, and they are expecting the rate of return is 10 % yearly. From the above available information, calculate the NPV.

   Solution:

   NPV = Cash flow / $(1 + i)^t$ – initial investment

   = $100000/(1\text{-}10)^3\text{-}80000$

   NPV = **57174.21**

So in this example, NPV is positive, so we can accept the project.

7. ***Internal rate of return:*** It It is a widely used criterion for investment decisions. It takes interest factor into account. It is known as marginal efficiency of capital or rate of return over cost. It stipulates rate of discount which will equate the present value of the net benefits with the cost of the project. This method satisfies both these principles and would be elaborated with practical examples in Chapter 12.

Example:

Let us say a company has an option to replace its machinery.

The cost and return are as follows:

Initial investment = Rs.5,00,000

Incremental increase per year = Rs.2,00,000

Replacement value = Rs.45,270

Life of asset = 3 years

If we assume IRR to be 13%, the computation will be as follows.

Solution:

Year	*Cash flows*	*Discounted cash flows*	*Computation*
0	-5,00,000	-500000	(5,00,000 * 1)
1	2,00,000	176991	2,00,000 * (1/1.13)1
2	2,00,000	156229	2,00,000 * $(1/1.13)^2$
3	2,00,000	138610	2,00,000 * $(1/1.13)^3$
4	45,270	27765	45,270 * $(1/1.13)^4$

The total of the column Discounted Cash Flows approximately sums up to zero making the NPV equal to Zero. Hence, this discounted rate is the best rate. As can be seen from the above, using the rate of 13%, the cash flows, both positive and negative become minimum.

Hence, it is the best rate of return on investment. The cost of capital of the company is 10%. Since the IRR is higher than the cost of capital, the project can be selected.

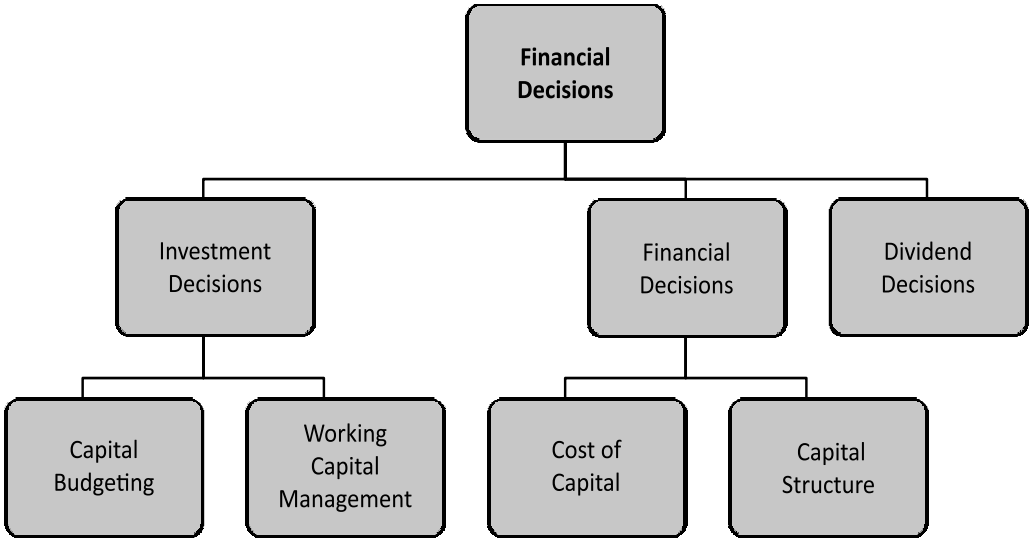
If the company has another opportunity to invest the money in a project that gives a 12% return, the company will still go in for the machinery replacement since it gives the highest IRR.

Capital Structure

The capital structure of a corporate unit contains two important parameters viz., the owners' capital known as equity and the debt which represents interest of debenture holders in the assets of the company. The factors responsible for inclusion of debt in the capital structure of a company are tax-savings, easier to sell, lower cost of floatation and services, lower cost of capital, the advantage of leverage, no dilution of equity and probable loss of control, logical to consolidate and fund short-term indebtedness by a bond issue, advantageous in the inflationary trends of rising interest rates and improvement in financial ratios.

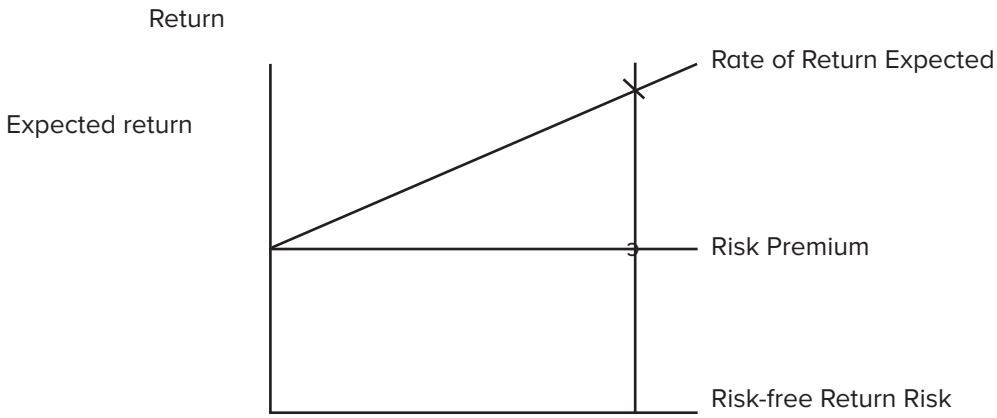
There is no alternative for a company to equity financing to meet its requirement for funds. Debt can be raised by a company only on an adequate equity base which serves as a cushion for debt financing. The study of effect of leverage is the main focus point to determine the best mix of debt and equity sources of funds. It is, therefore, desired to consider this criterion for financing decision making in relation to leverage and cost of capital.

Please refer the following exhibit on forms of financial decisions.



VALUE OF FIRM-RISK AND RETURN

Financial decisions incur different degree of risk. An investor's decision to invest in risk free government bonds has less risk as interest rate is known and the risk of default is very less. On the other hand, an investor would incur more risk if he decides to invest in shares, as the return is not certain. However, the investor can expect a lower return from government bond and higher from shares. Risk and expected return move in tandem; the greater the risk the greater would be the expected return. The following figure shows the risk-return relationship.



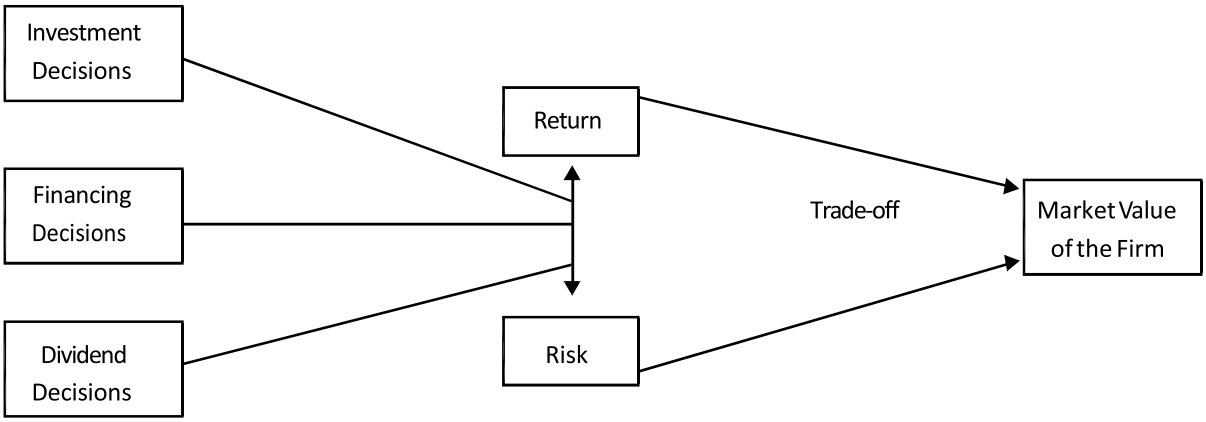
The Risk-return relationship

As discussed earlier, a finance manager has to take various types of decision- investment decisions, financing decisions and dividend decisions. A finance manager takes these decisions in the light of the objective of wealth maximisation as reflected in the market price of the shares. The finance manager should also know as to what

are the factors which may affect the market price of the shares. The various decisions will be taken in the light of these factors, otherwise any attempt to achieve the objective of maximisation of market price of the shares may not be achieved.

A finance manager cannot avoid the risk altogether nor he takes a decision by considering the return aspect only. Usually, as the return from an investment increases, the risk associated with it also increases. In an attempt to increase the return, the finance manager will have to undertake greater degree of risk also. Therefore, a finance manager is often required to trade-off between the risk and return. At the time of taking any decision, the finance manager tries to achieve the proper balance between the consideration of risk and return associated with various financial management decisions to maximise the market value of the firm. A particular combination of risk and return where both are optimized may be known as Risk-return trade off and at this level of risk-return, the market price of the shares will be maximised.

The figure below demonstrates the relationship between market value of the firm, return and risk, on the one hand and financial management decision on the other.



LIQUIDITY

Liquidity is an important concept in financial management and is defined as ability of the business to meet its short- term obligations. It shows the quickness with which a business/company can convert its assets into cash to pay what it owes in the near future. According to Ezra Soloman, it measures a company's ability to meet expected as well as unexpected requirements of cash to expand its assets, reduce its liabilities and cover up any operating losses. Liquidity, as a decision criterion, is widely used in financial management. It is used for managing liquid resources or current assets or near cash assets so as to enhance the effectiveness with which they are utilised with a view to minimising costs. It also focuses attention on the availability of funds. Enhancement of liquidity enables a corporate body to have more funds from the market.

While using liquidity as a decision criterion, the management makes use of ratios. They give a bird's eye view of the current liquidity position or shortages thereof. A company will like to have liquid resources for transaction purposes, as a precautionary measure and for speculative opportunities. The management's attitude towards these i.e., transaction motive, precautionary motive and speculative motive (taking advantage of lower prices of raw materials etc., in the market) is an important determinant of a company's liquidity position.

Liquidity is assessed through the use of ratio analysis. Liquidity ratios provide an insight into the present cash solvency of a firm and its ability to remain solvent in the event of calamities.

Current Ratio which is the ratio of current assets to current liabilities, is widely used by corporate units to judge the ability to discharge short-term liabilities covering the period upto one year. The interpretation of the current ratio is that 'higher the ratio, greater is the ability of the firm to pay off its bills'.

Nevertheless, it is a crude ratio and does not take into account the difference amongst different categories of assets. For example, inventory may not be turned into cash as quickly as Account Receivables. The main difficulty that arises in treating inventory as a quick item is that unless one has ensured about the quality, condition and marketability of the inventory it may be impossible to turn it into cash immediately at the estimated value. Therefore, to assess quick liquidity position, inventory is excluded while calculating Quick Ratio. The ingredients of current assets while computing the Quick Ratio are cash, marketable securities and receivables. Besides cash, the other two items are near cash and at very short notice can easily be converted into cash. Therefore, for taking financial decisions particularly for assessing cash position of the company and its ability to discharge current obligations, Quick Ratio is frequently relied upon. Nevertheless, the main shortcoming of the Quick Ratio is that it ignores inventories and concentrates on cash, marketable securities and receivables in relation to current obligations although inventory is also a basic input in current ratio without which company's decision process cannot be complete.

Liquidity ratio enables a company to assess its Net Working Capital. Working Capital is denoted by the combination of current assets or current liabilities of a company, and for calculation of net working capital we deduct current liabilities from current assets. Having done so we are left with the ready money in our hands to meet day to day needs of the business. If we still want to know as to how much is available with the company per rupee of sales then Net Working Capital is divided by sales.

Tailor-made measurement can be devised for calculating liquidity ratio in different situations. For example, the principle of liquidity can be extended to study liquidity of receivables (or inventories) separately to enable the executives to take decisions about the collection period of bills.

Liquidity of receivables is assessed through Average Collection Period (ACP). ACP tells us the average number of days receivables are outstanding i.e., the average time a bill takes to convert into cash. The inverse to this ratio is Receivables Turnover Ratio (RTR). Either of the two ratios can be used as both depict the slowness of recovery, but the readings are different. For financial decisions and to use liquidity as criterion the average collection period ratio, and receivables turnover ratio is used to help in taking corrective steps for maintaining the optimum liquid position for the company at any given time to avoid risk of losing goodwill and chances of bankruptcy. The ratio, in short, reveals the following results:

(1) Too low an average collection period may suggest excessively restricted credit policy of a company.

(2) Too high an average collection period (ACP) may indicate too liberal a credit policy. A large number of receivables may remain due and outstanding, resulting in less profits and more chances of bad debts.

Average collection period and receivables turnover ratio should be compared to the average age of accounts payable or accounts payable turnover ratio. Though adequate liquidity could be maintained by accelerating collections and deferring payments, yet this has its own limitations and drawbacks. It affects the credit standing of the company in business and banking circles.

In the same spirit, decisions are made to maintain a proper inventory level in the company. For the purpose, it becomes essential to assess the liquidity of inventory. Inventory Turnover Ratio i.e., cost of goods sold divided by average annual inventory, shows the rapidity with which inventory is turned into receivables through sales. The higher the ratio, the more efficient is the inventory management system of the company.

To conclude, liquidity, as a decision criterion is an important tool in financial management. Financial decisions are affected by liquidity analysis of a company in the following areas:

1. Management of cash and marketable securities;
2. Credit policy of a firm and procedures for realisation;
3. Management and control of inventories;

4. Administration of fixed assets;
5. Taking decisions for efficient use of current assets at minimum cost; and
6. Decisions to keep the company's position on sound basis to avoid eventualities.

The above analysis of liquidity suggests evaluation of current assets of a company. On liabilities side also, liquidity position is analysed and managed through assessment of long and medium term debts of the company, and the arrangements for their repayments. This is done purely from the precautionary point of view so that the company could be saved from the risk of bankruptcy for non-payment of its debt to the lenders.

PROFITABILITY

Profitability as a decision criterion is another important tool in financial management for taking decisions from different angles after evaluating the performance of the company in different spheres. For example, if it becomes essential for the company to examine profit per unit of sale then it is done by estimating profitability per rupee of sales. It is used as a measure of comparison and standard of performance. Similarly, there could be other ratios.

Because different users look at the profitability of a company from different angles, they use different ratios. Short-term creditors, long-term lenders, equity shareholders, investors, etc. all are interested in profitable operations of a concern. They use the ratios which best suit their requirements. Profitability can be related to sales or to total capital employed or to net worth of the company. But then different figures for profits are taken into account.

Profitability to sales ratio, reflects the company's ability to generate profits per unit of sales. If sales lack sufficient margin of profit, it is difficult for the business enterprise to cover its fixed cost, including fixed charges on debt, and to earn profit for shareholders. From investors point of view profits are compared by the investors as percentage to the capital employed in the business enterprise. Absence of adequate profitability ratio on sales reflects the company's inability to utilise assets effectively. This is analysed through the asset turnover ratio.

One of the important profitability ratios is profits on equity – profit figure after interest, before dividend and taxes, drawn from the profit and loss account is related to the equity of the shareholders as shown in balance sheet. This is an indicator of profits earned on funds invested by the owners. It is an indicator of actual returns received by them. This ratio may assume two forms:

$$(1) \quad \frac{\text{Earning available to common shareholders}}{\text{Total Equity}}$$

$$(2) \quad \frac{\text{Net income after tax}}{\text{Total Equity}}$$

[The ratio at (2) is used where the company has no preference shareholders].

Profit margin is another measure of viewing profitability. The revenue bearing property of sales can be easily assessed from the profit margin. It is derived by dividing operating income from business by sales. This ratio indicates the efficiency of operations as well as how products are priced. Inadequacy of profit margin is an evidence of company's inability to achieve satisfactory results. Pricing decisions are made by financial executives in consultation with the marketing departments of the company. Policy decisions relating to increase or decrease in price are taken in respect of different products keeping in view the competitiveness of the market. Profit margin ratio is constantly used by business executives for this purpose. To look into the cash generating capacity of sales, gross profit margin is used by deducting the cost of goods sold from sales and dividing by sales.

The gross profit margin ratio indicates the profits relative to sales after deduction of direct production cost. It

indicates efficiency of production operations and the relationship between production costs and selling price.

The difference between the above two ratios i.e. gross profit margin and net profit margin ratios is that general and administrative expenses are excluded while computing gross margin. Thus, net profit margin ratio is calculated as under:

$$\text{Net Profit Margin (NPM)} = \frac{\text{Net Profit after Taxes}}{\text{Sales}}$$

NPM ratio is an indicator of company's ability to generate profits after paying all taxes and expenses. Decline in this ratio reflects the presence of either higher expenses relative to sales or higher tax burden on the company, affecting its profitability adversely. For assessment of profitability as a decision criterion return on investment (ROI) is a frequently used ratio.

Return on Investment: This is an important profitability ratio from the angle of shareholders and reflects on the ability of management to earn a return on resources put in by the shareholders. The beauty of the ROI ratio is that earning of the company can be viewed from different angles so as to take decisions on different causes responsible, to reduce or to enhance the profitability of the company. One way of finding out rate of return on assets employed in the company is to find the ratio of earnings before interest and taxes (EBIT) to capital employed. This ratio indicates operating income to the assets used to produce income.

Another way of computing the ratio of return is through the assets turnover ratio and margin of profit which gives the same results, as EBIT to capital employed. It may be seen from the following:

$$\frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} = \frac{\text{EBIT}}{\text{Assets}}$$

A high ratio indicates efficient use of assets and low ratio reflects inefficient use of assets by a company.

Another off-shoot of profitability ratio is the times interest earned ratio, which gives a clue to the interest bearing capacity of the income character of business operations. This ratio relates operating profits to fixed charges created by the company's borrowings, and provides an indication of margin of safety between financial obligations and Net income after tax. A company may earn profits but may find it difficult to make payments of excess interest charges or may face inability to meet such obligations. EBIT should be 5 to 6 times interest charges as a satisfactory guideline for this ratio. Lenders, particularly banks and financial institutions, greatly rely on this ratio particularly in profitability assessment through projections of income of the borrower in the coming years after investment of borrowed funds.

In this way, we find that profitability as decision making criterion in financial management, is crucial for business managers. Business works as a system comprised of sub-systems. Different criteria assess different aspects and assist in viewing different situations which have an aggregate impact on business activity, and therefore form the basis of financial management.

There is an inverse relationship between liquidity and profitability. While the immediate survival of a business depends on its liquidity, its long term survival and growth depend on profitability. Thus, liquidity ensures short term survival and profitability ensures long term survival. Both are, therefore important for any firm to survive. A firm should maintain a trade-off situation where the firm maintains its optimum liquidity for greater profitability and the finance executive has to strike a balance between the two conflicting objectives. Therefore we can say that Liquidity and Profitability are competing goals for the finance manager.

Examples of Return on Investment

1. Vegan Steaks had the best year ever, with sales of $4,500,000 and operating profit of $950,000. The balance sheet at the beginning of the year showed assets used in production with a cost of $20,000,000 and

accumulated depreciation of $5,000,000. The company didn't buy any assets during the year but did have depreciation expense of $1,000,000. Calculate the ROI for the year.

Solution:

Beginning of the year book value:

20,000,000 – 5,000,000 = 15,000,000

End of year book value:

20,000,000 – (5,000,000 + 1,000,000) = 14,000,000

So, the average book value of assets is $14,500,000.

$$\frac{950,000}{14,500,000} = .0655$$

or ROI of 6.55%.

2. Management of It'll Heal Medical Company are evaluating the performance of three divisions of the company. The Booboo Division had operating profit of $499 and on average used assets with a book value of $6,238. The Splint Division had operating profit of $350 and used average assets of $3,889. The Intensive Care Division had operating profit of $570 and average assets of $9,500. Which division is performing the best?

Solution:

The Splint Division is performing the best with an ROI of 9%. ROI is a good way to compare divisions of different sizes. You calculate ROI as operating profit divided by average assets.

$$\frac{499}{6,238} = .08$$

or 8% ROI for the Booboo Division.

$$\frac{350}{3,889} = .09$$

or 9% ROI for the Splint Division.

$$\frac{570}{9,500} = .06$$

or 6% ROI for the Intensive Care Division.

COSTING AND RISK

In financial management, costing relates to the system adopted for assessing cost of capital from various sources viz., equity and preference shares, debentures/bonds, long-term borrowings from financial institutions, etc. Equity capital is owner's money employed in the business whereas borrowed funds are creditors' funds carrying an interest obligation and repayment schedule. There are thus, risks involved if interest is not paid or on account of default in repayment of principal. It is ordinarily expected that every rupee obtained on loan enhances the chances of increasing the returns on owners' capital and the net worth. The rate of interest on borrowed funds is usually lower than the returns expected by the investors or risk-takers in the business. Moreover, interest paid is deductible for tax purposes. The following illustration gives an idea of the phenomenon stated above:

(Figures in Crore)

	Company A	*Company B*
Total Capital	₹100	₹100
Owners' capital	₹100	₹50
Borrowed capital	NIL	₹50
Rate of earnings	20%	20%
Rate of interest	–	15%
Earnings before interest and taxes	₹20	₹ 20
Interest paid	–	₹7.50
Earnings before taxes	₹ 20	₹12.50
Taxes at 50%	₹10	₹6.25
Earnings after taxes	₹10	₹6.25
Percentage of earning son owners' funds	10%	12.5%

But if the company is not able to earn sufficient returns, the returns on owners' funds are reduced and risk increases. Using borrowed funds or fixed cost funds in the capital structure of a company is called financial gearing. High financial gearing will increase the earnings per share of a company if earnings before interest and taxes are rising, as compared to the earnings per share of a company with low or no financial gearing. It may be understood that leverage and gearing are used interchangeably (the former is used in USA and the latter in U.K.).

So at times when the economy is doing well, the shareholders of a highly geared company will do better than the shareholders of a low geared company. However, if the company is not doing well, when its profits before interest and taxes are falling, the earnings per share of highly geared company will fall faster than those of the low geared company. The higher this level of financial gearing, the greater the risk. Those who take risk should appreciate that in difficult times their reward will be below average but in good times they will receive above average rewards. The lower the levels of financial gearing, the more conservative are the financial policies of the company and the less will be deviations over time to earnings per share.

Risk is associated with fixed charges in the shape of interest on debt capital. Higher the fixed charges, the greater the chance that it will not be covered by earnings and so greater the risk. Large companies financed by heavy borrowings, need to continue to produce and search for new markets for their output. Any internal disturbance or external constraint that may hamper the company's production and sales will reduce inflow of funds but fixed interest charges have to be paid. A study of the effects of capital gearing on cost of capital is quite important for financial decisions. Given that a company has to minimise the cost of capital, it should fix up a level of gearing where is costs of capital is minimum.

As against the traditional theory of capital structure suggesting that the average cost of capital does depends on the level of gearing, the alternative theory on cost of capital as propounded by Modigliani and Miller argues that the cost of capital is independent of the capital structure. The essence of the Modigliani and Miller argument

is the arbitrage process. Should the value of two firms with identical incomes and the same risk class ratios vary (which would be possible under the traditional theory) the investors would arbitrage so as to make the market value of the two firms equal. A key assumption of the model is that the investors can arbitrage between companies, and between loan and equity capital, without increasing the risk of their individual investment portfolios. The above theories would be discussed in detail in lesson 3.

Despite all the above theoretical explanations the fact remains that debt is associated with risk which enhances with increase in the leverage. There are two major reasons for this increased risk viz., (1) interest is a fixed charge and is required to be paid by the company whether or not it earns profits; and (2) a substantial decrease in liquidity or increased demands from creditors for payment if the company has higher proportion of debt capital in its capital structure. For these reasons, the risk of a company not being able to meet its obligations is greater than in the case of a company in which the proportion of borrowed sum is substantially smaller.

Distinction may be made between different types of risk to which an enterprise is exposed in the business environment.

The risk which we have discussed is financial risk that arises in relation to owners' return created by the utilization of funds in the enterprise particularly fixed cost securities i.e. debt and preference shares. Financial risk is distinguished from "business risks" which is associated with the chance of loss due to variability of return, in general, created by the enterprise and as such it is known as operating risk. Operating risk is concerned with EBIT (earning before interest and taxes) whereas financial risk is concerned with EAIT (earning after interest and taxes). If there is preference capital then the financial risk is concerned with earnings available to ordinary (equity) shareholders after dividends have been paid to preference shareholders. Financial risk encompasses the risk of possible insolvency and the variability in the earnings on equity. In case the enterprise does not employ debt or preference capital there will be no financial risk and over all risk for the firm will be low. It is only because of application of debt financing, that overall risk increases and originates into financial risk to equity holders.

Broadly risks may be classified into systematic and unsystematic risks. Systematic risk is risk within the entire system. This is the kind of risk that applies to an entire market, or market segment. All investments are affected by this risk, for example risk of a government collapse, risk of war or inflation, or risk such as that of the 2008 credit crisis.

On the other hand, unsystematic risk is also as residual risk, specific risk or diversifiable risk. It is unique to a company or a particular industry. For example strikes, lawsuits and such events that are specific to a company, and can to an extent be diversified away by other investments.

Examples of Systematic Risk (Undiversifiable Risk)

- Changes in laws / regulations
- Tax reforms
- Interest rate hikes
- Natural disasters (earthquakes, floods etc.)
- Political instability and flight of capital
- Changes in foreign policy
- Volatility in currency values
- Failure of banks (e.g. 2008 mortgage crisis)
- Economic recessions

Examples of Unsystematic (Diversifiable Risk)

- The entry of a new competitor into a market
- A company is forced to recall one of its products
- A company is found to have prepared fraudulent financial statements
- A union targets a company for an employee walkout
- A foreign government expropriates the assets of a specific company

Besides, there are other types of risk which are related to investment decisions and not cost of financial sources viz., purchasing power risk, market risk, interest rate risk, social risk, regulatory risk and other risks. A brief description of the mentioned risks are as under:

a) *Purchasing Power Risk*: Inflation risk, also referred to as purchasing power risk, is the risk that inflation will undermine the real value of cash flows made from an investment. Inflation risk can be seen clearly with fixed-income investments.

b) *Market Risk*: Market risk is the possibility that an individual or other entity will experience losses due to factors that affect the overall performance of investments in the financial markets.

c) *Interest Rate Risk*: Interest rate risk is the potential for investment losses that result from a change in interest rates. If interest rates rise, for instance, the value of a bond or other fixed-income investment will decline.

d) *Social Risk*: Social risk for a business includes actions that affect the communities around them. Examples include labor issues, human rights violations within the workforce, and corruption by company officials.

e) *Regulatory risk*: Regulatory is the risk that a change in regulations or legislation will affect a security, company, or industry. Companies must abide by regulations set by governing bodies that oversee their industry. Therefore, any change in regulations can cause a rippling effect across an industry.

f) *Reputation Risk*: Reputational risk is a threat or danger to the good name or standing of a business or entity. Reputational risk can occur in the following ways:

   - Directly, as the result of the actions of the company itself
   - Indirectly, due to the actions of an employee or employees
   - Tangentially, through other peripheral parties, such as joint venture partners or suppliers

g) *Operational Risk*: This business risk can happen internally, externally or involve a combination of factors. Something could happen unexpectedly resulting into closure of business operations. Unexpected event could be a natural disaster or fire that may cause substantial damage to the business resulting into its closure of operations.

h) *Competition Risk*: While a business may be aware that there is always some competition in their industry, it's easy to miss out on what businesses are offering that may appeal to the customers. In this case, the business risk involves a company leader becoming so comfortable with their success and the status quo that they don't look for ways to pivot or make continual improvements. Increasing competition combined with an unwillingness to change may result in a loss of customers.

OBJECTIVES OF A FIRM

Financial management of any business firm has to set goals for itself and to interpret them in relation to the objective of the firm. Broadly, there are two objectives a business firm viz.

(a) Profit maximisation;

(b) Shareholder Wealth maximisation.

(a) Profit Maximisation

According to Solomon, Price system directs managerial efforts towards more profitable goods or services. Prices are determined by the demand and supply conditions as well as the competitive forces, and they guide the allocation of resources for various productive activities.

In economic theory, the behavior of the firm is analysed in terms of profit maximization. The classical economic view of the firm, as put forward by Hayek (1950) and Fredman (1970), is that it should be operated in a manner that maximizes its profit. This occurs, in economic terms, when marginal revenue equals marginal cost. Profit maximization means that a firm either produces maximum output for a given amount of input, or uses minimum input for producing a given output. The underlying rationale of profit maximization is efficiency. It is assumed that profit maximisation causes the efficient allocation of resources under the competitive market condition, and profit is considered as the most appropriate measure of a firm's performance.

Thus, profit maximisation is considered as an important goal in financial decision-making in an organisation. It ensures that firm utilizes its available resources most efficiently under conditions of competitive markets.

But in recent years, under the changed corporate environment, profit maximisation is regarded as unrealistic, difficult, inappropriate and socially not much preferred goal for business organisation. It is argued that profit maximisation assumes perfect competition, and in the face of imperfect modern markets, it cannot be a legitimate objective of the firm. It is also argued that the objective of profit maximisation as a business objective developed in the 19th century when the business activity was self financing and based on assumption of private property and single entrepreneurship. The only aim of the entrepreneur then was to maximize his profit and enhance his own wealth, this objective could be easily satisfied by profit maximisation objective. The modern business environment is characterised by limited liability and a distinction between management and ownership. The various stakeholders of the firm are shareholder, lenders, customers, employees, government and society. In practice the objectives of all these stakeholders may differ and may even conflict with each other. The manager has a difficult task of reconciling and balancing these conflicting objectives. The goal of profit maximization overlooks the interest of other parties than the shareholders and is therefore crticised and considered as unrealistic, inappropriate and immoral.

Profit maximisation as corporate goal is criticised by scholars mainly on the following grounds:

(i) It is vague conceptually.

(ii) It ignores timing of returns.

(iii) It ignores the risk factor.

(iv) It may tempt to make such decisions which may in the long run prove disastrous.

(v) Its emphasis is generally on short run projects.

(vi) It may cause decreasing share prices.

(vii) The profit is only one of the many objectives and variables that a firm considers.

(b) Shareholder Wealth Maximisation

According to Solomon, shareholder wealth maximization means maximizing the net present value of a course of action to shareholders. Net present value (NPV) or wealth of a course of action is the difference between the present value of its benefit and the present value of its costs.

Presently, maximisation of present value (or wealth) of a course of action is considered appropriate operationally flexible goal for financial decision-making in an organisation. The net present value or wealth can be defined more explicitly in the following way:

$$NPV = \frac{R_t}{(I + i)^t}$$

Where,

NPV = Net Present Value

Rt = Net cash flow at time t

i = Discount

t = time value of the cash flow

The management of an organisation tries to maximise the present value not only for shareholders but for other stakeholders too, i.e., employees, customers, suppliers and community at large. This goal for the maximum present value is generally justified on the following grounds:

(i) It is consistent with the object of maximising owners economic welfare.

(ii) It focuses on the long run.

(iii) It takes into account various forms of risks.

(iv) It recognises the value of regular dividend payments.

(v) It takes into account time value of money.

(vi) It maintains market price of its shares.

(vii) It seeks growth in sales and earnings.

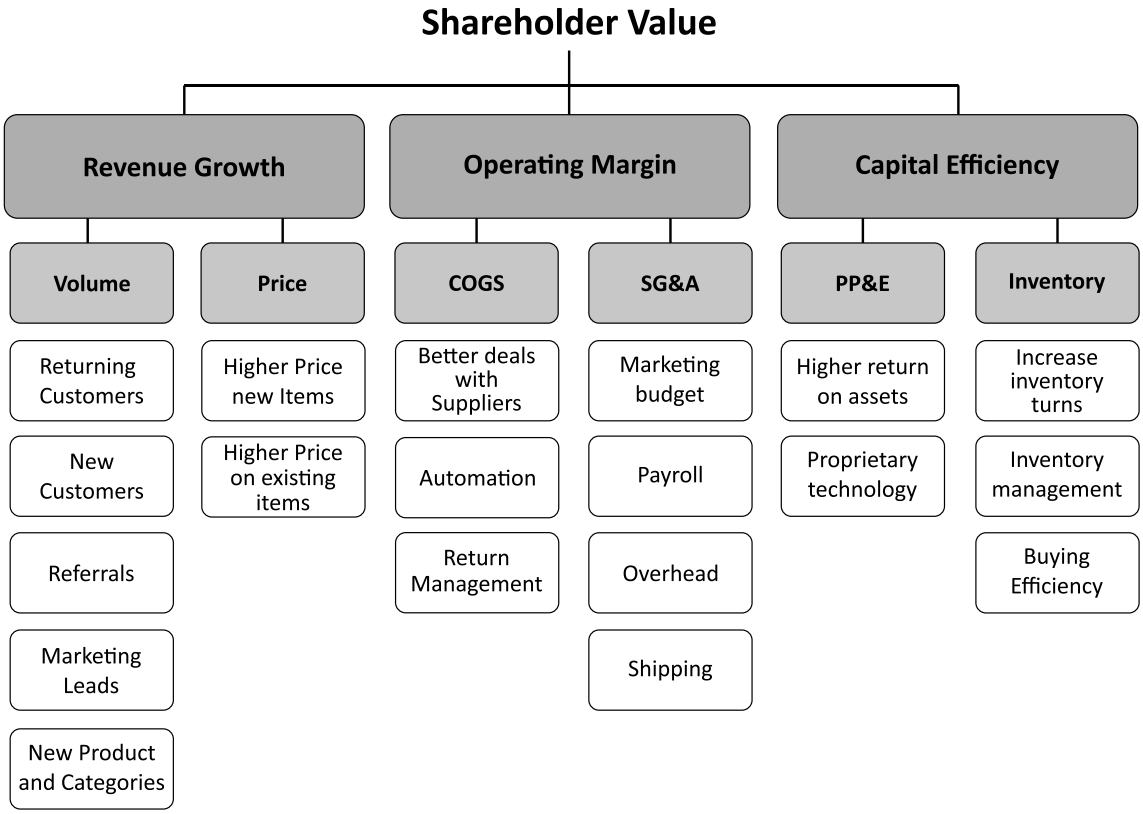
However, profit maximisation can be part of a wealth maximisation strategy. Quite often two objectives can be pursued simultaneously but the maximisation of profit should never be permitted to overshadow the objectives of wealth maximisation.

The objective of the firm provides a framework for optimal decision making in the area of business management. The term 'objective' should be used in the sense of 'decision criteria' for taking decisions involved in financial management. It means that what is relevant is not the overall objective of the business but operationally useful criterion against which the investment, financing and dividend policy decisions are to be judged. The objective of shareholder wealth maximisation is an appropriate and operationally feasible criterion to choose among the alternative financial actions.

It provides an unambiguous measure of what financial management should seek to maximise in making investment and financing decisions on behalf of shareholders. Another point to note in this context is that objective provide a 'normative' framework. In other words, it implies that the focus is on what a firm should try to achieve and on policies that it should follow if the objectives are to be achieved.

How to Create Shareholder Value

In order to maximize shareholder value, there are three main strategies for driving profitability in a company: (1) revenue growth, (2) increasing operating margin, and (3) increasing capital efficiency.



Source: Corporate Finance Institute

1. **Revenue Growth**: For any goods and services businesses, sales revenue can be improved through the strategies of sales volume increase or sales price inflation.

   i) *Increasing Sales Volume*

   A company would want to retain its current customers and keep them away from competitors to maintain its market share. It should also attract new customers through referrals from existing customers, marketing and promotions, new products and services offerings, and new revenue streams.

   ii) *Raising Sales Price*

   A company may increase current product prices as a one-time strategy or gradual price increases throughout several months, quarters, or years to achieve revenue growth. It can also offer new products with advanced qualities and features and price them at higher ranges. Ideally, a business can combine both higher volume and higher prices to significantly increase revenue.

2. **Operating Margin**

   Besides maximizing sales, a business must identify feasible approaches to cost reductions leading to optimal operating margins. While a company should strive to reduce all its expenses, COGS (Cost of Goods Sold) and SG&A (Selling, General, and Administrative) expenses are usually the largest categories that need to be efficiently managed and minimized.

   i) *Cost of Goods Sold (COGS)*

   When a company builds a good relationship with its suppliers, it can possibly negotiate with

suppliers to reduce material prices or receive discounts on large orders. It may also form a long-term agreement with the suppliers to secure its material source and pricing.

Many companies use automation in their manufacturing processes to increase efficiency in production. Automation not only reduces labor and material costs, but also improves the quality and precision of the products and, thus, largely reduces defective and return rates. Return management is the process by which activities associated with returns and reverse logistics are managed. It is an important factor in cost reduction because a good return management process helps the company manage the product flow efficiently and identify ways to reduce undesired returns by customers.

ii) *Selling, General, and Administrative (SG&A) Expenses*

SG&A is usually one of the largest expenses in a company. Therefore, being able to minimize them will help the company achieve an optimal operating margin. The company should tightly control its marketing budget when planning for next year's spending. It should also carefully manage its payroll and overhead expenses by evaluating them periodically and cutting down on unnecessary labor and other costs. Shipping cost is directly associated with product sales and returns. Therefore, good return management will help reduce the cost of goods sold as well as logistics costs.

3. Capital Efficiency

Capital efficiency is the ratio between dollar expenses incurred by a company and dollars that are spent to make a product or service, which can be referred to as ROCE (Return on Capital Employed) or the ratio between EBIT (Earnings Before Interest and Tax) over Capital Employed. Capital efficiency reflects how efficiently a company is deploying its cash in its operations.

Capital employed is the total amount of capital a company uses to generate profit, which can be simplified as total assets minus current liabilities. A higher ROCE indicates a more efficient use of capital to generate shareholder value, and it should be higher than the company's capital cost.

i) *Property, Plant, and Equipment (PP&E)*

To achieve high capital efficiency, a company would first want to achieve a high return on assets (ROA), which measures the company's net income generated by its total assets.

Over time, the company might also shift to developing proprietary technology, which is a system, application, or tool owned by a company that provides a competitive advantage to the owner. The company can then profit from utilizing this asset or licensing the technology to other companies. Proprietary technology is an optimal asset to possess because it increases capital efficiency to a great extent.

ii) *Inventory*

Inventory is often a major component of a company's total assets, and a company would always want to increase its inventory turnover, which equals net sales divided by average inventory. A higher inventory turnover ratio means that more revenues are generated given the amount of inventory. Increasing inventory turnover also reduces holding costs, consisting of storage space rent, utilities, theft, and other expenses. It can be achieved by effective inventory management, which involves constant monitoring and controlling of inventory orders, stocks, returns, or obsolete items in the warehouse.

Inventory buying efficiency can be greatly improved by using the Just-in-time (JIT) system. Costs are only incurred when the inventory goes out and new orders are being placed, which allows companies to minimize costs associated with keeping and discarding excess inventory.

Ethics of Shareholder Wealth Maximization

There is an idea that businesses focused on money are greedy and don't care about social issues or that socially responsible businesses can't increase stock values. But a company can be both profitable and socially responsible.

Consider the 2008 Great Recession and one of its main causes, the subprime mortgage crisis. These banks were more concerned about their investment portfolios instead of properly loaning money to customers, which is their charge. Those investment portfolios were filled with toxic assets, which eventually compromised the operations of many financial institutions and caused the failure of several big banks. As a result, their share prices fell right along with them. In this case, greed and a lack of social concern led to their downfall.

On the other hand, after almost failing during the Great Recession, automaker GM turned itself around, strengthened its ability to withstand future recessions, and developed "greener" vehicles. As a result, it realized an increase in its share price.

PROFIT MAXIMISATION VERSUS SHAREHOLDER WEALTH MAXIMISATION

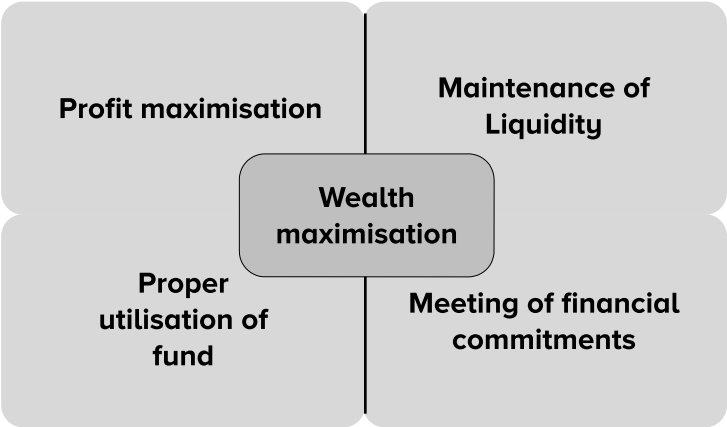
Profit maximisation is basically a single-period or, at the most, a short-term goal. It is usually interpreted to mean the maximisation of profits within a given period of time. A firm may maximise its short-term profits at the expense of its long-term profitability and still realise this goal. In contrast, shareholder wealth maximisation is a long-term goal and shareholders are interested in future as well as present profits. Wealth maximisation is generally preferred because it considers (1) wealth for the long-term, (2) risk or uncertainty, (3) the timing of returns, and (4) the shareholders' return. The following table provides a summary of the advantages and disadvantages of these two often conflicting goals.

Profit Maximisation Vs. Shareholder Wealth Maximisation

Goal	*Objective*	*Advantages*	*Disadvantages*
Profit maximisation	Large amount of profits	1. Easy to calculate profits 2. Easy to determine the link between financial decisions and profits	1. Emphasizes the short term 2. Ignores risk or uncertainty 3. Ignores the timing of returns 4. Requires immediate resources
Shareholder wealth maximisation	Highest market value of common stock	1. Emphasizes the long term 2. Recognizes risk or uncertainty 3. Recognizes the timing of returns 4. Considers return	1. Offers no clear relationship between financial decisions and stock price 2. Can lead to management anxiety and frustration

In other words, the conflict may emerge in the area of profit maximsation and wealth maximisation as an objective of financial management. Profit maximisation would be a measure of attaining profit in a firm and wealth maximisation would consider the effect of earning per share and dividend to shareholders. The objective of wealth maximisation would be fulfilled by increasing the market price of shares through decisions on future cashflow,dividends and earnings per shares but to maximise profit the financial manager may have to consider

issues like – retained earnings, non-payment of dividends, investing funds in profitable outlets. The finance manager has to try and maximise profit without in any way affecting the shareholders wealth because primary goal of financial decision making is to achieve wealth maximisation. Profit maximisation is the narrow objective of financial management because profit is a test of economic efficiency but wealth maximisation is comprehensive objective of financial management, it goes beyond the quantitative aspects as it also considers qualitative benefits in a firm. Wealth maximisation objective is therefore, superior to the profit maximisation concept.



Advantages of Profit Maximisation Hypothesis

1. Prediction:

The profit-maximization hypothesis allows us to predict quite well the behaviour of business firms in the real world. It does not matter that few firms are maximizers in reality. What matters is that they behave without too much difficulty and with reasonable accuracy. Further Arguments for the Profit-Maximization Hypothesis.

2. Proper Explanation of Business Behaviour:

The economist relies on the profit- maximization hypothesis because it is useful in explaining and predicting business behaviour.

3. Knowledge of Business Firms:

Profit motive is the most pervasive force that governs the behaviour of business firms. In the case of small firms facing strong competition from others, they are forced to act as profit maximizers. They must do everything possible to increase sales and reduce costs in order to survive in their competitive environment.

4. Simple Working: The profit-maximization hypothesis is simple, and there are well- developed mathematical tools of analyzing maximization or minimization problems.

5. More Realistic:

Profit maximization is the single best assumption available and introduction of more "realistic" assumptions complicates the analysis considerably without adding much to the predictive power of the model.

Disadvantages of Profit Maximisation

1. Ambiguity in the Concept of Profit:

It has been pointed out that in the assumption of profit maximization; the concept of profit has never been unambiguously stated. Is it rate of profit, total or net profits that a firm tends to maximize? The three concepts have entirely different implications for price theory.

2. Multiplicity of Interests in a Joint Stock Company:

It is argued that with the ushering in of corporate form of enterprise, profit maximization goal has a considerably reduced edge; other goals have come to the fore.

3. No Compulsion of Competition for a Monopolist:

As far as a monopolist goes he has no compulsions to maximize his profit. Since the monopolist ordinarily earns above-normal returns, why should he maximize? In imperfectly competitive industries where barriers to entry are effective, the firm ordinarily does not have to walk the tightrope of zero economic profits. Instead, the existence of monopoly power provides wider range of various alternatives than order conditions of perfect competition.

4. Separation of Ownership from Control:

Under the impact of managerial revolution, there has been a considerable divorce of ownership and control. In modern, gigantic corporations little attempt is made either by individuals or by the groups to maximize profits. Generally, the salaried managers cease to look for profits beyond the level which suffices to pay their salaries and keep the shareholders quiet and the owners are powerless to remedy the situation. In a public corporation set up by statute with no share but only loan capital, the divorce of ownership from control is as complete as imaginable.

In such cases, it may be asked, what replaces profits in the mangers' mind. In really very large firms, the managers may only try to minimize costs and avoid losses but have no interest in increasing profits.

5. The Principle of Decreasing Power:

Keeping maximum business power is another common craze among organizers. It is seen in many cases that growth of the firm through increased number of owners is profitable. But the existing owners are unwilling to introduce any more partners.

This is because the greater the number of owners, the lesser is the power in each hand. The diminution of power on account of the introduction of new partners is called the Principle of decreasing Power. In this way, most entrepreneurs owning small firms have strong feeling to stick to a small firm and independent and exercise unrestrained power rather than to invite new owners and enlarge their profits.

6. Stress on Efficiency, not Profit:

In particular cases some other motives become more important than profit maximizing. In many industries, the manager's aim is the attainment of some non-economic ideal of efficiency such as beauty, size, durability, sharpness of product.

Managers pursue it not only for its own sake but for the good professional reputation it gives them in the trade. In large multi-branch firms, the practice is common to encourage the branches to compete both in buying and selling. Therefore, in place of profit, efficiency is given top priority.

7. Tendency of Following One Trade Only:

It is often seen that businessmen refrain from "integration or other forms of expansion not because they have been calculated to be unprofitable but because "jack of all trades, master of none or some such proverbial wisdom is always there."

8. Conspicuous Consumption:

It should be noted that the firm is not only a producer but a consumer also. Often firms, to impress their clients and various civil servants visiting it, indulge in what may be called Conspicuous consumption. In this regard it

may be noted that this kind of consumption does not go against profit-maximization; profits are first maximized and then spent on non-essential goods. But if the firms indulge themselves, their investment policy cannot be said to be dictated by profitability.

9. Legal Restrictions on Profit-Making:

In mixed developing economies like India, there are very many enterprises—public utilities, development institutions etc. that are legally forbidden to maximize their profits.

Example – Wealth Maximisation

- Typical examples of wealth maximization can be the cases where the shareholders have benefited from investing in a particular stock over some time. Because the company's net worth has grown, this has positively impacted the share values, too and thus increasing shareholders' wealth. A very practical example can be an investment made in 1996 for a US-based company called Havells. It is observed that any investor who has invested in Havells to a tune of $1500 in this stock in 1996 and has retained the stock till now have seen a massive gain from a mere $1500 to $ 4,000,000.
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Advantages of Wealth Maximisation

Some of the advantages of wealth maximisation are as under:

- It is more related to cash flows than profits. Cash flows are more certain and regular, and there is a lack of uncertainty that otherwise is associated with profit.
- Profits are more manipulative, but cash flows are not. Thus, wealth maximization is less prone to manipulation than profit maximization, which relies on profit.
- It is more long-term-focused than profit maximization, which has a short-term focus. Profit maximization is easy to attain because managers may adopt unethical ways to bring short-term profits based on long-term sustainability.
- They consider risk and uncertainty factors while considering the discounting rate, which reflects both the time and risk.

Disadvantages of Wealth Maximisation

Some of the disadvantages of wealth maximisation are as follows:

- It is more based on an idea that is prospective and not descriptive.
- The objectives laid in such a technique are not clear.
- Wealth maximization is largely dependent on the business's profitability as only after the business is profitable can it think of enhancing the wealth of the shareholders.
- It is based on the generation of cash flows and not on the accounting profit

Wealth maximization has both merits and demerits attached to it. It is a very important factor for every investor before one invests in a company. They bring about happiness by generating good returns to their shareholders, and they tend to invest more in such companies, which may be required for their expansion or growth.

Economic Value-Added (EVA) – A Criterion to Gauge Shareholder's Value

The conventional approach to measure profit will deduct cost of loan capital in arriving at profit; but there is no similar deduction for the cost of shareholders. Critics of the conventional approach point out that a business will not make a profit, in an economic sense, unless it covers the cost of all capital invested, including shareholders' funds. Earnings per share tells nothing about the cost of generating those profits. If the cost of capital (loans, bonds, equity) as say, 15 per cent, then a 14 per cent earning is actually a reduction, not a gain, in economic value. Profits also increase taxes, thereby reducing cash flow.

Return on assets is a more realistic measure of economic performance, but it ignores the cost of capital. Leading firms can obtain capital at low costs, via favourable interest rates and high stock prices, which they can then invest in their operations at decent rates of return on assets. This tempts them to expand without paying attention to the real return, economic value-added.

Economic value added (EVA) is the after tax cash flow generated by a business minus the cost of the capital it has deployed to generate that cash flow. Representing real profit versus paper profit, EVA underlines shareholder value, increasingly the main target of leading companies strategies. Shareholders are the players who provide the firm with its capital; they invest to gain a return on that capital.

The concept of EVA is well established in financial theory, buy only recently has the term moved into the mainstream of corporate finance, as more and more firms adopt it as the base for business planning and performance monitoring. There is growing evidence that EVA, not earnings, determines the value of a firm. There is difference between EVA, earnings per share, return on assets, and discounted cash flow, as a measure of performance.

Discounted cash flow is very close to economic value-added, with the discount rate being the cost of capital.

There are two key components to EVA. The net operating profit after tax (NOPAT) and the capital charge, which is the cost of capital times the amount of capital. In other words, it is the total pool of profits available to provide cash return to those who provided capital to the firm. The capital charge is the product of the cost of capital times the capital tied up in the investment. In other words, the capital charge is the cash flow required to compensate investors for the riskiness of the business given the amount of capital invested. On the one hand, the cost of capital is the minimum rate of return on capital required to compensate debt and equity investors for bearing risk-a cut-off rate to create value and capital is the amount of cash invested in the business, net of depreciation (Dierks and Patel, 1997). In formula form,

EVA = (Operating Profit) – (A Capital Charge)

EVA = NOPAT – (Cost of Capital x Capital)

The functions of EVA can be understood from the following perspectives-

i) *EVA as a Performance Measure* : There is a continuous endeavor to develop a single measure that captures the overall performance, yet which is easy to calculate and is also economical. In order to achieve goal congruence, manager s compensation is often linked with the performance of the firm. Investors decide whether to invest in a firm, or to continue with the firm or to exit from it, only on the basis of overall performance of the firm. The only suitable solution to the above stated problems is 'EVA'.

   ROI, ROE and ROA gives us the rate of return earned by the firm with respect to capital invested in the firm. The most important limitation of these measures are derived from limitations inherent in the measurement of accounting profit. But these limitations are also associated with EVA. The difference lies only in the fact that the cost of equity is also factored to arrive at the residual income.

   EVA stresses that in order to justify investments in the long run they have to produce at least a return that

covers the cost of capital as otherwise the shareholders would be better off investing elsewhere. This approach includes that the organization tries to operate without excess capital. While the accountants are familiar with the concept of residual value, its application in economic value measurement as a means of evaluating underlying business performance e is nothing short of an overhaul of traditional accounting concepts.

ii) *EVA as a Corporate Philosophy*: EVA, when implemented at every level of managerial decision making process, encourages managers to deploy resources only on value enhancing activities and to align the interests of shareholders with managers. This involves two things- one is linking managerial compensation package with EVA and second is to inculcate the culture of evaluating every action from the viewpoint that it should generate EVA. The ultimate out come should be enhancement in the shareholders wealth measured by the capital market.

The simplicity of EVA in communicating the very fundamental principle that only the generation of surplus over cost of capital can enhance shareholders wealth makes it a management technique superior to other planning and control techniques.

Problem: XYZ Ltd. has capital investment of ₹ 150 crores. After tax operating income is ₹ 20 crores and company has a cost of capital of 12%. Estimate the Economic Value Added of the firm.

Solution: Capital employed 150 crores NOPAT= ₹ 20 crores

WACC = 12 %

EVA = NOPAT- (WACC-CE)

= 20 – (12% x 150)

= ₹ 2 crores

NOPAT - Net Operating Profit after Tax

WACC - Weighted Average Cost of Capital

CE- Capital Employed

Example

Say you made a ₹ 20,000 capital investment in your company. Your operating profit, after taxes, is ₹ 10,000. The opportunity cost of that investment is 10%.

In this case EVA would be Net Operating Profit after taxes – Cost of Capital i.e. ₹ 10,000- 10% of ₹ 20,000 = ₹ 8,000.

The goal of EVA is to take into account the cost of capital invested in the company.

Thus, EVA represents the value added to the shareholders by generating operating profits in excess of the cost of capital employed in the business. EVA will increase if:

i. Operating profits grow without employing additional capital i.e., through greater efficiency.

ii. Additional capital is invested in the projects that give higher returns than the cost of procuring new capital, and

iii. Unproductive capital is liquidated i.e., curtailing the unproductive uses of capital.

Implementing EVA in a company is more than just patting one additional row in the income statement. It is of course some kind of change process which should be given some management effort. However, if right actions are taken straight from the beginning then implementing EVA should be one of the easiest change process that a company goes through. The actions might include e.g.:

- Gaining the understanding and commitment of all the members of the management group through training and discussing and using this support prominently during the process.
- Training of the other employees, especially all the key persons.
- Adopting EVA in all levels of organization.

However, there are a few common mistakes that are often made in implementing or using EVA. Most of them are bound up with either misunderstanding and thus misusing the concept at upper levels or not training all the employees to use EVA and thus not using the full capacity of the concept. These common mistakes include defining capital costs intentionally wrongly (usually too high for some reason), using EVA only in the upper management level and investing too little in training of employees.

Advantages of the Economic Value Added (EVA)

The following Some outstanding advantages of economic value added (EVA) below are:

1. EVA may be a tool that helps to focus managers' attention on the impact of their decisions in increasing shareholders' wealth.
2. EVA may be a good guide for investors; as on the bias of EVA, they will decide whether a specific company is worth investing money in or not. They can use as a basis for the valuation of goodwill and shares. Unlike accounting profit, like EBIT, net, and EPS, EVA Economic and predicate on the thought that a business must cover both the operating costs also because the capital costs and hence it presents a far better and true picture of the corporate to the owners, creditors, employees, shareholders, and everyone other interest parties.
3. EVA may be a good controlling device during a decentralized enterprise. Management can apply EVA to seek out the EVA contribution of every decentralized unit or segment of the corporate. It helps the corporate in monitoring the matter areas and hence taking corrective action to resolve those problems.
4. EVA can improve the company's corporate governance because since a better EVA implies higher bonuses to the managers; they're going to be working hard and also honestly; which successively augurs well for the corporate.
5. EVA helps the corporate owners identify the simplest person to run the corporate effectively and efficiently.

Disadvantages of the Economic Value Added (EVA)

The following some outstanding disadvantages of economic value added (EVA) below are:

1. EVA does not take size differences into consideration. A plant or division that is larger in size will obviously have a higher EVA, in comparison to something that is smaller in size, which could distort your calculations and give you an inaccurate result.
2. EVA can be used for personal gains by the manager, which might not be particularly profitable for the firm.
3. EVA might overemphasize the immediate need to generate the results. It might put more emphasis on short-term gains than long-term ones.

Interpreting the calculated EVA

When using EVA to assess the performance of an organisation or a division, the following should be considered:

1. Is it positive? If so, that is favourable, as it means that the organisation is providing a return that is greater than that required by providers of finance. It is creating wealth.

2. What is the trend over time? Is the calculated EVA increasing or not? Even if the trend is down, the organisation has still performed favourably if the calculated EVA is positive.
3. Reasons for changes in EVA also need to be investigated. For individual projects, EVA is only really meaningful when looking at the whole lifespan of a project. In the early years of a project's life, when the net book value of the assets is higher, the finance charge may also be higher, leading to a lower value of EVA , whereas in later years the reverse is true.

MARKET VALUE ADDED (MVA) – ANOTHER CRITERION TO GAUGE WEALTH MAXIMIZATION

Market value added (MVA) is a calculation that shows the difference between the market value of a company and the capital contributed by all investors, both bondholders and shareholders. In other words, it is the sum of all capital claims held against the company plus the market value of debt and equity. It is calculated as:

MVA = V – K

where MVA is the market value added of the firm, V is the market value of the firm, including the value of the firm's equity and debt (its enterprise value), and K is the total amount of capital invested in the firm.

Example-1

Calculate the market value added using the following information:

Total number of shares issued = 20,000,000

Number of shares held as treasury stock =1,100,000

Current share price = $35.5

Total invested capital plus retained earnings = $453,503,000

Cost of treasury stock = $39,050,000

Assume that the market value of debt equals its book value.

Solution

Number of Shares Outstanding = 20,000,000 − 1,100,000 = 18,900,000

Market Capitalization = 18,900,000 × $35.5 = $670,950,000

Total Shareholders' Equity

= Total Invested Capital + Retained Earnings − Cost of Treasury Stock

= $453,503,000 − $39,050,000 = $414,453,000

Market Value Added for Shareholders = $670,950,000 − $414,453,000 = $256,497,000

Market Value Added for all Investors

= Market Value of Equity − Total Shareholders' Equity + Market Value of Debt − Book Value of Debt

= $256,497,000 + 0 = $256,497,000

Example -2

Company XYZ whose shareholders' equity amounts to $750,000. The company owns 5,000 preferred shares and 100,000 common shares outstanding. The present market value for the common shares is $12.50 per share and $100 per share for the preferred shares.

Market Value of Common Shares = 100,000 * $12.50 = $1,250,000

Market Value of Preferred Shares = 5,000 * $100 = $500,000

Total Market Value of Shares = $1,250,000 + $500,000 = $1,750,000

Using the figures obtained above:

Market Value Added = $1,750,000 – 750,000 = $1,000,000

FINANCIAL DISTRESS AND INSOLVENCY

Generally the affairs of a firm should be managed in such a way that the total risk – business as well as financial – borne by equity holders is minimised and is manageable, otherwise, the firm would obviously face difficulties. In managing business risk, the firm has to cope with the variability of the demand for its products, their prices, input prices, etc. It has also to keep a tab on fixed costs. As regards financial risk, high proportion of debt in the capital structure entails a high level of interest payments. If cash inflow is inadequate, the firm will face difficulties in payment of interest and repayment of principal. If the situation continues long enough, a time will come when the firm would face pressure from creditors. Failure of sales can also cause difficulties in carrying out production operations. The firm would find itself in a tight spot. Investors would not invest further. Creditors would recall their loans. Capital market would heavily discount its securities. Thus, the firm would find itself in a situation called distress. It may have to sell its assets to discharge its obligations to outsiders at prices below their economic values i.e. resort to distress sale. So when the sale proceeds is inadequate to meet outside liabilities, the firm is said to have failed or become bankrupt or (after due processes of law are gone through) insolvent.

Failure of a firm is technical if it is unable to meet its current obligations. The failure could be temporary and might be remediable. When liabilities exceed assets i.e. the net worth becomes negative, bankruptcy, as commonly understood, arises. Technical bankruptcy can be ascertained by comparing current assets and current liabilities i.e. working out current ratio or quick ratio. On the other hand, solvency ratios indicate long term liquidity i.e. the ability of the firm to discharge its term-liabilities. Examples of solvency ratios are Debt to Equity ratio, Debt to total Funds Ratios, and Interest coverage ratio. Trend analysis should be made for the past three to five years to pick up signals of bankruptcy, if any.

FINANCIAL MANAGEMENT IS A SCIENCE OR AN ART

Financial Management is a subject within the compass of social science as it deals with people. Its nature is nearer to applied sciences as it envisages use of classified and tested knowledge as a help in practical affairs and solving business.

Theory of financial management is based on certain systematic principles, some of which can be tested in mathematical equations like the law of physics and chemistry. Financial management contains a much larger body of rules or tendencies that hold true in general and on the average. The use of computers, operations research, statistical techniques and econometric models find wide application in financial management as tools for solving corporate financial problems like budgeting, choice of investments, acquisition or mergers etc. This takes the financial management nearer to treatment as a subject of science. Nevertheless, there remains a wide scope for application of value judgement in financial decision making. Most practical problems of finance have no hard and fast answers that can be worked out mathematically or programmed on a computer. They must be solved by value judgement, intuition and the “feel” of experience. Thus, despite its frequent acceptance as an applied science, finance remains largely an art. Because, according to George A. Christy and Peyton Foster Roden (Finance: Environment and Decisions) knowledge of facts, principles and concepts is necessary for making decisions but personal involvement of the manager through his intuitive capacities and power of judgement becomes essential. This makes financial management and managing a company’s finance both an

art and a science. It requires a feel for the situation and analytical skills alongwith a thorough knowledge of the techniques and tools of financial analysis and the know-how to apply them and interpret the results.

A very interesting presentation has been made by Weston in his book "Methodology in Finance". The finance functions are mainly three viz., planning, organisation and financial control. In each of these finance functions elements of science and art can be observed. Wherever methodology is to be applied in decision making in all these areas, the subject matter becomes a science confronted with the framework of techniques and tools. On the other hand, when the question of choice to make selection out of the alternative results arises the subject matter becomes an art requiring human skills for value judgement. For example, in planning function, there are certain goals, which may be short-term goals or long-term goals. Each falls within the area of art. Another parameter of planning is estimating funds, which may again be short-term or long-term involving techniques and skills. When involvement to techniques is there the subject matter remains science and when the skills are required to be interpreted, the subject matter becomes an art. It so happens in all aspects of planning, organisation and control.

Thus, in the entire study of financial management whether it is related to investment decision, financing decisions i.e. deciding about the sources of financing, or dividend decision, there is a mixture of science as well as art. When techniques for analytical purposes are used it is science and when choice in appreciation of the results is made it is an art. Thus, people will like to call financial management as science as well as art. But it is better if we say that the discipline of financial management has both the aspects of science as well as art; where there is theory of systematic knowledge it is science and where there is application it is art.

EMERGING ROLES OF FINANCIAL MANAGER

With the evolution of finance from being mere a descriptive study to the one that is highly developed discipline, the role of financial managers has also undergone a sea change. His areas of responsibilities now extend far beyond keeping records, reports, the firm's cash position, paying bills and obtaining funds, and he is now concerned with and is fully involved in the decision making processes to decide investment of funds in assets, determining the best mix of financing and dividends in relation to overall valuation of the firm. The responsibilities of the financial manager are linked to the goal of ensuring liquidity, profitability or both and is also related to the management of assets and funds of any business enterprise. When the Financial Manager is involved in management of asset, he is performing the role of the decision-maker and when he is managing funds, he is performing the staff function. In the light of different responsibilities of the financial manager, he performs mainly the following duties:

1. ***Forecasting of Cash Flow:*** This is necessary for the successful day to day operations of the business so that it can discharge its obligations as and when they arise. In fact, it involves matching of cash inflows against outflows and the manager must forecast the sources and timing of inflows from customers and use them to pay the liability.
2. ***Raising Funds:*** The Financial Manager has to plan for mobilising funds from different sources so that the requisite amount of funds are made available to the business enterprise to meet its requirements for short term, medium term and long term.
3. ***Managing the Flow of Internal Funds:*** Here the Manager has to keep a track of the surplus in various bank accounts of the organisation and ensure that they are properly utilised to meet the requirements of the business. This will ensure that liquidity position of the company is maintained intact with the minimum amount of external borrowings.
4. ***To Facilitate Cost Control:*** The Financial Manager is generally the first person to recognise when the costs for the supplies or production processes are exceeding the standard costs/budgeted figures. Consequently, he can make recommendations to the top management for controlling the costs.

5. ***To Facilitate Pricing of Product, Product Lines and Services:*** The Financial Manager can supply important information about cost changes and cost at varying levels of production and the profit margins needed to carry on the business successfully. In fact, financial manager provides tools of analysis of information in pricing decisions and contribute to the formulation of pricing policies jointly with the marketing manager.

6. ***Forecasting Profits:*** The Financial manager is usually responsible for collecting the relevant data to make forecasts of profit levels in future.

7. ***Measuring Required Return:*** The acceptance or rejection of an investment proposal depends on whether the expected return from the proposed investment is equal to or more than the required rate of return. An investment project is accepted if the expected return is equal or more than the required rate of return. Determination of required rate of return is the responsibility of the financial manager and is a part of the financing decision.

8. ***Managing Assets:*** The function of asset management focuses on the decision-making role of the financial manager. Finance personnel meet with other officers of the firm and participate in making decisions affecting the current and future utilisation of the firm's resources. As an example, managers may discuss the total amount of assets needed by the firm to carry out its operations. They will determine the composition or a mix of assets that will help the firm best achieve its goals. They will identify ways to use existing assets more effectively and reduce waste and unwarranted expenses.

   The decision-making role crosses liquidity and profitability lines. Converting the idle equipment into cash improves liquidity. Reducing costs improves profitability.

9. ***Managing Funds:*** Funds may be viewed as the liquid assets of the firm. In the management of funds, the financial manager acts as a specialised staff officer to the Chief Executive of the company. The manager is responsible for having sufficient funds for the firm to conduct its business and to pay its bills. Money must be located to finance receivables and inventories, to make arrangements for the purchase of assets, and to identify the sources of long- term financing. Cash must be available to pay dividends declared by the board of directors. The management of funds has therefore, both liquidity and profitability aspects. If the firm's funds are inadequate, the firm may default on the payment of liabilities and may have to pay higher interest. If the firm does not carefully choose its financing methods, it may pay excessive interest costs with a subsequent decline in profits.

RELATION OF FINANCE TO ECONOMICS AND ACCOUNTING

Financial management has a close relationship to economics on the one hand and accounting on the other.

Relationship to Economics: There are two significant linkages between economics and finance. The macro-economic environment defines the setting within which a firm operates and the micro-economic theory provides the conceptual underpinning for the tools of financial decision making.

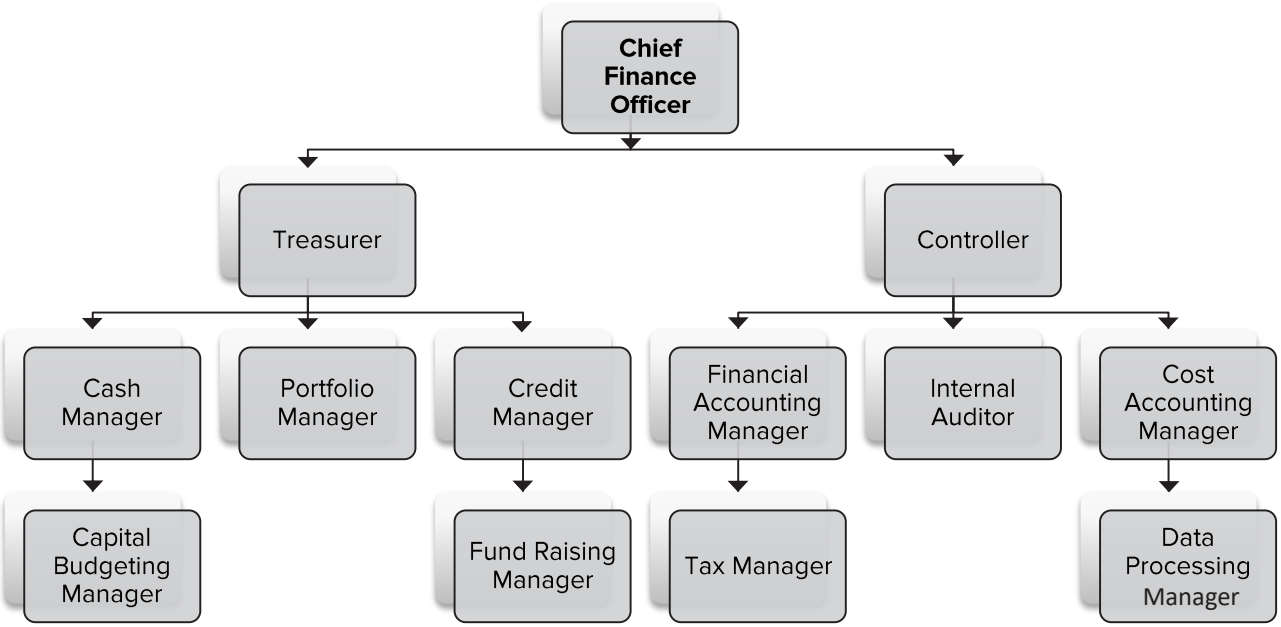
Key macro-economic factors such as the growth rate of the economy, the domestic savings rate, the role of the government in the economic affairs, the tax structure, the nature of external economic relationships, the availability of funds to the corporate sector, the rate of inflation, the real rate of interest, and the terms on which the firm can raise finances define the environment in which the firm operates. No financial manager can afford to ignore the important developments in the macro-economic sphere and the impact of the same on the firm.

While an understanding of the macro-economic developments sensitises the financial manager to the opportunities and threats in the environment, a firm grounding in micro-economic principles sharpens his analysis of decision alternatives. Finance, in essence, is applied micro-economics. For instance, the principle of marginal analysis- a key principle of micro-economics according to which a decision should be guided by comparison of incremental benefits and costs is applicable to a number of managerial decisions in finance.

Thus in a nutshell, a basic knowledge of macro-economics is essential for comprehending the environment in which the firm operates and a good grasp of micro-economic principles is helpful in sharpening the tools of financial decision making.

Relationship to Accounting: The finance and accounting functions are closely related and almost invariably fall within the realm of the chief financial officer as shown in the exhibit below-

Organisation of Finance Function



Given this affinity, it is not surprising that in popular perception finance and accounting are often considered indistinguishable or at least substantially overlapping. However, as a student of finance one must know how the two differ and how the two relate. The following discussion highlights the differences and relationship between the two.

Score Keeping vs. Value Maximising- Accounting is concerned with score keeping, whereas finance is aimed at value maximizing. The primary objective of accounting is to gauge the performance of the firm, assess its financial condition, and ascertain the base for tax payment. The principal goal of financial management is to create shareholder value by investing in positive net present value projects and minimising the cost of financing. Of course, financial decision making requires substantial inputs from accounting. As Gitman says:

"The accountant's role is to provide consistently developed and easily interpreted data about the firm's past, present, and future operations. The financial manager uses these data, either in raw form or after certain adjustments and analyses , as an important input to the decision making process."

Accrual Method vs. Cash Flow Method- The accountant prepares the accounting reports based on the accrual method which recognises revenues when the sale occurs (irrespective of whether the case is realised immediately or not) and matches expenses to sales (irrespective of whether cash is paid or not). The focus of the financial manager, however, is on cash flows. He is concerned about the magnitude, timing, and risk of cash flows as these are the fundamental determinants of values.

Certainty vs. Uncertainty: Accounting deals primarily with the past. It records what has happened. Hence, it is relatively more objective and certain. Finance is concerned mainly with the future. It involves decision making under the imperfect information and uncertainty. Hence, it is characterised by a high degree of subjectivity.

LESSON ROUND-UP

- Financial Management deals with procurement of funds and their effective utilizations in the business and concerned with investment, financing and dividend decisions in relation to objectives of the company.
- Investment decisions are essentially made after evaluating the different project proposals with reference to growth and profitability projections of the company.
- Financing decisions are concerned with the determination of how much funds to procure from amongst the various avenues available i.e. the financing mix or capital structure.
- Dividend decision is to decide whether the firm should distribute all profits or retain them or distribute a portion and retain the balance.
- Profit maximization ensures that firm utilizes its available resources most efficiently under conditions of competitive markets.
- Wealth maximization means the management of an organization maximizes the present value not only for shareholders but for all including employees, customers, suppliers and community at large.
- Economic value added is the after cash flow generated by a business minus the cost of capital it has deployed to generate that cash flow.
- Liquidity means ability of the business to meet short-term obligations. It shows the quickness with which a business/company can convert its assets into cash to pay what it owes in the near future.
- Profitability ratio reflects on the ability of management to earn a return on resources put in by the shareholders evaluating the performance of the company in different spheres
- Affairs of the firm should be managed in such a way that the total risk – business as well as financial borne by equity shareholders is minimised and is manageable.

GLOSSARY

Risk Premium: A risk premium is the investment return an asset is expected to yield in excess of the risk-free rate of return. An asset's risk premium is a form of compensation for investors. It represents payment to investors for tolerating the extra risk in a given investment over that of a risk-free asset.

Net worth: Net worth is an easy one to start with. You may have heard the term in your day-to-day, from financial experts discussing a company's net worth, to magazines discussing a certain celebrity's value in dollars. In a business context, net worth simply means the difference between your total assets and total amount you owe to your creditors and other financial stakeholders.

A positive net worth indicates good financial health, whilst a negative net worth means your company is operating at a loss.

Inflation: Without getting too much into the nitty gritty of corporate finance, inflation means the sustained increase in the price of goods and services over a certain period, in relation to the value of your national currency. One inflation indicator working professionals should look out for is if their income is rising proportionately with the national rate of inflation. Furthermore, if your organisation operates on a global scale, inflation can have an impact on your price point when selling outside your country's borders.

Diversification: Diversification is a risk management strategy that mixes a wide variety of investments within a portfolio. A diversified portfolio contains a mix of distinct asset types and investment vehicles in an attempt at limiting exposure to any single asset or risk. The rationale behind this technique is that a portfolio constructed of different kinds of assets will, on average, yield higher long-term returns and lower the risk of any individual holding or security.

Enterprise Value (EV): A measure of a company's value, calculated by: market capitalisation plus debt & preferred shares minus cash and cash equivalents. It is the theoretical takeover price that a buyer would pay for a company less the cash.

Non-Financial Goals

The non-financial goals include:

i) Environmental care;

ii) Enhancing ethics in business and finance;

iii) Employee welfare;

iv) Corporate social responsibility;

v) Good creditor relations;

vi) Compliance with government regulations;

vii) Addressing customers' interests.

TEST YOURSELF

(These are meant for recapitulation only. Answer to these questions are not to be submitted for evaluation)

1. The_____ relates to the decision made by the investors or the top level management with respect to the amount of funds to be deployed in the investment opportunities.
   a. Investment decision
   b. Financing decision
   c. Purchasing decision
   d. Dividend decision
2. The entry of a new competitor into a market is which form of risk?
   a. Systematic risk
   b. Divesifiable risk
   c. Partial risk
   d. Parellel risk
3. The formula to compute net profit margin is:
   a. Profit after Tax / Net Sales x 100
   b. Profit before Tax / Net Sales x 100
   c. Profit after Tax – Net Sales x 100
   d. Profit after Tax + Net Sales x 100

4. Liquidity ratio enables a company to assess its_____
   a. Capital Expenditure
   b. Profits
   c. Long-term Working Capital
   d. Net Working Capital
5. _____ are the financial decisions related to raising of finance. It involves identification of various sources of finance and the quantum of finance to be raised from long-term and short-term sources.
   a. Dividend decisions
   b. Sales decisions
   c. Financing decisions
   d. Profit decisions

ESSAY TYPE QUESTIONS

1. Contrast the salient features of the traditional and modern approaches to financial management.
2. Discuss the three broad areas of financial decision making.
3. What is the justification for the goal of maximising the wealth of shareholders?
4. What do the critics of the goal of maximising shareholders wealth say?
5. Critically evaluate the goals of maximisation of profit and maximisation of return on equity.
6. What forces are prodding companies in India to accord greater importance to the goal of shareholder wealth maximisation?
7. Discuss the risk-return trade-off in financial decisions.
8. What are the agency costs and how can they be mitigated?
9. "Financial management is in many ways an integral part of the jobs of managers." Comment.
10. Comment on the emerging role of the finance manager.

LIST OF FURTHER READINGS

1. Financial Management - Text, Problems and Cases by MY Khan and PK Jain, 8th Edition
2. Financial Management, Theory and Practice by Prasanna Chandra, 10th Edition
3. Financial Management by I.M.Pandey, 12th Edition
4. Fundamentals of Financial Management (14th Edition) by R P Rustagi, Taxmann Publlications.
5. Advanced Financial Management by Kohok M.A., Everest Publishing House.
6. Financial Management by Inamdar S.M. by Everest Publishing House.
7. *https://www.britannica.com/topic/business-finance*
8. *https://www.yourarticlelibrary.com/financial-management/financial-management-its-definition-meaning-and-objectives-discussed/27963*

Time Value of Money

Lesson 12

KEY CONCEPTS

■ Time Value of Money ■ Compound and Simple Interest ■ Present Value ■ Future Value ■ Annuity

Learning Objectives

To understand:

- Meaning and significance of time value of money.
- Future value of a single present cash flow.
- Future value of a series of unequal cash flows over a period of time.
- Future value of a series of equal cash flows over a period of time (FV of an annuity)

Lesson Outline

- Introduction
- Concepts of Time Value of Money
- Present Value of an Uneven Series
- Present Value of an Annuity
- Doubling Period
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings
- Other References

Introduction

Money has time value. A rupee today is more valuable than a rupee a year hence. The key reasons or it are as under:

i) Individuals, in general, prefer current consumption to future consumption.

ii) Capital can be employed productively to generate positive returns. An investment of one rupee today would grow to (1+r) a year hence (r is the rate of return earned on the investment).

iii) In an inflationary period a rupee today represents a greater rea purchasing power than a rupee a year hence.

Most financial problems involve cash flows occurring at different points of time. These cash flows have to be brought to the same point of time for purposes of comparison and aggregation. Hence one should understand the tools of compounding and discounting which underlie most of what we do in finance- from valuing securities to analysing projects, from determining lease rentals to choosing the right financing instruments, from setting up the loan amortisation schedules to valuing companies, so on and so forth.

Time Value of Money (TVM) is a fundamental financial concept, stating that the current value of money is higher than its future value, given its potential to earn in the years to come. Thus, it suggests that a sum of money in hand is greater in value than the same sum of money received in the next couple of years.

'Time value of money' is central to the concept of finance. It recognizes that the value of money is different at different points of time. Since money can be put to productive use, its value is different depending upon when it is received or paid.

Key takeaways-

1. The time value of money means that a sum of money is worth more now than the same sum of money in the future.
2. The principle of the time value of money means that it can grow only through investing so a delayed investment is a lost opportunity.
3. The formula for computing the time value of money considers the amount of money, its future value, the amount it can earn, and the time frame.
4. For savings accounts, the number of compounding periods is an important determinant as well.
5. Inflation has a negative impact on the time value of money because your purchasing power decreases as prices rise.

CONCEPTS OF TIME VALUE OF MONEY

Compound and Simple Interest

So far we have observed the cases where money is invested at compound interest which means that each interest payment is reinvested to earn further interest in future periods. By contrast, if no interest is earned on interest the investment earns only simple interest. In such a case the investment grows as follows:

Future value = Present Value [1+Number of years x Interest rate].

For example, an investment of Rs.1,000, if invested at 12 percent simple interest rate will in 5 years time become:

1,000 [1 + 5 x 0.12] = Rs.1,600.

The following exhibit 1 shows how an investment of Rs.1,000 grows over time under simple interest as well as

compound interest when the interest rate is 12 percent. From this exhibit one can comprehend the power of compound interest. As Albert Einstein once remarked: "I don't know what the seven of the world are, but I know the eight- compound interest".

Exhibit 1

Power of Compounding

Year	*Simple Interest*			*Compound Interest*		
	Starting Balance + Interest =Ending Balance			*Starting Balance + Interest = Ending Balance*		
	Starting Balance	*Interest*	*Ending Balance*	*Starting Balance*	*Interest*	*Ending Balance*
1	1000	100	1100	1000	100	1100
5	1400	100	1500	1464	146	1610
10	1900	100	2000	2358	236	2594
20	2900	100	3000	6116	612	6728
50	5900	100	6000	106,718	10672	117,390
100	10900	100	11000	12,527,829	1,252,783	13,780,612

Thus, from the above exhibit it can be observed that how money grows under simple interest and compound interest. Note that under simple interest the growth is linear and under compound interest the growth is exponential.

In the ensuing paragraphs now we will focus on the crucial concepts of time value of money, i.e., Present value of a single amount, Future value of a single amount.

1. Present Value of a Single Amount

Many times in business and life, we want to determine the value today of receiving a specific single amount at some time in the future. For example, suppose you want to know the value today of receiving $15,000 at the end of 5 years if a rate of return of 12% is earned.

Another way of asking this question is: What amount would you need to invest today at 12% compounded annually in order to receive $15,000 after 5 years?

Problems and questions like this are known as "present value of a single amount problems." This is because we are interested in finding the present value, or the value today, of receiving a set sum in the future. Intuitively, we know that the present value will be less than the future value. For example, if you had the choice of receiving $12,000 today or in 2 years, you would take the $12,000 today.

This is because you can invest the $12,000 so that it will accumulate to more than $12,000 at the end of 2 years. Another way of looking at this is to say that because of the time value of money, you would take an amount less than $12,000 if you could receive it today, instead of $12,000 in 2years. The amount you would be willing to accept depends on the interest rate or the rate of return you receive.

The formula used to calculate the present value of a single amount is:

PV = FV/(1 + i) n where PV = present value, FV = future value, i = decimalized interest rate, and n = number of periods.

Illustration 1:

Suppose a company expects to receive $8,000 after 5 years. Calculate the present value of this sum if the current market interest rate is 12% and the interest is compounded annually.

Solution:

The way to solve this is to apply the above present value formula. In this example, the number of periods (n) is 5 and the interest rate (i) is 12%. Therefore, the present value (PV) is calculated as follows:

$PV = FV \times 1 / (1+i)^n$

$= 8{,}000 \times 1 / (1+12\%)^5$

$= 8{,}000 \times 1 / (1+0.12)^5$

$= 8{,}000 \times 1 / (1.12)^5$

$= 8{,}000 \times 1 / 1.7623$

$= 8{,}000 \times 0.5674$

PV = $4,540

Illustration 2: What is the present value of $1,000 received in two years if the interest rate is?

(a) 12% per year discounted annually.

(b) 12% per year discounted semi-annually.

(c) 12% per year discounted daily

Solution:

(a) 12% per year discounted annually.

$=1{,}000 / (1 + 0.12)^2$

= $797.19

(b) 12% per year discounted semi-annually.

$= 1{,}000 / (1 + 0.12/2)^{2*2}$

= $792.09

(c) 12% per year discounted daily

$= 1{,}000 / (1 + 0.12/365)^{2*365}$

= $786.66

Illustration 3: $7,000 for 10 years from now at 7% is worth how much today?

Solution:

$7{,}000 / (1 + 0.07)^{10}$

= $3,558.45

Illustration 4: What is the present value of $84,253 to be received or paid in 5 years discounted at 11% by table and factor formula?

Solution:

= 84,253 (PVIF 11%, 5)

PV = 84,253 (0.5935)

Illustration 5:

Mr. Nadeem owes a total of $3,060 which includes 12% interest for the three years he borrowed the money. How much did he originally borrow?

Solution:

$= 3{,}060 / (1 + 0.12)^{3}$

Illustration 6:

If Ramesh want $2,000 three years from now and the compounded interest rate is 8%, how much should he invest today?

Solution:

$=2{,}000 / (1 + 0.08)^{3}$

= **$1,587.66**

Illustration 7:

What is the present value of an offer of $14,000 two years from now if the opportunity cost of capital (discount rate) is 17% per year discounted annually?

Solution:

$=14{,}000 / (1 + 0.17)^{2}$

= **$10,227.19**

Illustration 8:

If you invested $50,000 at one point in time and received back $80,000 ten years later, what annual interest (or growth) rate (compounded annually) would you have obtained?

Solution:

$= (80{,}000/50{,}000)^{(1/10)} – 1$

= **4.81%**

Illustration 9:

How much would you have to deposit today to have $10,000 in five years at 6% interest discounted quarterly?

Solution:

$= 10{,}000 / (1 + 0.06 / 4)^{5 * 4}$

= **$7,424.46**

Illustration 10:

What is the present value of an offer of $15,000 one year from now if the opportunity cost of capital (discount rate) is 12% per year nominal annual rate compounded monthly?

Solution:

$= 15{,}000 / (1 + 0.12/12)^{1*12}$

= **$13,311.74**

Illustration 11:

Calculate the present value of each cash flow using a discount rate of 7%. Which do you most prefer most?

S. No	***Cash Flows***	***Solution***
1	Cash flow A: receive $60 today and then receive $60 in four years	PV of A = 60+60*1.07 -4 = $105.77
2	Cash flow B: receive $12 every year, forever, starting today.	12+12/0.07= $183.43
3	Cash flow C: pay $50 every year for five years, with the first payment being next year, and then subsequently receive $30 every year for 20 years.	-50/0.07*(1-1.07-5)+30/0.07*(1-1.07-20)*1.07-5 = $21.59
4	Cash flow D: receive $9 every other year, forever, with the first payment being next year.	9/(1.072-1)*1.07 = $66.46

Present Value of an Uneven Series

In financial analysis we often witness uneven cash flow streams. For instance, the cash flow stream associated with a capital investment project is typically uneven. Likewise, the dividend stream associated with an equity share is usually uneven and perhaps growing.

The present value of a cash flow stream- uneven or even may be calculated with the help of the following formula:

Following is the formula to calculate the PV of uneven cash flows:

		CF_0		CF_1		CF_2				CF_N
PV	=	——	+	——	+	——	+	——	+	——
		$(1 + r)^0$		$(1 + r)^1$		$(1 + r)^2$				$(1 + r)^N$

In simple words, we can put the above formula as:

PV = Sum of CF_n/(1 + r)^n

In the above formula,

In is the number of years, CF_n is the cash flow for the year, and n and r is the discount rate for the year. The discount rate is generally the opportunity rate or interest that an asset could generate elsewhere.

The following table explains the present value of an uneven cash flow stream

Year	***Cash Flow (Rs.)***	***PVIF $_{12\%,n}$***	***Present Value of Individual Cash Flow***
1	1,000	0.893	893
2	2,000	0.797	1,594

3	2,000	0.712	1,424
4	3,000	0.636	1,908
5	3,000	0.567	1,701
6	4,000	0.507	2,028
7	4,000	0.452	1,808
8	5,000	0.404	2,020
Present Value of the Cash Flow Stream			13,376

Illustration 12:

A project generates the following cash flows;

Beginning of years:

1 – ($100,000) (contractors' fees)

2 – ($200,000) (contractors' fees)

3 – ($200,000) (contractors' fees)

End of Year 3 : $1,000,000 (sales)

Calculate the NPV of the project using a risk discount rate of 20% per year.

Solution:

NPV = 100,000 – 200,000 $(1+ 0.2)^{-1}$ – 200,000$(1 + 0.2)^{-2}$ +1000,000$(1+ 0.2)^{-3}$

= -100,000 – 166,667 – 138,889 + 578,704

= **$173,148.**

Present Value of an Annuity

The present value of an annuity is the current value of future payments from an annuity, given a specified rate of return, or discount rate. The higher the discount rate, the lower the present value of the annuity.

Key points-

- The present value of an annuity refers to how much money would be needed today to fund a series of future annuity payments.
- Because of the time value of money, a sum of money received today is worth more than the same sum at a future date.
- One can use a present value calculation to determine whether he will receive more money by taking a lump sum now or an annuity spread out over a number of years.

The formula to compute Present Value of an Annuity is as under:

$$P = PMT \times \frac{1 - (1 / (1 + r)^{n})}{r}$$

where:

P= Present value of an annuity stream.

PMT = Monetary value of each annuity payment.

r = Interest rate (also known as discount rate).

n = Number of periods in which payments will be made.

Illustration 13:

Assume a person has the opportunity to receive an ordinary annuity that pays $50,000 per year for the next 25 years, with a 6% discount rate, or take a $650,000 lump-sum payment. Which is the better option? Using the above formula, the present value of the annuity is:

$$\text{Present Value} = \$50{,}000 \times \frac{1 - (1 / (1+0.06)^{25})}{0.06}$$

= **$639,168**

Applications of Present Value of an Annuity

The present value annuity formula can be applied in a variety of contexts. Its important applications are as under:

a) *How much can you borrow for a car:* After reviewing your budget, you have ascertained that you can afford to pay Rs.12,000 per month for 3 years toward a new car. You call a finance company and learn that the current rate of interest on car finance is 1.5 percent per month for 36 months. How much you borrow?

To determine how much you can borrow, we have to calculate the present value of Rs.12,000 per month for 36 months at 1.5 percent per month.

Since the loan payments are an ordinary annuity, the present value interest factor annuity is –

$$PVIFA_{r,n} = \frac{1 \frac{1}{(1+r)^n}}{r}$$

$$= \frac{1 - \frac{1}{(1.015)^{36}}}{0.15} = 27.70$$

Hence the present value of 36 payments of Rs.12,000 each is:

Present value = Rs.12,000 x 27.70 = Rs.332,400

You can, therefore, borrow Rs.332,400 to buy the car.

b) *Period of Loan Amortisation:* You want to borrow Rs.1,080,000 to buy a flat. You approach a housing finance company which charges 12.5 percent interest. You can pay Rs.180,000 per year toward loan amortisation. What should be the maturity period of the loan?

The present value of annuity of Rs.180,000 is set equal to Rs. 1,080,000.

$180{,}000 \times PVIFA_{n,r} = 1{,}080{,}000$

$180{,}000 \times PVIFA_{n=?,\ r = 12.5\%} = 1{,}080{,}000$

$$180{,}000 \left[\frac{1 - \frac{1}{(1.125)^n}}{0.125} \right]$$

$= 1{,}080{,}000$

Given this equality the value of n is calculated as follows:

$$\frac{1 - \frac{1}{(1.125)^n}}{0.125}$$

$$= \frac{1{,}080{,}000}{180{,}000} = 6$$

$$= \frac{1}{(1.125)^n} = 0.25$$

$= 1.125^n = 4$

$$n = \frac{0.6021}{0.0512} = 11.76 \text{ years}$$

You can perhaps request for a maturity of 12 years.

c) *Determining the Loan Amortisation Schedule:* Most loans are repaid in equal periodic instalments (monthly, quarterly, or annually), which cover interest and principal repayment. Such loans are referred to as amortised loans.

For an amortised loan we would like to know i) the periodic instalment payment and ii) the loan amortisation schedule showing the break up of the periodic instalments payments between the interest component and the principal repayment component. To illustrate how these are calculated, let us look at an example.

Suppose a firm borrows Rs.1,000,000 at an interest rate of 15 percent and the loan is to be repaid in 5 equal instalments payable at the end of each of the next 5 years. The annual instalment payment A is obtained by solving the following equation.

Loan amount = $A \times PVIFA_{n=5,\ r = 15\%}$

$1{,}000{,}000 = A \times 3.3522$

Hence A = 298,312

The amortisation schedule is provided below. The interest component is the largest for year 1 and progressively declines as the outstanding loan amount decreases.

Loan Amortisation Schedule

Year	*Beginning Amount (1)*	*Annual Installment (2)*	*Interest (1) x 0.15 =(3)*	*Principal Repayment (2) – (3) = (4)*	*Remaining Balance (1) – (4) = (5)*
1	1,000,000	298,312	150,000	148,312	851,688
2	851,688	298,312	127,753	170,559	681,129
3	681,129	298,312	102,169	196,143	485,986
4	485,986	298,312	72,482	225,564	259,422
5	259,422	298,312	38,913	259,399	23

d) *Determining the Periodic Withdrawal:* Suppose your father deposits Rs.300,000 on retirement in a bank which pays 10 percent annual interest. How much can be withdrawn annually for a period of 10 years?

$$A = Rs.300,000 \times \frac{1}{PVIFA_{10\%,\,10}}$$

$$= Rs.300,000 \times \frac{1}{6.145}$$

= Rs.48,819.

e) *Finding the Interest Rate:* let us assume that someone offers you the following financial contract: If you deposit Rs.10,000 with him he promises to pay Rs.2,500 annually for 6 years. What interest rate do you earn on this deposit? The interest rate may be calculated in two steps:

Step 1: Find the $PVIFA_{r,6}$ for this contract by dividing Rs.10,000 by Rs.2,500

$$PVIFA_{r,6} = \frac{Rs.10,000}{Rs.2,500} = 4\%$$

Step 2: Look at the PVIFA table and read the row corresponding to 6 years until you find a value close to 4.000. Doing so, you find that

$PVIFA_{12\%,\,6}$ is 4.111 and $PVIFA_{14\%,6}$ is 3.889

Since 4.000 lies in the middle of these values the interest rate lies (approximately) in the middle. So, the interest rate is 13 percent.

f) *Valuing an Infrequent Annuity:* Rajan will receive an annuity of Rs.50,000, payable once every two years. The payments will stretch out over 30 years. The first payment will be received at the end of two years. If the annual interest rate is 8 percent, what is the present value of the annuity?

The interest rate over a two-year period is, (1.08) x (1.08) – 1 =16.64 percent.

This means that Rs.100 invested over two years will yield Rs.116.64.

Here, present value of Rs.50,000 annuity over 15 periods needs to be calculated, with an interest rate of 16.64 percent per period. This works out to:

$Rs.50,000\ [\{1 - (1/1.1664)^{15}\}] / 0.1664 = Rs.270,620$

g) *Equating Present Value of Two Annuities:* Raj wants to save for the college education of his son, Deepak.

Ravi estimates that the college education expenses will be rupees one million per year for four years when his son reaches college in 16 years – the expenses will be payable at the beginning of the years. He expects the annual interest rate of 8 percent over the next two decades. How much money should he deposit

Illustration 14:

Issac has just won the lottery and decides to take the 20 year annuity option. The lottery commission invests his winnings in an account that pays 4.8% interest, compounded annually. Each year for those 20 years, Tom receives a check from the lottery commission for $250,000. What is the present value of Tom's winnings? (Notice that this would be the amount that Tom would get if he chose the lump-sum option). What is the total amount of money that Tom gets over the 20 year period?

Solution:

This is clearly an annuity question since it says so in the problem. We are told what the payments are for the annuity, and asked to find the present value, so we use the present value formula for an annuity:

$$PV = PMT \times \frac{1 - (1 + i)^{-n}}{i}$$

Since this annuity is compounded annually (and the payments are made annually), (meaning and), and we get

$$PV = 250000 \times \frac{1 - (1 + 0.048)^{-20}}{\mathbf{0.048}}$$

= **$3169070.90**

Illustration 15: John has just received an inheritance of $400,000 and would like to be able to make monthly withdrawals over the next 15 years. She decides on an annuity that pays 6.7%, compounded monthly. How much will her monthly payments be in order to draw the account down to zero at the end of 15 years?

Solution:

Since John will be making periodic withdrawals from an account, this is an annuity question. She would like to know how much each withdrawal will be so that the entire inheritance will be gone after 15 years. We use the payment formula for an annuity to find out how much each withdrawal (payment) will be:

$$PMT = PV \times \frac{i}{1 - (1 + i)^{-n}}$$

$$= 400{,}000 \times \frac{0.067 / 12}{1 - (1 + i)^{-12*15}} = \mathbf{\$3528.56}$$

Thus, each withdrawal will be $3,528.56. At the end of the 15 years, nothing will be left.

Illustration 16:

Amar is working in a tire factory that offers a pension in the form of an annuity that pays 5% annual interest, compounded monthly. He wants to work for 30 years and then have a retirement income of $4000 per month for 25 years. How much do he and his employer together have to deposit per month into the pension fund to accomplish this?

Solution:

This problem is probably the most realistic, and most closely matches what a typical person will do in his or her life (save money during their working life, then spend that money during retirement). The only thing we know is what Amar wants to have during retirement: $4,000 per month for 25 years.

Since this is money he will be withdrawing from an account, it is an annuity. We would first like to know how much money he needs in order to be able to make these monthly withdrawals for 25 years. Thus, we need the present value of an annuity:

$$PV = PMT \times \frac{1 - (1 + i)^{-n}}{i}$$

$$= 4000 \times \frac{1 - (1 + 0.05/ 12)^{-12*25}}{0.05 / 12}$$

= **$684,240.19**

Thus, Amar will need $684,240.19 to fund his retirement annuity.

Illustration 16 (A):

Rebecea has set up a savings account with her bank and will be paying $350 a month into the account for the next five years. The annual interest rate is 3% and the annual growth rate is 2%. How can Rebecca work out the present value of these payments?

Solution: Since the interest in this example is applied annually, the number of periods (n) will be 5, and the total annual payment is $350 x 12 = $4,200.

If the interest rate was applied monthly, we would take the annual interest rates and divide them by 12 to get a monthly discount rate (i) of 0.0025% and a monthly growth rate (g) of 0.0017%, using a total number of periods (n) of 60.

$$PV = \$4{,}200 \text{ X } \frac{(1 - (1 + 2\%)^{5} \times (1+3\%)^{-5}}{2\% - 3\%} = \$19{,}996.28$$

Now, what if Rebecea's bank did pay the interest monthly instead of annually? In that case, the formula would look like this:

$$PV = \$350 \times \frac{(1 - (1 + 0.0017\%)^{60} \times (1 + 0.0025\%)^{-60})}{0.0017\% - 0.0025\%} = \$20{,}994.52$$

It can be seen that the PV of the annuity is growing faster because the payments are compounding 12 times a year at the 2% growth rate instead of just once a year with annual interest.

Illustration 16(B):

Mr. Z is looking ahead to his retirement and want to be able to retire at 70 and hope to live to 95 and make $3200 a month from an account compounding monthly at 4.5%. He is currently 27 and going to deposit

$1000 at the beginning of each quarter until he is 70 in an account that pays 8.5% and is compounded quarterly. Will he have enough to make it happen and by how much amount he is having surplus or deficit?

Solution: Find the amount Mr.Z need to support those requirements from age 70 to 95.

$$PV = 3200 \frac{1 - (1 + 0.045/12)^{-12\,(25)}}{0.045/12}$$

PV = $575713.03 is needed by Mr. Z to support himself from 70-95 years old.

Present Value of Perpetuity

Perpetuity can be defined as the income stream that the individual gets for an infinite time period and its present value is arrived at by discounting the identical cash flows with the discounting rate. Here the cash flows are infinite but its present value amounts to a limited value.

Perpetuity is a series of cash flows that have an infinite life, and such an income stream grows with a proportionate rate. The cash flows should be identical.

The formula is basically derived from the dividend growth model. The formula attempts to determine the terminal value of the identical cash flows. Therefore, the present value of the cash flows at basic expression can be derived as follows: –

Present value = D / (1+r) + D x (1 + g) / (1 + r) ^2 + D / (1+r) + D x (1 + g) ^2 / (1 + r) ^3.....

PV of Perpetuity = ICF / r

Here,

- The identical cash flows are regarded as the CF.
- The interest rate or the discounting rate is expressed as r.

If the perpetuity grows by a constant growth rate, then it would be expressed as described below: –

PV of Perpetuity = ICF / (r – g)

Here,

The identical cash flows are regarded as the CF.

The interest rate or the discounting rate is expressed as r.

The growth rate is expressed as g.

Uses of Present Value of Perpetuity

- Perpetuity is normally utilized in preferred stocks.
- The preferred stocks tend to provide fixed dividends throughout the company life cycle.
- Since the perpetuity is an infinite amount, its present value helps in arriving at a value that has a limited amount.
- The perpetuity has its applications in real estate as well.
- If the real estate provides a sustainable income stream, then its present value is derived using the relationship of the present value of a perpetuity.

- Additionally, the PV of the perpetuity forms the basis for several endowment schemes and retirement planning.
- Endowment schemes are financial protection plans that provide financial protections as well as cater to a comprehensive saving plan.
- Such schemes, if planned properly, can deliver a fixed income stream for infinite tenure.

Illustration 17:

Magnificent Limited pays $2 in dividends annually and estimates that they will pay the dividends indefinitely. How much are investors willing to pay for the dividend with a required rate of return of 5%?

Solution: PV = 2/5% = $40

An investor will consider investing in the company if the stock price is $40 or less.

Future Value of a Single Amount

The value of a current single amount taken to a future date at a specified interest rate is called the future value of a single amount.

In this case, "future value" means the amount to which the investment will grow at a future date if interest is compounded. The single amount refers to a lump sum invested at the beginning of a period (e.g., year 1) and left intact for all periods.

Formula and Calculation of Future Value-

FV=I×(1+(R×T))

where:

I=Investment amount

R=Interest rate

T=Number of years

To explain the concept of the future value of a single amount, let's start with the table below.

Year	*Principal amount at beginning of the year ($)*	*Annual interest income @12% ($)*	*Accumulated at end of the year ($)*
1	10,000.00	1,200.00	11,200.00
2	11,200.00	1,344.00	12,544.00
3	12,544.00	1,505.00	14,049.28

In the above table, we see what the future amount of $10,000 invested at 12% annual interest for three years would be given a certain compounding pattern. This is an example of determining the future value of a single amount.

There were no additional investments or interest withdrawals. These future value or compound interest calculations are important in many personal and business financial decisions.

Future value (FV) is the value of a current asset at a future date based on an assumed rate of growth. The future

value is important to investors and financial planners, as they use it to estimate how much an investment made today will be worth in the future.

Knowing the future value enables investors to make sound investment decisions based on their anticipated needs. However, external economic factors, such as inflation, can adversely affect the future value of the asset by eroding its value.

***Illustration 18**:*

You are scheduled to receive Rs.13,000 in two years. When you receive it, you will invest it for six more years at 8 percent per year. How much will you have in eight years?

Solution: The amount that will be received in eight years will be –

$= 13,000 (1 + 0.08)^6$

= Rs. 20,629.37

***Illustration 19**:*

You have Rs.9,000 to deposit. Jupiter Bank offers 12 percent per year compounded monthly, while Saturn Bank offers 12 percent but will only compound annually. How much will your investment be worth in 10 years at each bank?

Solution:

Jupiter Bank

$9,000 (1 + 0.12/12)^{10 * 12}$

= Rs.29,703.48

Saturn Bank

$9,000 (1 + 0.12)^{10}$

= Rs.27,952.63

Variance = **Rs.1,750.85**

Illustration 20:

What is the future value of Rs. 26 invested for 32 years at an average rate of return of 7%?

Solution:

$FV= 26 (1.07)^{32}$

= Rs.226.60

***Illustration 21**:*

Find the future value of Rs.100,000 for 15 years. The current five-year rate is 6%. Rates for the second and third five-year periods and expected to be 6.5% and 7.5%, respectively.

Solution:

FV = 100,000 $(1.06)^5(1.065)^5(1.075)^5$

FV = 100,000 (1.3382) (1.37009) (1.43563)

FV = 100,000 (2.6322)

FV = Rs.263,220

Illustration 22:

If farm land is currently worth Rs. 1,750 per acre and is expected to increase in value at a rate of 5 percent annually, what will it be worth in 5 years? In 10 years? In 20 years by factor formula and table?

Solution:

i) In 5 years

= Rs. 1,750 x 1.2763

= Rs.2,233.53

ii) In 10 years

= Rs. 1,750 x 1.6289

= Rs. 2,850.58

iii) In 20 years

= Rs.1,750 x 2.6533

= Rs.4,643.28

Illustration 23:

what will be the future value at the end of the 5 years of $1,000 paying a 5% rate of interest?

Solution:

= 1000 $(1+.10)^5$

FV= 1620

Illustration 24:

If a person deposits $100 at the end of the first year, $200 at the end of the second year, and $250 at the end of the third year in a bank, what will be his future value if the interest rate is 10%?

Solution:

= 100 $(1+.10)^3$-1 + 200 $(1+.10)^{3-}$2 +250 $(1+.10)^3$-3

= 121+220+250

FV= 591

Illustration 25:

You decide to put $12,000 in a money market fund that pays interest at the annual rate of 8.4%, compounding it monthly. You plan to take the money out after one year and pay the income tax on the interest earned. You are in the 15% tax bracket. Find the total amount available to you after taxes.

Solution: The monthly interest rate is .084/12 = .007. Using it as the growth rate, the future value of money after twelve months is:

FV = 12000(1.007)12 = $13,047.73

The interest earned = 13,047.73 – 12,000 = $1047.73. You have to pay 15% tax on this amount. Thus after paying taxes, it becomes =1047.73(1 – .15) = $890.57.

Total amount available after 12 months = 12,000 + 890.57 = $12,890.57.

Illustration 26:

You have borrowed $850 from your sister and you have promised to pay her $1000 after 3 years. With annual compounding, find the implied rate of interest for this loan.

Solution: The future value of the loaned money is FV = $1000, while its present value is PV = $850. The time for compounding is n = 3 years. The interest rate r is unknown.

Using $FV = PV (1 + r)^n$

We get $1000 = 850(1 + r)^3$

or, $(1000/850)^{1/3} = 1 + r$

or, 1 + r = 1.0556672

which gives r = 0.0557 = 5.57%

Illustration 27:

You have borrowed $10,000 from a bank with the understanding that you will pay it off with a lump sum of $12,000 after 2 years. Find the annual rate of interest on this loan.

Solution: Here the future value is $12,000, present value $10,000, and n = 2. Use

$FV = PV (1 + r)^n$

This gives $12,000 = 10,000 (1 + r)^2$

Or, r = 12,000 10,000 − 1 = .09545 = 9.545%

Illustration 28:

Global Banking Corporation offers two types of certificates of deposit, each requiring a deposit of $10,000. The first one pays $11,271.60 after 24 months, and the second one pays $12,139.47 after 36 months. Find their monthly-compounded rate of return.

Solution: Using $FV = PV (1 + r)^n$

We get for the first CD,

$11,271.60 = 10,000(1 + R1)^{24}$

Solving for R_1, we get

$$R_1 = \left(\frac{11,271.60}{10,000}\right)^{1/24} - 1 = 0.005$$

Similarly working on the second CD, we get

$$R_2 = \left(\frac{11,271.60}{10,000}\right)^{1/24}$$

The first certificate gives a return of .5%, and the second one .54% per month. The second one is higher because the investor has to tie up the money for a longer period

Illustration 29:

A bank account pays 5.5% annual interest, compounded monthly. How long will it take the money to double in this account?

Solution: If the present value is $1, its future value is $2. The bank is compounding monthly, thus the interest rate is 5.5/12 percent per month.

$FV = PV (1 + r)^n$

we get $2 = 1(1 + .055/12)^n$

Taking logarithms of both sides, ln 2 = n ln(1.0045833),

or, n = ln(2) / ln(1.0045833)

= 151.58 months = approximately, 12 years and 8 months

Future Value of an Annuity

The future value of an annuity is the value of a group of recurring payments at a certain date in the future, assuming a particular rate of return, or discount rate. The higher the discount rate, the greater the annuity's future value.

Key Features:

- The future value of an annuity is a way of calculating how much money a series of payments will be worth at a certain point in the future.
- By contrast, the present value of an annuity measures how much money will be required to produce a series of future payments.
- In an ordinary annuity, payments are made at the end of each agreed-upon period. In an annuity due, payments are made at the beginning of each period.

The formula for the future value of an ordinary annuity is as follows. (An ordinary annuity pays interest at the end of a particular period, rather than at the beginning, as is the case with an annuity due.)

$$P = PMT \times \frac{(1+r)^n}{r}$$

where:

P = Future value of an annuity stream

PMT = Dollar amount of each annuity payment

r = Interest rate (also known as discount rate)

n = Number of periods in which payments will be made

Illustration 30:

Assume someone decides to invest $125,000 per year for the next five years in an annuity they expect to compound at 8% per year. What will be the expected future value of this payment stream?

Solution: Future Value = $125,000 x $\frac{((1 + 0.08)^5 - 1)}{0.08}$ = $733,325

With an annuity due, where payments are made at the beginning of each period, the formula is slightly different. To find the future value of an annuity due, simply multiply the formula above by a factor of (1 + r). So:

$$P = PMT \times \frac{((1+r)^n - 1)}{r} \times (1+r)$$

If the same example as above were an annuity due, its future value would be calculated as follows:

$$\text{Future Value} = \$125{,}000 \times \frac{((1 + 0.08)^5 - 1)}{0.08} \times (1 + 0.08)$$

= $791,991.

Illustration 31:

John deposits money into his savings account at the beginning of each year, depending on the returns of the business. He deposits $1000 in the first year, $2000 in the second year, $5000 in the third, and $7000 in the fourth year. The account credits interest at an annual interest rate of 7%. What is the closest value of the accumulated money in the savings account at the beginning of year 4?

Solution: The future value of the unequal payments is the sum of individual accumulations:

$= 1000(1.07)^3 + 2000(1.07)^2 + 5000(1.07)^1 + 7000(1.07)^0 = \$16{,}975.38$

Illustration 32:

Suppose Arjun invest $2000 per year in a stock index fund, which earns 9% per year, for the next ten years, what would be the closest value of the accumulated value of the investment upon payment of the last instalment?

Solution: From the information given in the question:

A=2000

N=10

r=9%

So that:

$$FV_N = A \frac{(1+r)^N - 1}{r}$$

$$= 2000 \frac{(1+r)^{10} - 1}{0.09}$$

= $ 30,385.8594

Illustration 33:

An individual makes rental payments of $1,200 per month and wants to know the present value of their annual rentals over a 12-month period. The payments are made at the start of each month. The current interest rate is 8% per annum.

Solution: PV

$$= \$1{,}200 \times \frac{1 - (1 + (0.08/12))^{-12}}{(0.08/12)} \times (1 + (0.08/12))$$

FV of investment = $1200 x 11.57

FV of investment = **$13,886.90**

Illustration 34:

A company wants to invest $3,500 every six months for four years to purchase a delivery truck. The investment will be compounded at an annual interest rate of 12% per annum. The initial investment will be made now, and thereafter, at the beginning of every six months. What is the future value of the cash flow payments?

Solution:

$$\text{FV of the investment} = \frac{\$3500 \times (1 + (0.12/2))^{2\times4} - 1}{(0.12/2)} \times (1 + (0.12/2))$$

FV of the Investment = $3,500 x 10.49

FV of the Investment = **$36,719.61**

Annuity Due vs. Ordinary Annuity

1. Payments: The major difference between annuity due and the more popular ordinary annuity is that payments for an ordinary annuity are made at the end of the period, as opposed to annuity due payments made at the start of each period/interval. Ordinary annuity payments include loan repayments, mortgage payments, bond interest payments, and dividend payments.

2. Present value: Another difference is that the present value of an annuity due is higher than one for an ordinary annuity. It is a result of the time value of money principle, as annuity due payments are received earlier.

Hence, if you are set to make ordinary annuity payments, you will benefit from getting an ordinary annuity by holding onto your money longer (for the interval). Conversely, if you are set to receive annuity due payments, you will benefit, as you will be able to receive your money (value) sooner. In any annuity due, each payment is discounted one less period in contrast to a similar ordinary annuity.

Doubling Period

Investors commonly ask the question: How long would it take to double the amount at a given rate of interest? To ascertain the doubling period, two rules are followed, i.e., Rule of 72 and Rule of 69.

i) *Rule of 72:* The Rule of 72 dates back to 1494 when Luca Pacioli referenced the rule in his comprehensive mathematics book called Summa de Arithmetica. Pacioli makes no derivation or explanation of why the rule may work, so some suspect the rule pre-dates Pacioli's novel.

According to this rule of thumb the doubling period is obtained by dividing 72 by the interest rate. For

example, if the interest rate is 8 percent, the doubling period is nearly 9 years (72/8). Likewise, if the interest rate is 4 percent the doubling period is nearly 18 years (72/4). Though somewhat crude, it is a handy and useful rule of thumb.

The key takeaways of the Rule of 72 are as under:

- The Rule of 72 is a simplified formula that calculates how long it'll take for an investment to double in value, based on its rate of return.
- The Rule of 72 applies to compounded interest rates and is reasonably accurate for interest rates that fall in the range of 6% and 10%.
- The Rule of 72 can be applied to anything that increases exponentially, such as GDP or inflation; it can also indicate the long-term effect of annual fees on an investment's growth.
- This estimation tool can also be used to estimate the rate of return needed for an investment to double given an investment period.
- For different situations, it's often better to use the Rule of 69, Rule of 70, or Rule of 73.

ii) *Rule of 69:* If you are inclined to a slightly more involved calculation, a more accurate rule of thumb is the rule of 69. According to this rule of thumb, the doubling period is equal to:

$$0.35 + \frac{69}{\text{Interest Rate}}$$

The following are the benefits of the rule of 69.

- It assumes that the interest is continuously compounding. In fact, it is true to think in the case of equity valuation that is compounding on an instant basis.
- It provides the answer very close to the answer obtained by using a financial calculator.
- It is even considered as the thumb rule of the investment return generating a cycle.
- Easy to calculate the time required.
- Even the retail investor or a non-finance person can easily determine the result.
- Can be used by any person without understanding the pure logic.
- Faster decision making and improve thought process.

The following are the limitations of the rule of 69.

- Difficult to explain the logic behind the number 69.
- Rule 69 does not apply to everything. Only the security like equity, which is compounding every minute, can provide the exact value (Rule 72 can Be help in those cases)
- If the rate is too less like 2/3 % Per annum, than the result is not very accurate. Generally, the higher rate is well captured by this formula.
- Projects with a heavy investment need specially designed spreadsheets because a minuscule difference in time and rate of interest value can create a difference of millions.
- Difficult to absorb the value derived because of non-transparency of value derivation.
- This rule covers those instruments which compounds continuously like equity shares, but it ignores the dividend component which is also received by the equity holder, so overall the share did not increase by an exact multiple of 2, but the dividend amount makes the value of it.

As an illustration of this rule of thumb, the doubling period is calculated for two interest rates, 10 percent and 15 percent.

Interest Rate	***Doubling Period***
10 percent	0.35 + 69 /10 = 7.25 years
15 percent	0.35 + 69 /15 = 4.95 years

iii) *Rule of 70:* The rule of 70 is used to determine the number of years it takes for a variable to double by dividing the number 70 by the variable's growth rate. The rule of 70 is generally used to determine how long it would take for an investment to double given the annual rate of return.

For example, assume an investor invests $10,000 at a 10% fixed annual interest rate. He wants to estimate the number of years it would take for his investment to grow to $20,000. He uses the rule of 70 and determines it would take approximately seven (70/10) years for his investment to double.

Illustration 35:

Due to the large capital needed to establish a factory and warehouse for coffee machines, Akshay have turned to private investors to fund the expenditure. He met with Jacob, who is a high net-worth individual willing to contribute $1,000,000 to Akshay's company.

However, Jacob is only willing to contribute the said amount on the presumption that he will get a 12% annual rate of return on his investment, compounded yearly. He wants to know how long it will take for his investment in Akshay's company to double in value.

Solution:

Using the Rule of 72-

Doubling time (number of years) = 72 /12% = 6 years.

It will take approximately six years for Jacob's investment to double in value.

LESSON ROUND-UP

- The time value of money means that a sum of money is worth more now than the same sum of money in the future.
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- The time value of money means that a sum of money is worth more now than the same sum of money in the future.
- The most fundamental formula for the time value of money takes into account the following: the future value of money, the present value of money, the interest rate, the number of compounding periods per year, and the number of years.

- Money has time value because of the following reasons:
  - i) Risk and Uncertainty. Future is always uncertain and risky.
  - ii) Inflation: In an inflationary economy, the money received today, has more purchasing power than the money to be received in future.
  - iii) Consumption.
  - iv) Investment opportunities.
- Time value of money is important because it helps investors and people saving for retirement determine how to get the most out of their dollars. This concept is fundamental to financial literacy and applies to your savings, investments and purchasing power.

GLOSSARY

Annuity : An annuity is a series of equal cash flows paid at equal time intervals for a finite number of periods. A lease that calls for payments of $1000 each month for a year would be referred to as a "12-period, $1000 annuity." Note that, strictly speaking, in order for a series of cash flows to be considered an annuity, each cash flow must be identical and the amount of time between each cash flow must be the same in all cases. There are two types of annuities that vary only in the timing of the first cash flow:

- Regular Annuity – The first payment is made one period in the future (at period 1).
- Annuity Due – The first payment is made immediately (at period 0).

Graduated Annuity : A graduated annuity (also called a growing annuity) is a series of cash flows that increases over time at a constant rate for a finite number of periods. A common example of a graduated annuity would be a lottery payout.

A lottery winner (e.g., Powerball) may opt to receive their winnings as a series of 30 annual payments (the first payment is immediate, and there are 29 additional annual payments). In the case of Powerball, each payment will be 4% greater than the previous payment. Note that, strictly speaking, a graduated annuity requires that the growth rate of the payments be constant for the life of the annuity.

Lump Sum: A lump sum is a single cash flow. For example, an investment that is expected to pay $100 one year from now would have a "lump sum payment" of $100.

Perpetuity: A perpetuity is simply a type of annuity that has an infinite life. In other words, it is a "perpetual annuity."

Uneven Cash Flow Stream: Any series of cash flows that doesn't conform to the definition of an annuity is considered to be an uneven cash flow stream.

Amortization Schedule: An amortization schedule is a table that shows each loan payment over the life of a loan, and a breakdown of the amount of interest and principal paid. Typically, it will also show the remaining balance after each payment has been made. Please see my tutorial on how to create an amortization schedule in Excel for more information.

Cash Flow Sign Convention: This convention, used by financial calculators and spreadsheet functions, specifies that the sign (i.e., positive or negative numbers) indicates the direction of the cash flow. Cash inflows are entered as positive numbers, and cash outflows are entered as negative numbers. Failure to properly adhere to this convention will usually result in incorrect answers from your calculator or spreadsheet. Please note that whether a cash flow is an inflow (+) or outflow (-) depends on the part that you play in a transaction. For example, loan payments are an outflow (-) for the borrower, but an inflow (+) for the lender.

Principle of Value Additivity: This fundamental principle states that the present value (future value) of a series of cash flows is the sum of the present value (future value) of each of the individual cash flows. For example, we can calculate the present value of an annuity by using a single formula, or by calculating the present value of each individual cash flow and then adding them together.

This principle is very often useful for simplifying the calculation of the present or future value of uneven cash flow streams, particularly if the cash flows follow some identifiable pattern (such as several consecutive annuities).

Rule of 72: A simple rule that can be used to approximate how long it will take a given amount of money to double at a particular interest rate. It can also be used to determine the interest rate that is required to double your money in a particular amount of time. To determine how long it will take to double your money, simply divide 72 by the interest rate (in decimal form).

Compound Interest: This refers to the situation where, in future periods, interest is earned not only on the original principal amount, but also on the previously earned interest. This is a very powerful concept that means money can grow at an exponential rate.

Compounding Frequency: This refers to how often interest is credited to the account. Once interest is credited it becomes, in effect, principal. Note that the compounding frequency and the frequency of cash flows are not always the same. In that case, the interest rate is typically adjusted to an effective rate that is of the same periodicity as the cash flows.

Discount Rate: This is the interest rate that is used to convert between future values and present values. Note that the process of calculating present values is often referred to as "discounting" because present values are generally less than future values.

Frequency of Cash Flows: When using the cash flow functions, many financial calculators prompt you for both the cash flow (CFx) and then the frequency (Fx or #Times). The frequency is simple a shortcut to save both time and memory. If a cash flow occurs more than one time in a row, then you would enter the number of times that it occurs (in most cases, you will leave it at 1). The next cash flow that is entered will be the next different cash flow.

Future Value: This term refers to the value of a cash flow (or series of them) at some specific future time. Any cash flow that is scheduled to occur sometime later than today is referred to as a "future value." Literally translated, future value means "what will it be worth at some future point in time?"

TEST YOURSELF

1. Astral Limited 2020 sales were $100 million. If sales grow at 8% per year, how large will they be 10 years later, in 2030, in millions?
2. Suppose a U.S. government bond will pay $1,000 three years from now. If the going interest rate on 3-year government bonds is 4%, how much is the bond worth today?
3. You have a chance to buy an annuity that pays $1,000 at the end of each year for 5 years. You could earn 6% on your money in other investments with equal risk. What is the most you should pay for the annuity?
4. An investor deposited $10,000 in a savings account paying 5% converted quarterly. At the end of 5 years what is the value of the account?

5. A depositor planned to leave $2,000 in a savings account paying 5% converted semiannually for 5 years. However, at the end of 2 1/2 years the depositor had to withdraw $1,000. What amount will be in the account at the end of the original 5 year period?
6. Find the value of $1,000 invested at 8% for 10 years with interest compounded annually.
7. Find the amount of $6,000 invested at 12% for 5 years, compounded -- Annually, Semi-Annually, Quarterly, Monthly, Daily.
8. Find the present value of $5,000 due in 4 years if money is worth 4% compounded semi-annually.
9. What is the present value of a certificate of deposit with a maturity value of $1,000 due in 3 years, if money is worth 6% compounded semi-annually?
10. A person can buy a piece of property for $4500 cash OR for $2000 down and $3000 in 3 years. If money is earning 6% compounded semi-annually, which is the better purchase plan and by how much?
11. A piece of property can be purchased for $2850 cash OR for $3000 in 12 months. Which is the better plan if money is worth 7% compounded quarterly?
12. Find the amount of an annuity of $5,000 per year for 10 years at 6% and 7% with interest compounded annually.
13. What is the value of an annuity of $100 paid monthly for 6 years if money is worth 6% compounded monthly?
14. An investor wants to provide for a $3000 scholarship every year for 10 years. If the school can get a 5.5% return on its investment, how much money should the investor give now?
15. Wilson agrees to pay Smith $1000 each year for 5 years. If money is worth 7% what is the cash equivalent of this debt?
16. If money is worth 9% converted semi-annually, what is the present value of $145.50 due every 6 months for 2 years?
17. An investor makes a $2000 annual deposit into a mutual fund that produces a return of 12% annually for 3 years. How much will the investor have at the end of the three year term?
18. What is the annual yield on: a) a 3% account compounded monthly b) a 6 1/8% account compounded daily c) a 9% account compounded semi-annually.
19. If the present value (PV) of an investment is $10 million, and the amount is invested at a rate of return of 10% for one year, the future value will be equal to:
20. If $321 is invested at 2.5% interest compounded quarterly, calculate its value after 7 years.

LIST OF FURTHER READINGS

- Fundamentals of Financial Management by Dr. R.P. Rustagi, Taxmann.
- Financial Management: Theory and Practice by Dr Eugene F Brigham & C Micheal Ehrhardt.
- Fundamentals of Financial Management: Concise Edition by Brigham Houston.
- The Total Money Makeover: A Proven Plan for Financial Fitness by Dave Ramsey.
- Financial Management by I.M. Pandey.
- Financial Management: Theory and Practice, 10th Edition by Prasanna Chandra, McGraw-Hill.

OTHER REFERENCES

- https://www.business-standard.com/article/markets/time-value-of-money-118062600365_1.html
- https://www.allfinancejournal.com/article/view/5/1-1-5
- https://www.researchgate.net/publication/358106309_The_Importance_of_the_Time_Value_of_Money
- https://stec.univ-ovidius.ro/html/anale/RO/2017-2/Section%20V/19.pdf

Capital Budgeting

Lesson 13

KEY CONCEPTS

■ Time Value of Money ■ Capital Budgeting ■ Internal Rate of Return ■ Net Present Value

Learning Objectives

To understand:

- Need and importance of Capital Budgeting
- Capital Budgeting Process
- Scope of Capital Budgeting Decisions
- Factors influencing investment decisions
- Capital Budgeting Techniques
- Capital Rationing
- Various methods of Capital Budgeting
- Risk and Uncertainties in Capital Budgeting

Lesson Outline

- Meaning of Capital Budgeting
- Capital Budgeting Process
- Techniques of Capital Budgeting- Discounted and Non-Discounted Cash Flow Methods, Modified NPV (MNPV), Modified IRR (MIRR), Unequal lives of projects
- Choice of Methods
- Capital Rationing
- Risk Evaluation and Sensitivity Analysis
- Analysis of Capital Budgeting, Decisions-Some case studies
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

There are two types of expenditures generally made in a business viz. Capital Expenditure and Revenue expenditure. Revenue expenditure is required for day to day operating requirements whereas Capital expenditure is incurred in making investment in fixed assets. Following are some of its important definitions:

1. "Capital budgeting is long-term planning for making and financing proposed capital outlays."

— Charles T. Horngren

2. "Capital budgeting involves the planning of expenditures for assets the returns from which will be realized in future time periods."

— Milton H. Spencer

3. "Capital budgeting consists in planning the development of available capital for the purpose of maximizing the long-term profitability (return on investment) of the firm."

— R. M. Lynch

In general we can say that capital budgeting is the decisions regarding the investment of funds in the fixed assets.

IMPORTANCE OF CAPITAL BUDGETING

Capital budgeting is important not only because of high investment cost of capital projects, their irreversible nature and permanent commitment and their long-run effects on the profitability of the concern, it is important because of the following reasons also:

1. Capital budgeting highlights the possibilities of expansion of production facilities to cover up the additional demand shown in projected sales budget.
2. It shows comparative position of available different alternative assets for the replacement of old or obsolete assets.
3. It helps in long-term planning and formulation of policy. Appropriate time of purchase of assets and of improvement in the quality of purchased assets is known by proper capital budgeting.
4. It helps in estimating the total requirement of capital with its break-up over the years. This analysis helps in timely arrangement of funds required for the purpose.
5. It also helps in planning capital structure because the net surplus of a project depends on the cost of capital, which in its turn depends upon the capital structure of the firm.
6. Capital budgeting provides necessary information for cash forecasts and budget.
7. It helps in preparing a sound policy for depreciation and replacement of assets.
8. The firm can plan its dividend policy, which is in keeping with profit and wealth maximization objective of the firm as well as the necessary internal resource generation for further business expansion.
9. It can prove beneficial for considering the methods and measures to minimize cost. It can thus help in planning modernization of existing production facilities.
10. It highlights the desirability of replacement of men by machines.

CAPITAL BUDGETING PROCESS

A capital budgeting process may involve a number of steps depending upon the size of the concern, nature of projects, complexities and diversities. Following steps are necessary for a comprehensive capital budgeting process:

Fig 2.2 Capital Budgeting Process

1. **Project Generation:**

   First of all capital expenditure requirements should be forecasted. Capital expenditure proposals may originate at any level, i.e., from top management's level to operative's level. To facilitate the origination of such ideas a periodic review and comparison of earnings, costs, procedures and product-line should be made by the management on a continuous basis.

2. **Project Evaluation:**

   This step involves:

   (i) Estimating the costs and benefits in terms of cash flows, and

   (ii) Selecting an appropriate criterion for judging the desirability of the projects.

   (iii) Project evaluation based on selection with techniques.

   For project evaluation, different techniques (as discussed later on in this chapter) may be used.

3. **Project Selection:**

   This step relates to the screening and selecting of the projects according to the criterion of the firm. This is done either by the financial manager or by a capital expenditure planning committee. After selecting the projects, priorities should be established of the accepted projects. It facilitates their execution and avoids delays and serious cost overruns. It also helps in capital rationing and better utilization of funds. The selected projects with details are submitted to top management for final approval.

4. **Project Execution:**

   After selecting the best proposals and taking final approval of top management, funds are allocated for them. It is the duty of the executive committee to ensure that funds are spent in accordance with allocation made in the capital budgets. Periodical reports should be prepared and submitted to the controller to exercise control over such expenditures.

5. **Follow-Up:**

   This step involves evaluation of the programme after its implementation. This involves comparison of actual performance with the budgeted data. Such follow up comparison will ensure better forecasting for the future. It has also the advantage of forcing the departmental heads to be more realistic in their approach and careful in actual execution of the projects.

SCOPE OF CAPITAL BUDGETING DECISIONS

Broadly speaking, capital budgeting decisions are long-term investment decisions. They include the following:

(1) Expansion Decisions:

Decisions on the matters such as acquisition of new machinery of building, addition of building and machinery etc. are taken on the basis of cost of investment and expected profits from goods produced.

(2) Replacement Decisions:

A company may have to replace its existing old or obsolete machinery by new and latest model machinery.

The use of new machinery may bring down operating costs and increase the volume of output. Decisions on such matters are taken on the basis of saving on account of decrease in operating costs and profits from additional volume produced by new plant.

(3) Buy or Lease Decisions:

The management may have to take decision on acquiring a fixed asset by purchase it from the market or by arranging it on lease basis. Such decisions are taken by comparing the cost of funds required for the purchase of asset with the amount payable on lease.

(4) Choice of Equipment:

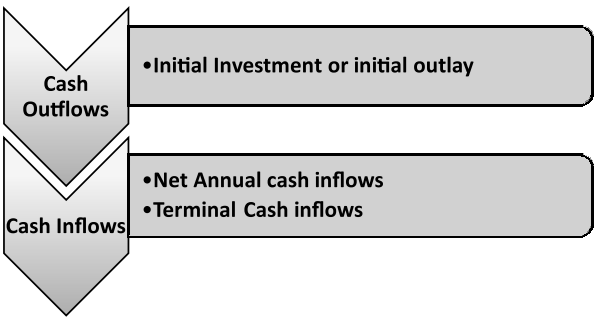
The management may have to select the best machine out of available several alternative machines. Decisions on such matters are taken by comparing the cost of different assets with their respective profitability.

(5) Product of Process Improvement:

This concern with decision on matters related to cost reduction or improvement in the quality of product by change in production processes. Decision on such matters is taken on the basis of a comparative study of cost of change and possible additional income or saving as a result of change.

COST AND BENEFITS OF PROJECT (CAPITAL BUDGETING DECISION)

For a capital budgeting decision, it is required to identify the cost and benefits involved in a project. These cost and benefits are termed as cash flows (both inflow and outflow). We can justify such cash flows in terms of cost and benefits as follows:



Initial Investment / Outlay

When a new project is launched, there are so many expenditures are made to acquire that. Hence all the expenditures incurred in zero time period (at initial stage) on an fixed assets (project) are called initial investment. It includes:

- Cost of the project (Asset)
- Opportunity cost of the Asset
- Additional Working Capital involved.

Salvage Value or any scrap or wastage will be subtracted from the value said above. We can compute the value of initial investment as follows:

Computing Initial outlay (Initial Investment / Cash outflows)

Cost of Fixed Asset (purchasing Price)	****
(+) Installation Cost	****
(+) Insurance, Freight	****
(+) Increase in Working Capital	****
(-) Salvage Value of scrap or wastage	****
(-) Decrease in Working Capital	****
Initial Investment	****

Net Annual Cash Inflows

An investment is made with a specific purpose of getting satisfied return especially in term of cash inflows. When cash inflows from a project regularly with same amount throughout the life of the project (with variation year to year), is called net annual cash inflows. This is net income of the firm before charging depreciation and after tax. This may be computed as follows:

Computing Net Cash Inflows (Operating Cash flows)

Annual Sale Income (revenue)	****
(-) Operating Expenses (with depreciation)	****
Income before Tax	****
(-) Income Tax	****
Net income after Tax	****
(+) Depreciation	****
Net Cash Inflows	****

The Net cash inflows may also be calculated as:

Estimated Savings in Direct Wages	****
(+) Estimated Savings in Direct Wages	****
(-) Estimated Additional Cost (Operating exp.)	****
Total Cost	****
(-) Income Tax	****
Net income after Tax	****
(+) Depreciation	****
Net Cash Inflows	****

Terminal Cash Inflows

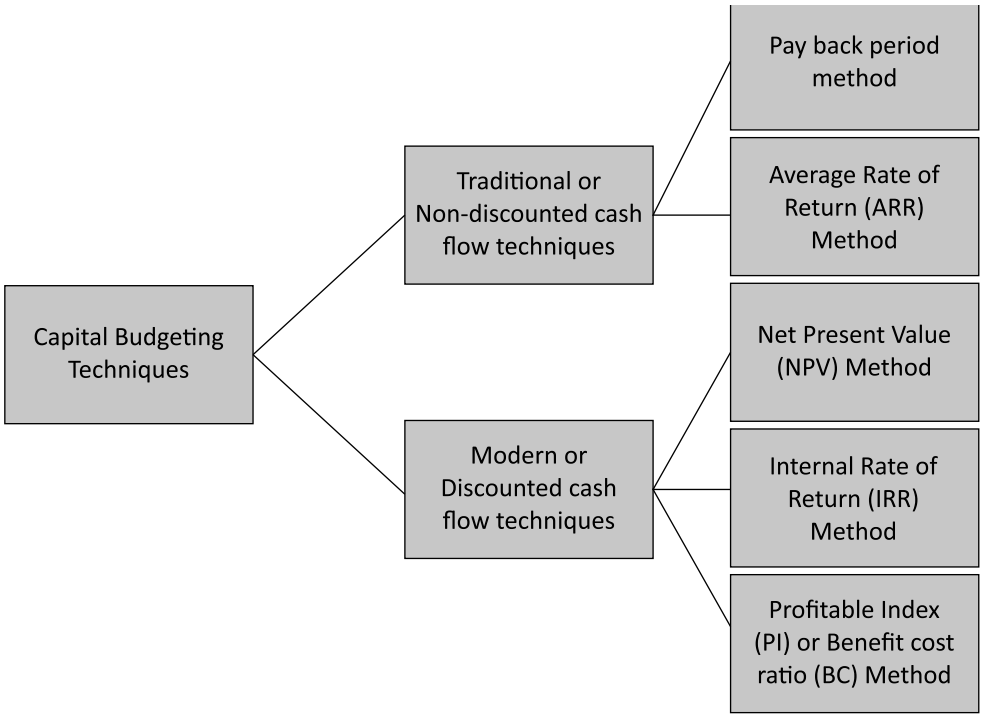
When in addition to annual cash inflows, the cash inflow of previous term (generally previous year) is also

included in the following terminal cash inflows; it is called terminal cash inflows. This cash inflow may be calculated as follows:

Estimated Salvage Value of Scrap	****
(+) Any Working Capital released	****
(-) Any Estimated Additional Cost	****
Net Cash Inflows	****

CAPITAL BUDGETING TECHNIQUES

The ultimate objective of the capital budgeting process is to achieve maximum benefit from the project. For this purpose, there are various techniques of capital budgeting which are as follows:



PAYBACK PERIOD METHOD

When one invests an amount in any type of investment, he/she always worries about the length of time for getting invested money back, same happens in a firm too. When a firm goes to invest an amount in purchasing any fixed asset, it explores the alternatives available which may provide cash back soon.

In this process, the payback period is most identified and popular method of capital budgeting to evaluate the proposals for the purpose of capital expenditure. *Payback period is that time period in which net cash inflow from investment recovers the cost of investment.*

The payback period is the duration to recover the initial cost of the project.

Under this method, the proposal is to be selected which are time conscious i.e. the project which will take least time to pay back the amount invested will be preferred. If numbers of proposals are available then these will be ranked on the basis of their estimated time consumption and selected accordingly.

Advantages or Merits of Payback Method

1. It is simple to calculate and easy to understand, apply and interpret.
2. It is realistic in approach as businessmen want speedy recovery of their money in capital assets.
3. It weights early returns heavily and ignores distant returns and thus short payback period acts as a hedge against a boon decision.
4. It is safe since it avoids incalculable risk and uncertainty in the long run.

Limitations or Demerits of Payback Method

Major shortcomings of this method are as follows:

1. This method is a 'crude rule of thumb' and over-emphasizes early recovery of invested funds. Of course, liquidity in itself is an important factor but ignoring 'profitability of investment' and concentrating, only on 'liquidity of investment' can in no way be justified in most of the situations.
2. It concentrates only on the 'recovering of the cost of investment' and does not consider the earnings after the payback period.
3. It considers only the payback period of the project and not its whole life.
4. This method ignores the risk factor in investments. Hence, projects with higher risk but lower payback period will be accepted as compared to a project with lower risk and higher payback period.
5. This method does not consider the 'cost of capital' which is an important base of sound investment decisions.
6. This method ignores the time value of money. It fails to consider varying cash flow patterns. All cash flows are treated and weighted equally, regardless of the time period of their occurrence.
7. This method ignores the salvage value of the asset.
8. It is not possible to calculate rate of return by this method.

The payback period is calculated as follows:

(A) In the Case of Even Cash Inflows:

If cash inflows from investment are uniform throughout the life of investment, payback period is calculated by dividing the cost of investment with the amount of annual cash inflow. As per formula:

$$\text{PBP} = \frac{\text{Initial Investment}}{\text{New Annual Cash flow}}$$

For example, a project with an initial outlay of Rs. 20,000 yields annual cash inflow of Rs. 5,000 for seven years, the payback period of the project will be:

$$= \frac{20{,}000}{5{,}000} \text{ 4 Years}$$

Illustration 1:

A project costs Rs. 3,00,000 and yields annually a profit of Rs. 80,000 after depreciation @ 12% p.a. but before tax of 50%. Calculate the payback period.

Solution:

Profitability Statement

	Rs.
Profit before tax	80,000
Less Tax @ 50%	40,000
Profit after tax	40,000
Add back Depreciation @ 12% on Rs. 5,00,000	60,000
Annual Cash inflow or Cash Earnings	1,00,000

$$\text{Rate of Return} = \frac{\text{Cost of Product}}{\text{Annual Cash flow}} = \frac{300000}{100000} = 3 \text{ Years}$$

(B) In the Case of Uneven Cash Inflows:

If cash inflows from investment are not uniform each year, payback period will be calculated by taking cumulative total of each year's cash inflows and the exact payback period will be calculated by interpolation. Pay back period will be calculated as:

$$\text{PBP} = E + \frac{B}{C}$$

Where, E = number of years immediately preceding the year of final recovery

B = the balance amount still to be recovered

C = cash flow during the year of final recovery

Illustration 2:

A project with an outlay of Rs. 12,000 yields Rs. 2,000, Rs. 3,000, Rs. 4,000 and Rs. 6,000 respectively in the first, second, third and fourth year, the payback period will be calculated as thus:

Year	***Cash-inflow***	***Cumulative Cash-in-flow***
1	2,000	2,000
2	3,000	5,000
3	4,000	9,000
4	6,000	15,000

Solution:

$$PB.P = E + \frac{B}{C}$$

$$= 3 \text{ years} + \frac{12000-9000}{6000} \times 12 = 3 \text{ Years and 6 months}$$

(3 Years are taken from the highlighted row which is showing the at least fully completed years to be taken by the project)

Post Payback Profitability (P.P.B. Profit)

A major weakness of the traditional payback period method is that it ignores the profitability of post-payback period. Hence, it remains the test of liquidity and not of profitability of investments. Therefore, experts have suggested that post-payback profitability should also be calculated and compared to evaluate the relative profitability of various capital projects.

It is calculated as follows:

Post Payback Profitability = Annual Cash Inflows (Working Life – Payback Period)

Alternatively,

Note: Salvage value of asset will be included in the earnings of last year.

Post Payback Profitability = Total Cash Inflows – Investment Outlay

Other things being equal, the project with highest post-payback profitability will be the best. Higher the post-payback profitability, more attractive will be the project. If cost of various projects differs substantially, post payback profitability index may be calculated to assess the relative profitability of the projects.

It is calculated as thus :

$$\textbf{\textit{Post Payback Profitability Index}} = \frac{\text{PPB Profits}}{\text{Investments}} \times 100$$

Illustration 3:

The following are the details relating to two projects:

	Project X (Rs.)	***Project Y (Rs.)***
Cost of Project	1,60,000	2,00,000
Estimated Scrap	16,000	24,000
Estimated Savings:		
1st year	20,000	40,000
2nd year	30,000	60,000

3rd year	50,000	60,000
4th year	50,000	60,000
5th year	40,000	30,000
6th year	30,000	20,000
7th year	10,000	-

Calculate Payback Period and consider which project is better.

Solution:

Table Showing Cumulative Cash Flow of Projects

Year	***Project X***		***Project Y***	
	Cash Flow	***Cumulative***	***Cash Flow***	***Cumulative***
		Cash Flow		***Cash Flow***
	Rs.	***Rs.***	***Rs.***	***Rs.***
1	20,000	20,000	40,000	40,000
2	30,000	50,000	60,000	1,00,000
3	50,000	1,00,000	60,000	1,60,000
4	50,000	1,50,000	60,000	2,20,000
5	40,000	1,90,000	30,000	2,50,000
6	30,000	2,20,000	44,000*	2,94,000
7	26,000*	2,46,000	-	-

** Including the estimated scrap.*

Calculation of Payback Period

	Project X	***Project Y***
P.B.P. =	= 4 years and 3 months	= 3 year and 8 months
Post Payback Profitability = Total Cash Flows – Investment Outlay	2,46,000 – 1,60,000	2,94,000 – 2,00,000
(Post-Payback) Profitability Index	= Rs. 86,000	= Rs. 94,000
$= \frac{\text{P.P.B. Profits}}{\text{Investments}} \times 100$	$\frac{86,000}{1,60,000} \times 100 = 53.75\%$	$\frac{94,000}{2,00,000} \times 100 = 47\%$

Comment: Project Y is better because of its shorter payback period and larger post-payback profitability.

DISCOUNTED PAYBACK PERIOD

An important weakness of payback method is that it ignores the time factor of cash inflows from investment. To overcome this weakness, discounted payback period may be calculated. Under this method at first the annual cash inflows are discounted at the required earnings rate (or cut off rate) and then these discounted cash inflows are cumulated and payback period is calculated with the help of these figures.

Illustration 4:

Calculate discounted payback period from the information given below:

Cost of Project Rs. 10,00,000

Life 5 years

Annual Cash inflow Rs. 4,00,000

Cut-off Rate 10%.

Solution:

Year	*Annual Cash Inflow Rs.*	*P.V. Factor at 10%*	*Discounted Cash Flow Rs.*	*Cumulative D.C.F. Rs.*
1	4,00,000	0.909	3,63,600	3,63,600
2	4,00,000	0.826	3,30,400	6,94,000
3	4,00,000	0.751	3,00,400	9,94,400
4	4,00,000	0.683	2,73,200	12,67,600
5	4,00,000	0.621	2,48,400	15,16,000

Discounted Payback Period = $= 3 \text{ years} + \frac{1000000 - 994400}{273200} \times 365$

= 3 years and 8 days

Accounting Rate of Return Method (ARR Method)

This method is also known as ***unadjusted rate of return*** method or ***Financial Statement Method*** because the main figures used in the calculation are derived from accounting statements. Under this method, percentage rate of return of the annual net profit on investment is calculated. If it is calculated on initial investment, it is called Return on Investment (ROI) and if it is calculated on average investment, it is called as Average Rate of Return. Usually, it is calculated on average investment in the project. If annual net income fluctuates then average annual net income is used into the calculation. Thus, the formula for calculating this return is as follows:

$$AAR = \frac{\text{Average Annual Net Income (Savings)}}{\text{Average Investment}} \times 100$$

If annual cash inflows are given, then the formula will be adapted as follows:

$$AAR = \frac{\text{Average Annual Cash flow} - \text{Annual Depreciation}}{\text{Average Investment}} \times 100$$

$$\text{When, Average Investment} = \frac{\textit{Initial Investment + Scrap Value}}{2}$$

Evaluation of Project under ARR method:

Rate of return calculated as above is compared with the cutoff or the pre-specified rate of return. If the return is more than the cut-off rate, the project would be accepted, if not, it would be rejected. In the evaluation of mutually exclusive projects, only such projects are considered, whose accounting rates of returns are more than the cut-off rate and the project with the highest rate is selected. The larger is the rate, better is the project.

Advantages or Merits of Unadjusted Rate of Return Method

1. It is simple to compute and easy to understand and interpret.
2. It takes into consideration the total earnings from the project during the its entire economic life.
3. This method gives due weight to the profitability of the project.
4. This method duly recognizes the concept of net earnings, *i.e.,* earnings after providing for depreciation on capital asset. In fact, this is the correct way of income determination.
5. This method ignores the life of the project for determining the cost of investment. Hence, the amount of initial investment and average investment remain the same.

Limitations or Demerits of Unadjusted Rate of Return Method

1. It is simply an averaging technique, which does not take into account the impact of various external factors on overall profits of the firm.
2. It ignores the life of the project and differentiates against the projects of lower economic life.
3. It ignores the time value of earnings. In other words, this method does not discount the future earnings to present value.
4. The method does not determine the fair rate of return on investments. It is left at the discretion of management.
5. This method does not give consideration to the risk factor in respect of each project. Risk analysis should be the integral part of a project evaluation technique.

Illustration 5:

A company is considering the purchase of a machine. Management does not want to purchase a machine if its payback period is more than 3 years and its rate of return of investment is less than 20%.

Two machines – X and Y are under consideration. Cost of each machine is Rs. 10,000 and working life is 4 years. Scrap value is Rs. 1,200 and Rs. 400 respectively. Annual cash inflows are as under:

Year	***Machine X***	***Machine Y***
	Rs.	***Rs.***
First	2,000	3,000
Second	3,000	4,000
Third	4,000	5,000
Fourth	8,000	5,000

Evaluate the two proposals and suggest as to which machine should be purchased?

Solution:

Table Showing Cumulative Cash Inflows:

Year	***Machine X***		***Machine Y***	
	Cash Flow	***Cumulative***	***Cash Flow***	***Cumulative***
		Cash Flow		***Cash Flow***
	Rs.	Rs.	Rs.	Rs.
First	2,000	2,000	3,000	3,000
Second	3,000	5,000	4,000	7,000
Third	4,000	9,000	5,000	12,000
Fourth	8,000	17,000	5,000	17,000
	1,200	18,200	400	17,400

(1) Payback Method:		
	Machine X	***Machine Y***
P.B.P = $E + \frac{B}{C}$	$3 + \frac{10,000 - 9,000}{8,000} \times 12$	$2 + \frac{10,000 - 7,000}{5,000} \times 12$
	= 3 years and 1.5 months	= 2 years and 7.2 months
Post Payback Profitability	18,200 – 10,000 = Rs. 8,200	17,400 - 10,000 = Rs. 7,400

(2) Rate of Return Method:		
	Machine X	***Machine Y***
a) Average Annual Cash Inflow	$\frac{2,000+3,000+4,000+8,000}{4}$	$\frac{3,000+4,000+5,000+5,000}{4}$
	= Rs. 4,250	= Rs. 4,250
b) Annual Depreciation	$\frac{10,000 - 1,200}{4}$ = Rs. 2,200	$\frac{10,000 - 400}{4}$ = Rs. 2,400
c) Average Annual Net Income	4,250 – 2,200 = Rs. 2,050	4,250 – 2,400 = Rs. 1,850
d) Average Investment	$\frac{10,000 + 1,200}{2}$ = Rs. 5,600	$\frac{10,000 + 400}{2}$ = Rs. 5,200
e) Return on Investment	$\frac{2,050}{5,600} \times 100$ = 36.61%	$\frac{1,850}{5,200} \times 100$ = 35.58%

Conclusion:

Though ROI of Machine X is more than 20% its payback period is more than 3 years, hence this machine will be rejected. Machine Y will be selected because of its payback being less than 3 years and ROI more than 20%.

PRESENT VALUE METHOD

This is the method which follows the concept of real time factor. It involves the value of time in transactions. This method is popularly known as '**discounted cash flow method**' because in this method all future cash flows (inflows and outflows both) of an investment project which occur at different times are discounted at a given rate to bring them at a common denominator and make them comparable.

Discounting is a procedure of bringing future inflows and outflows of cash to their present values. In general, money received today is valued more than money receivable tomorrow. "A bird in hand is worth more than the two in the bush" is rightly applicable to the management of capital. Therefore, in this technique, all future inflows and outflows a cash of an investment project are brought to technique, all future inflows and outflows of cash of an investment project are brought to their present values by applying a discounting rate (i.e., cost of capital or interest rate).

What you have today is more worthy than what will you have in future

Calculating Present Value:

The present value of future cash flows is found out with the help of the following algebraic formula:

$$\text{Present Value (P)} = \frac{S}{(1+i)^n}$$

Where, P = Value of a future sum of money

S = Future value of a sum of money

i = Rate of interest

n = number of years

PRESENT VALUE METHODS

There are three methods of appraising the profitability of capital investment projects by present value technique:

(A) Net Present Value Method (NPV Method)

This is also known as Excess Present Value Method or Net Gain Method. This method is used when the management has prescribed minimum (or target) rate of return or cut-off rate. Following steps are involved in this method:

(i) Determine the present value of all cash inflows from investments at different periods at required earnings rate. The formula is:

Present Value = Annual Cash Inflow x Present Value Factor

Note:

It should be remembered that salvage value and working capital released at the end of the project's life are considered as cash inflows of the last year and are duly discounted to present values.

(ii) Determine the present value of all cash outflows at different periods at the same earnings rate. Cash outflows at zero period of time (initial investment including working capital needed, if any) are not discounted. For this amount, the present value factor is taken as 1. However, cash outflows at subsequent periods are discounted by the relevant present value factor.

(iii) Find out the present value. For this, total of present values of all cash inflows is compared with the total of present values of all cash outflows. As per formula:

Net Present Value = Total Present Value of Cash Inflows - Total Present Value of Cash Outflows

DECISION RULE

(i) If NPV is positive, project is accepted.

(ii) If NPV is zero, the project is accepted or rejected on non-economic considerations.

(iii) If NPV is negative, the project is rejected.

Higher the NPV, more attractive will be the project. Hence, in mutually exclusive projects, (if cost of investment is similar), the project which gives the higher positive NPV will be preferred.

Merits of NPV Method

1. The NPV method recognizes the time value of money and takes into consideration the cost of capital.
2. It is very easy to calculate and simple to understand and interpret.
3. It takes care of the entire life of the project and its entire earnings including salvage of asset.
4. It can be applied to both types of cash inflow patterns – even and uneven cash inflows.
5. The economists generally prefer this method as it is consistent with the objective of maximizing owners' wealth.

Limitation or Demerits of NPV Method

1. Compared to payback or accounting rate of return methods, NPV method is difficult and complicated.
2. The greatest problem of this method is determination of desired rate of return. Due to difference in the state of risk and uncertainty of different business, no uniform rate can be used.
3. Keeping in view time-span of different projects and difference of risk inherent in them, use of a common discounting rate is not correct.
4. It may also not give satisfactory results where the projects under competition have different lives. NPV method favors long-lived projects.
5. It assumes that intermediate cash inflows are reinvested at the firm's cost of capital, which is always not true.
6. The results from this method may contradict those under internal rate of return method, even in the case of alternative proposals, which are mutually exclusive.
7. Net present value is sensitive to discount rates. With a change in rate, a desirable project may turn into an undesirable one and vice-versa.

Illustration 6:

ABC & SK Co. Ltd. is considering the purchase of a machine. Two machines, X and Y, are available each costing Rs. 50,000 and salvage is estimated at Rs. 3,000 and Rs. 2,000 respectively. Earnings after taxation are expected to be as follows:

Year	***Cash Flow***	
	Machine X	***Machine Y***
1	Rs. 15,000	Rs. 5,000
2	20,000	15,000
3	25,000	20,000
4	15,000	30,000
5	10,000	20,000

Evaluate the two alternatives according to:

a) The payback method;

b) Unadjusted Rate of Return Method;

c) Net Present value Method. A discount rate of 10% is to be used.

Solution:

a) Payback Method:

Table Showing Cumulative Cash Flow of Projects

Year	***Project X***		***Project Y***	
	Cash Flow	***Cumulative Cash Flow***	***Cash Flow***	***Cumulative Cash Flow***
	Rs.	**Rs.**	**Rs.**	**Rs.**
1	15,000	15,000	5,000	5,000
2	20,000	35,000	15,000	20,000
3	25,000	60,000	20,000	40,000
4	15,000	75,000	30,000	70,000
5	13,000*	88,000	22,000*	92,000

* Including salvage value.

(i) Payback Period = $E + \frac{B}{C}$

Machine X: $2 + \frac{50,000 - 35,000}{25,000} = 2\frac{3}{5}$ years

Machine Y: $3 + \frac{50,000 - 40,000}{30,000} = 3\frac{1}{3}$ years

(ii) Post Payback Profitability = Total Cash Flows – Investment Outlay

Machine X: 88,000 - 50,000 = Rs. 38,000

Machine Y: 92,000 – 50,000 = Rs. 42,000

b) Unadjusted Rate of Return Method:

(i) Annual Depreciation = $\frac{\text{Cost – Scrap Value}}{\text{Working Life}}$

Machine X: $\frac{50{,}000 - 3{,}000}{5}$ = Rs. 9,400

Machine Y: $\frac{50{,}000 - 2{,}000}{5}$ = Rs. 9,600

(ii) Average Annual Cash Flow = $\frac{\text{Total Cash Earnings}}{\text{No. of Years}}$

Machine X: $\frac{15{,}000 + 20{,}000 + 25{,}000 + 15{,}000 + 10{,}000}{5}$ = Rs. 17,000

Machine Y: $\frac{5{,}000 + 15{,}000 + 20{,}000 + 30{,}000 + 20{,}000}{5}$ = Rs. 18,000

(iii) Unadjusted Rate of Return = $\frac{\text{Average Annual Cash Earnings – Annual Depreciation}}{\text{Average Investment}} \times 100$

Machine X: $\frac{17{,}000 - 9{,}400}{(50{,}000 + 3{,}000) \div 2} \times 100 = \frac{7{,}600}{26{,}500} \times 100 = 28.68\%$

Machine Y: $\frac{18{,}000 - 9{,}600}{(50{,}000 + 2{,}000) \div 2} \times 100 = \frac{8{,}400}{26{,}000} \times 100 = 32.31\%$

c) Net Present Value Method:

Calculation of Present Value of Cash Inflows

Year	***Discount***	***Project X***		***Project Y***	
	Factor	***Cash Flow***	***Present Value***	***Cash Flow***	***Present Value***
	(at 10%)	***Rs.***	***Rs.***	***Rs.***	***Rs.***
1	.909	15,000	13,635	5,000	4,545
1	.826	20,000	16,520	15,000	12,390
3	.751	25,000	18,775	20,000	15,020
4	.683	15,000	10,245	30,000	20,490
5	.621	13,000	8,073	22,000	13,662
Total		**88,000**	**67,248**	**92,000**	**66,107**

Net Present Value = Total Present Value – Investment

Machine X: Rs. 67,248 – Rs. 50,000 = Rs. 17,248

Machine Y: Rs. 66,107 – Rs. 50,000 = Rs. 16,107

(B) Profitability Index Method or Present Value Index Method

The Profitability index method is a variant of NPV method and is called benefit-cost ratio. It is preferable to the NPV method where capital costs of mutually exclusive projects differ substantially. It expresses the relationship between present values of cash inflows and the present value of cash outflows (i.e., cost of investment). The formula is:

$$\text{P.V. Index (on Re. 1)} = \frac{\textit{Present Value of Cash Inflows}}{\textit{Present Value of Cash Outflows}}$$

$$\text{P.V. Index (percentage)} = \frac{\textit{Present Value of Cash Inflows}}{\textit{Present Value of Cash Outflows}} \times 100$$

The main object of the use of present value index is to provide ready comparability between investment proposals of different magnitude. A proposal can be accepted only if profitability index is greater than or at least equal to unity. Higher the index, more desirable is the investment. The proposal is rejected if its profitability index is less than one. But, it is to be noted that profitability index of less than one does not indicate loss. It simply means that the firm's cost of capital exceeds the rate of return making it imperative for the proposal to be rejected.

The only difference between NPV method and PV index method is that while the former indicates absolute figures, the latter indicates the relative figures.

Illustration 7:

Rank the following investment proposals for A&G pvt. Ltd. in order of their profitability using (a) Payback period method, (b) Accounting rate of return method and (c) Present value index method (cost of capital – 10%):

Project	*Initial Outlay*	*Annual Cash Flow*	*Life*
	Rs.	*Rs.*	*(in years)*
A	96,000	15,000	12
B	48,000	10,000	8
C	80,000	14,000	10
D	40,000	9,000	8

Solution:

(a) Ranking of the Projects under Payback Period Method

Project	*Initial Outlay*	*Annual Cash Flow*	*Payback Period*	*Rank*
A	96,000	15,000	6.4	4

B	48,000	10,000	4.8	2
C	80,000	14,000	5.7	3
D	40,000	9,000	4.4	1

(b) Ranking of the Projects under Accounting Rate of Return Method

Project	*Initial Outlay Rs.*	*Average Outlay Rs.*	*Annual Cash Flow Rs*	*Life*	*Annual Depreciation*	*Net Income Ra.*	*Return Average Outlay %*	*Rank*
A	96,000	48,000	15,000	12	8,000	7,000	14.58	4
B	48,000	24,000	10,000	8	6,000	4,000	16.67	2
C	80,000	40,000	14,000	10	8,000	6,000	15	3
D	40,000	20,000	9,000	8	5,000	4,000	20	1

(c) Ranking of the Projects under the Present Value Index Method

Project	*Initial Outlay Rs.*	*Annual Cash Flow Rs*	*Life*	*P.V. Factor (at 10%)*	*P.V. of Cash Flows Years*	*P.V. Index of Rs.1*	*Rank*
A	96,000	15,000	12	6.814	1,02,210	1.06	4
B	48,000	10,000	8	5.335	53, 350	1.11	2
C	80,000	14,000	10	6.145	86, 030	1.08	3
D	40,000	9,000	8	5.335	48, 015	1.20	1

(C) TIME ADJUSTED RATE OF RETURN METHOD (TAR Method) or INTERNAL RATE OF RETURN METHOD (IRR Method)

This rate is also known as '***Marginal Efficiency of Investment***', **'Internal Rate of Project'** and **'Breakeven Rate'**. It follows the discounted cash flow technique, which takes into account the time value of money. This is why, this rate is called as time adjusted rate. This method is used when the management does not prescribe desirable rate of return.

Under this method, such a rate of return (or discounting rate) is derived at which the aggregate of the present values of all future cash inflows from investment equals the present value of cash outflows for the proposal (*i.e.,* initial investment outlay). In other words, IRR is the maximum rate of interest that could be paid for the capital employed over the life on an investment without loss on the project. It is the rate of discount at which net present value is zero. **Higher the IRR, more attractive is the proposal**. A proposal is accepted only when IRR is higher than the required rate of return (cut-off rate). If it is lower, the proposal is rejected; if it is just equal decision is taken on the basis of other considerations. In case of mutually exclusive projects, project with highest IRR is selected.

Computation of IRR

A) In the case of even cash Inflows:

If cash inflows are uniform each year, the computation of IRR involves the following two steps:

(i) Calculate Present Value Factor (or Payback Reciprocal):

The following formula is applied for this purpose:

$$\text{P.V. Factor} = \frac{\text{Investment}}{\text{Annual Cash Inflows}}$$

(ii) Finding Rate of Return:

Locate the factor closest to the factor calculated in (i) in the compound present value table (Table 2) in the row of year corresponding the life span of investment in years. The interest rate of the column of that factor will be the required IRR. For example, if an investment outlay of Rs. 10,432 yields cash earnings of Rs. 2,000 each year for 10 years, IRR is calculated as follows:

$$\text{P.V. Factor} = \frac{\text{Investment}}{\text{Annual Cash Inflows}} = \frac{10{,}432}{2{,}000} = 5.216$$

Locating this factor in the compound P.V. Table in the row corresponding to the life span of investment in years (i.e., tenth year), the factor is an interest rate of 14%s. Hence, IRR in this case is 14%.

Note:

It is always not possible that the same factor as calculated in (i) above is there in the present value table. It may exist between any two factors in the table. In such a case, IRR is determined on the basis of closest factor. The actual rate can, however, be calculated by applying interpolation technique, although such accuracy is usually not required in the appraisal of the projects.

The formula for interpolation is:

$$r = r_1 + \frac{V_1 - V}{V_1 - V_2}(r_2 - r_1)$$

where, r = rate of return to be determined

r_1 = lower rate of return

r_2 = higher rate of return

V_1 = the p.v. factor at lower rate of return

V_2 = the p.v. factor at higher rate of return

V = the p.v. factor for which r is to be interpolated.

B) In the Case of Uneven Cash Inflows:

The calculation of IRR under such circumstances is a little bit difficult. In this case, 'trial and error' procedure is followed to find out IRR. Here also the object is the same. We have to determine the rate at which the total present value of irregular and uneven cash inflows equals the cost of investment (or total present value of cash outflows), i.e., where NPV is zero. The following procedure may be followed in such a case:

(i) Calculate the average annual cash inflows to get a fake annuity.

(ii) Determine 'fake payback factor' by dividing the initial outlay with the average annual cash inflows.

(iii) Locate the factor in compound P.V. Table closest to the fake present value factor in the same manner as in the case of annuity and determine the fake IRR.

(iv) Calculate present value of cash inflows at the fake rate determined above in (iii) and compare the total present value of cash inflows with the cost of investment. If NPV is positive, a higher rate should be tried to calculate NPV. Conversely, if NPV is negative, a lower rate should be tried. The procedure will go on till we find the rate at which NPV is zero.

Alternatively, two discounting rates may be selected in such a way that the NPV result of the lower rate of discount is a positive amount and the NPV result of the higher discounting rate is a negative amount. Then the interpolation technique should be applied to arrive at the correct IRR.

Merits of TAR or IRR Method

1. Like NPV, IRR method takes into consideration time value of money and also the total cash inflows and outflows over the entire life of the project.
2. The pre-determination of earnings rate is not a pre-condition for the use of this method.
3. For a manager, it is easier to understand and interpret the 'rate' than an absolute amount.

Demerits of TAR or IRR Method

1. Its computation is difficult. IRR requires tedious calculations based on trial and error procedure or interpolation.
2. The assumption that cash flows are reinvested for the remaining life of the project at the IRR is unrealistic. In some cases, it remains idle in the business.
3. This method requires the determination of minimum required rate of return to know the acceptability of IRR, which is a difficult task.
4. If cash inflows in any years are negative then it may give more than one solution.
5. This method does not differentiate satisfactorily between projects of different lives.

Illustration 8:

A project costs Rs. 10,000 and cash inflows in the first, second, third and fourth years respectively is Rs. 2,000, Rs. 3,000, Rs. 5,000 and Rs. 6,000. Calculate time adjusted rate of return for the project.

Solution:

Total Cash Inflows of 4 years = Rs. 16,000

Average Annual Cash Inflow = Rs. 4,000

$$\text{P.V. Factor} = \frac{10000}{40000} = 2.5$$

Locating this factor in cumulative P.V. Table on the line corresponding to the 4th year, TAR is found to be about 22%. Now, we have to verify this TAR as follows:

Year	*Cash Inflow*	*P.V. Factor at 22%*	*Present Value*
	Rs.		*Rs.*
1	2,000	0.820	1,640

2	3,000	0.672	2,016
3	5,000	0.551	2,755
4	6,000	0.451	2,706
			9,117

As the total present value of cash-inflows at 22% is less than the cost of investment, the TAR must be below 22%. Because the difference between these two figures is quite large, so we take out next trial at 16%.

Year	*Cash Inflow*	*P.V. Factor at 16%*	*Present Value*
	Rs.		*Rs.*
1	2,000	0.862	1,724
2	3,000	0.743	2,229
3	5,000	0.641	3,205
4	6,000	0.552	3,312
			10,470

As it is clear from the above, the total present value of cash inflows at 16% is more than the cost of investment, so the TAR is some where between 16% and 22% and the exact rate can be found out by interpolation as follows:

$$r = r_1 + \frac{V_1 - V}{V_1 - V_2}(r_2 - r_1)$$

$$r = 16 + \frac{10,470 - 10,000}{10,470 - 9,117}(22 - 16)$$

$$= 18.08\%$$

Modified IRR

The limitation of IRR is that reinvestment rate in case of IRR is IRR itself. This can be overcome changing the reinvestment rate incorporating the expected reinvestment rate for future periods over the life of the projects and using such expected reinvestment rate for calculating the terminal value of the cash inflows for different years of the life of the project. Thereafter, MIRR is determined with present value of such terminal value of thecash inflows and present value of the cash outflows. In other words, the MIRR is the discount rate which will make present / discounted value of terminal value of cash inflows equal to present/discounted value of cash outflow.

The procedure for calculating MIRR is as follows:

Step 1: Calculated the present Value of the costs (PVC) associated with the project, using the cost of capital (r) as the discount rate:

$$PVC = \sum_{t=0}^{n} \frac{\text{Cash outflow}_t}{(1+r)^t}$$

Step 2: Calculate the terminal Value (TV) of the cash inflow expected from the project:

$$TV = \sum_{t=0}^{n} \text{Cash Inflow}^{t} (1+r)^{n-t}$$

Step 3: Obtain MIRR by solving the following equation:

$$PVC = \sum_{t=0}^{n} \frac{TV}{(1+MIRR)^{n}}$$

To illustrate the calculation of MIRR let us consider an example. Srivastava Limited is evaluating a project that has the following cash flow stream associated with it:

Year	0	1	2	3	4	5	6
Cash Flow	-120	-80	20	60	80	100	120

The cost of capital is 15 percent. The percent value of costs will be : 120 + 80 / 1.15 = 189.6

1.15

The terminal value of cash inflow is:

$20(1.15)^{4} + 60(1.15)^{3} + 80(1.15)^{2} + 100(1.15) + 120$

= 34.98 +91.26 + 105.76 + 115+120 = 467

The MIRR is obtained as follows:

$$189.6 = \frac{467}{(1+MIRR)^{6}}$$

$(1+MIRR)^{6} = 2.463$

$1+ MIRR= 2.463^{1/6} = 1.162$

MIRR= 1.162 or 16.2 percent

Modified NPV or Modified IRR may be used to resolve the conflict in ranking of the alternative projects under NPV and IRR methods arising out of differences in timing of cash flows, i.e., in one project, the cash inflows in the initial years may be more than the other or vice versa.

In case of mutually exclusive projects, financial appraisal using NPV & IRR methods may provide conflicting results. The reasons for such conflicts may be attributed to (i) Difference in timing / pattern of cash inflows of the alternative proposals (Time Disparity), (ii) difference in their amount of investment (Size Disparity) and (iii) difference in the life of the alternative proposals (Life Disparity).

TIME DISPARITY: Main source of conflict is the different re-investment rate assumption. Such conflicts may be resolved using modified version of NPV and IRR using expected / defined reinvestment rate applicable to the firm.

For modified NPV and IRR, at first Terminal Value (TV) is calculated using the specified reinvestment rate. TV= "$CF(1+r^{*})^{n-t}$ MNPV = {TV ÷ (1+K)n}-IMIRR=$(TV \div I)1^{/n}$-1

Where, r*t = reinvestment rate

Example:

	Project I	*Project II*
Investment	220000	220000
Year 1	62000	142000
Year 2	80000	80000
Yera 3	100000	82000
Year 4	140000	40000
Cost of capital: 10%		
Solution:		
	I	II
NPV()	73226	62628
IRR (appx.)	22%	25%

According to NPV, Project I is better but according to IRR, Project II is better. So, there is conflicting results. The primary reason for such conflict is the difference in timing of cash inflows. In case of Project II, more cash inflows occur in the initial years while in case of Project I more cash flows occur towards the end of the project. Such conflict may be resolved using Modified version of NPV or IRR (MNPV or MIRR) as follows.

Using reinvestment rate of 14%,

TV1 = 62000 $(1 + .14)^3$ + 80000 $(1 + .14)^2$ + 100000 $(1 + .14)^1$ + 140000 $(1 + .14)^0$ = 449822

TV2 = 142000 $(1 + .14)^3$ + 80000 $(1 + .14)^2$ + 82000 $(1 + .14)^1$ + 40000 $(1 + .14)^0$ = 447822

MNPVI= {449822 ÷ (1 +.10)4} – 220000 = 87228

MNPVII = {447822 ÷ (1 +.10)4} – 220000 = 85862

MIRRI = (449822 ÷220000)1/4 – 1 = 19.57%

MIRRII = (447822 ÷220000)1/4 – 1 = 19.32%

Both the MIRR and MNPV show that Project I should be accepted.

SIZE DISPARITY:

Conflict may arise due to disparity in the size of initial investment /outlays. Such conflict may be resolved using incremental approach.

Steps :

- Find out the differential cash flows between the two proposals
- Calculate the IRR of the incremental cash flows
- If the IRR of the differential cash flows exceeds the required rate of return (usually cost of capital), the project having greater non-discounted net cash flows should be selected.

Example:

	Project A (r)	*Project B (r)*
Investment	5000000	7500000
Net Cash Inflow K = 10%	6250000	9150000

Solution: At first, NPV and IRR of the projects are calculated and it has been found that,NPVA<NPVB IRRA> IRRB

The above results indicate that there is a conflict in ranking of the projects under NPV and IRR. Such conflict is mainly due to the difference in the initial investment of the projects and it can be resolved using incremental approach as follows.

Differential Cash Outflows = r 2500000, Differential Net Cash Inflows = r2900000

We know that IRR is the discount rate at which Present Value of Cash Inflows are equal to the Present Value of Cash Outflows.

So, 25, 00,000 = 29, 00,000 / $(1+ r)^1$

Or, 1 + r = 29,00,000/25,00,000 Or, r = 1.16 – 1 = 0.16

IRR (r) of the differential cash flows = 16%, which is greater than Cost of Capital (k). Therefore, Project with higher non- discounted cash inflows, i.e., Project B would be selected.

Advantages and Disadvantages of the MIRR Method

The modified internal rate of return resolves two problems inherent to the IRR.

All cash inflows are reinvested at the reinvestment rate, which is more realistic than reinvesting at the IRR.

The method of calculation eliminates the problem of multiple IRR for projects with abnormal cash flows.

The main disadvantage of the MIRR method is the potential conflict with the NPV method. The reason may be due to a difference in project scale or in the timing of cash flows (the problem was discussed in “NPV vs IRR method”). Furthermore, if the reinvestment rate is lower than the cost of capital, there is a conflict with the basic assumption of the NPV method, which is that all expected cash inflows are reinvested at the cost of capital (discount rate).Thus, the project can simultaneously have positive NPV and MIRR lower than the cost of capital. That is the reasonwhy some academic studies recommend using the reinvestment rate equal to the cost of capital raised for a project.

Unequal lives of the Projects or LIFE DISPARITY

In some cases, the mutually exclusive alternatives with different/ unequal lives may lead to conflict in ranking. To resolve such conflict, one approach is to compare the alternatives on the basis of their Equivalent Annual Benefit (EAB) or Equivalent Annual Cost (EAC) and select the alternative with the higher EAB or lower EAC.

EAB = NPV x Capital Recovery Factor or NPV ÷ PVIFAk,n

Capital Recovery Factor = the inverse of PVIFA = $k (1+k)^n \div (1+k)^n - 1$

EAC = PV of Cost ÷ PVIFAk.n

Another approach is to evaluate the alternatives over an equal time frame using the lowest common multiple (LCM) of the lives of the alternatives under consideration. This method is referred to as LCM method. For example, life of Proposal A is 3 Years and that of B is 5 years. Lowest common multiple period is 15 years, during which

period, it may be assumed that Machine A will be replaced 5 times and Machine B will be replaced 3 times. Cash Flows are extended to this period and computations made. The final results would then be on equal platform i.e. equal years, and hence would be comparable.

Example:

	P	***Q***
Investment (Rs.):	5000000	5000000
Cash Inflows (Rs.):		
Year 1	7500000	2000000
Year 2		2000000
Year 3		7000000
K = 12%		
Solution.		
	P	Q
NPV (Rs.)	1696400	3362800
IRR	50%	40%

From the above, it is found that there is conflict in ranking of the projects under NPV and IRR. The reason may be attributed primarily to the unequal lives, i.e., life disparity. In such situation, EAB approach may be followed as follows.

	P	***Q***
Capital Rec. Factor	1.12	416*
		*1 ÷ (.893+.797+.712)
EAB (Rs.)	1900000	1398900

Based on EAB, Project P is better.

CAPITAL RATIONING

One important aspect of control device is to match the demand schedule for the capital for the company and the supply of capital from different sources. Demand comes for capital from all departments and it is at this level control could be exercised to keep the demand at the bare minimum required for the objective inherent in capital investment decisions. Supply of capital, on the other hand, is a scarce commodity and the company has to incur expenditure for availing it. This necessitates for the finance manager to exercise economy in capital expenditure so that optimum benefit could be obtained with the use of scarce capital sources. This establishes the need for capital rationing to impose constraints on capital expenditure under prevailing market conditions and place self-imposed constraints to check the funds being raised from outside agencies like borrowings. Thus, the device of capital rationing is adopted to control capital expenditure.

The firm may put a limit to the maximum amount that can be invested during a given period of time, such as a year. Such a firm is then said to be resorting to capital rationing. A firm with capital rationing constraint attempts to select the combination of investment projects that will be within the specified limits of investments to be made during a given period of time and at the same time provide greatest profitability.

Capital rationing may be effected through budget ceiling. A firm may resort to capital rationing when it follows

the policy of financing investment proposals only by ploughing back its retained earnings. In that case, capital expenditure in a given period cannot exceed the amount of retained earnings available for reinvestment. Management may also introduce capital rationing when a department is authorised to make investments upto a limit beyond which investment decisions will be made by higher level management.

Capital rationing may result in accepting several small investment proposals then accepting a few large investment proposals so that there may be full utilisation of budget ceiling. This may result in accepting relatively less profitable investment proposals if full utilization of budget is a primary consideration. Similarly, capital rationing also means that the firm foregoes the next most profitable investment falling after the budget ceiling even though it is estimated to yield a rate of return much higher than the required rate of return. Thus, capital rationing does not lead optimum results.

Types of capital rationing

1. "hard" or external
2. "soft" or internal

Hard capital rationing occurs when external factors force a company to cut expenses, including capital expenditures. For example, creditors may include provisions in an agreement limiting borrowers' spending to reduce the risk of default. Many companies are also forced to reduce spending when they are going to raise additional capital by issuing new debt or equity. The objective of such a strategy is to increase the free cash flow and therefore make a company more attractive to investors. As we can see, external factors may cause severe constraints on the capital budget.

Soft capital rationing is caused by internal factors. For example, to reduce overall risk, the board of directors may set a minimum internal rate (IRR) of return for capital projects. All projects having a lower IRR will be rejected even though they have a positive net present value. Dividend policy can also cause soft rationing. For example, if a company declares paying a fixed dividend per share, any failure will be negatively perceived by the market and will most likely result in a decrease in the stock price. That is why company management would prefer to cut capital expenditures than dividends.

A company has a budget constraint of 3 lakh for Capital expenditure and is considering five projects using the net present value method. The particulars are:

Project	***Project cost (r)***	***Net Present value (r)***
A	1,80,000	75,000
B	1,50,000	60,000
C	1,20,000	50,000
D	75,000	36,000
E	60,000	30,000

Assuming that project B and C are mutually exclusive and all other project are independent, select the combination which all maximise the net present value.

Solution

Under condition of Capital Rationing, raking of the project is done under the profitability index as follow:

Profitability Project for under PI

Project	*Project Cost (r)*	*NVP (r)*	*Total PV (r)*	*PI(PV÷PC)*	*Rank*
A	1,80,000	75,000	2,55,000	1.42	3
B	1,50,000	60,000	2,10,000	1.40	4
C	1,20,000	50,000	1,70,000	1.42	3
D	75,000	36,000	1.11,000	1.48	2
E	60,000	30,000	90,000	1.50	1

On the basis raking for other factors, three possible combinations along with their net present value are arrived at as follow:

Profitability of Combined Project

Project	*Project Cost (r)*	*NVP (r)*	*Project*	*Project Cost (r)*	*NVP (r)*	*Project*	*Project Cost (r)*	*NVP (r)*
E	60,000	30,000	E	60,000	30,000	C	1,20,000	50,000
D	75,000	36,000	D	75,000	36,000	A	1,80,000	75,000
C	1,20,000	50,000	B	1,50,000	60,000			
	2,55,000	1,16,000		2,85,000	1,26,000		3,00,000	1,25,000
Rank		3			1			2

Combination II, which produces the maximum possible net present value within the overall budget limit of 3,00,000 of the project cost is recommended.

Note: Since B and C are mutually project, they cannot be considered simultaneously.

CONSIDERATION OTHER THAN PROFITABILITY IN MANAGERIAL DECISIONS

Managerial decision on capital projects is very difficult and complicated problem. Though profitability of the proposal is the crucial factor that influences the capital expenditure decisions this cannot be the sole determinant for these decisions. In practice there are many other factors which make the profitability base subsidiary or less important. These factors are as follows:

1. Urgency of the Project:

Sometimes an investment is made due to urgency to avoid heavy losses. For example, on breakdown of machinery, management may decide to replace it by any available machine suitable for the work without proper evaluation of its cost and benefits so as to avoid heavy losses due to stoppage of production process. In such a case, the basis of managerial decision is urgency and not the profitability.

2. Funds Available:

The availability of funds is an important factor that influences the capital budgeting decisions. Sometimes, a more profitable project is not taken up for want of sufficient funds and a lesser profitable project of lower payback period is approved, if the firm is short of funds.

3. Available Technical Know-how and Managerial Capability:

Before approving a project, the management will have to consider whether their firm has got the necessary technical know-how and managerial capability to implement that project and if not, whether it could be acquired.

4. Availability of Additional Funds:

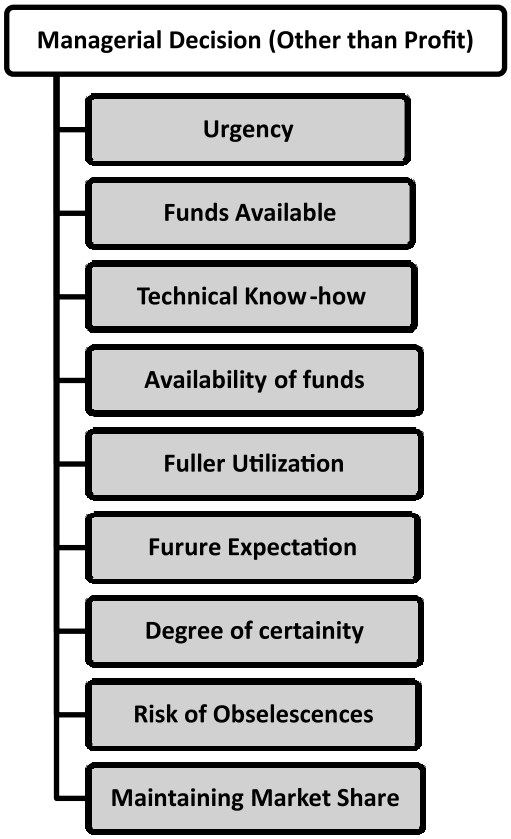
If the management is capable of arranging additional funds in future, then all the funds available at present may be utilized for the capital projects; if not, working capital needs will have to be arranged out of the funds available with the firm.

5. Fuller Utilization of Funds:

The ultimate goal of managerial policy is to maximize the owner's wealth. Hence, if the firm has ample funds for investment then a project yielding highest rate of return and requiring lesser outlay may not be approved by the management if no other profitable investment of spare funds is possible. In such a situation, it may be better to select the next best project if total funds of the concern could be invested in the project, so that total profits of the firm are maximized.

6. Future Expectations of Earnings:

Expected earnings on future investments may also influence current capital investment decisions. If more profitable investments are possible in future, then at present management would select the project of lower useful life so that the funds invested may be taken back early and could be invested in future in more profitable projects. On the contrary, if there is possibility of rate of return on investment to go down then long economic life projects would be better even if rate of return on this project is lower to a short live project.



7. Degree of Certainty of Net Income:

Certainty of income on project also influences the selection of the project. Although future business operations are uncertain, even then the management may select a lower income project in place of a higher but uncertain income project.

8. Risk of Obsolescence:

In case of rapid technological development, the project with a lesser payback period may be preferred in comparison to one which may have higher profitability but still longer payback period.

9. Maintaining Market Share:

Sometimes, the management may take a decision in favor of a project though yielding a lower return but necessary to maintain earning capacity and existing market share of the firm.

RISK AND UNCERTAINTY IN CAPITAL BUDGETING

The cash flows from an investment are estimated when the proposal is evaluated; however, the returns are not known until the cash flow actually occurs. The uncertainty of returns from the moment the funds are invested until management and investor know how much the projects has earned, is a primary determinant of a proposal's risk. The owners of a firm are ordinarily concerned with the riskiness of their capital, and management must therefore, take risk into account in evaluation of capital budgeting proposals.

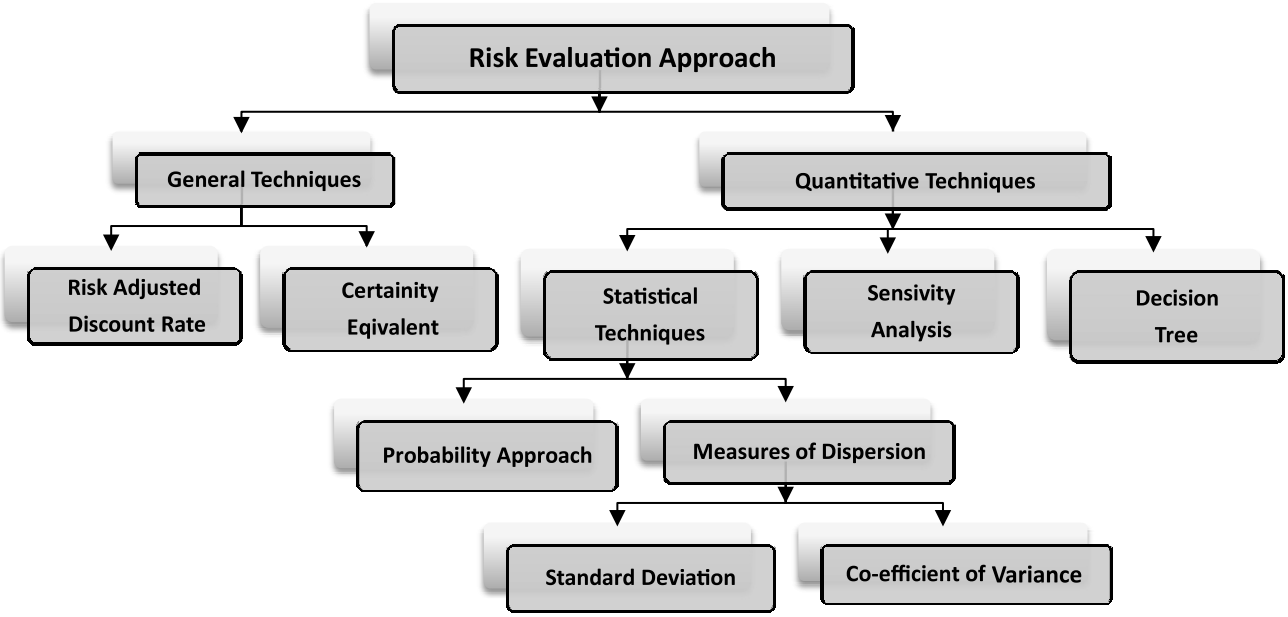
In case, the cash flows associated with a proposal are known with certainty then the techniques such as NPV,

IRR or any other may be used to evaluate the desirability of the proposal. However, when the cash flows are not known with certainty a measure of risk of the proposal should also be brought into the evaluation system. Such resultant capital budgeting decisions criterion will then evaluate the proposals by considering both the risk and return associated with the proposal.

MEASURES OF RISK / RISK EVALUATION

Measurements cannot be assured of cent per cent accuracy because risk is caused by numerous factors such as social, political, economic and managerial efficiency. Measurement provides an approximate quantification of risk.

The following techniques can be applied to evaluate the risk presented in the chart given below:



F-1.6 Risk Evaluation

1. Risk Adjusted Discount Rate (RADR)

This discount rate is applicable to a risky investment and is the sum of risk free rate and a risk premium relating to that investment. It is also known as ***"Varying Discount Rate Method".*** Under this method the discount rate is adjusted in accordance with the degree of risk.

RADR = Risk Free Rate of Retun + Risk Premium Rate

This is a simplest method of accounting for risk in capital budgeting is to increase the cut-off rate or the discount factor by certain percentage on account of risk. The projects which are more risky and which have greater variability in expected returns should be discounted at a higher rate as compared to the projects which are less risky and are expected to have lesser variability in returns.

Illustration 9:

SK & ABC Company Ltd. is considering the purchase of a new investment. Two alternative investments are available (A and B) each costing Rs. 1,00,000. Cash inflows are expected to be as follows:

Cash Inflows	Investments A	Investment B
Years	Rs.	Rs.
1	40,000	50,000
2	35,000	40,000
3	25,000	30,000
4	20,000	30,000

The company has a target return on capital of 10%. Risk premium rates are 2% and 8% respectively for investments A and B. Which investment should be preferred?

Solution:

The profitability of the two investments can be compared on the basic of net present values cash inflows adjusted for risk premium rates as follows:

	Investment A			*Investment B*		
Year	*Discount*	*Cash*	*Present*	*Discount*	*Cash*	*Payment*
	Factor @	*Inflow*	*Value*	*Factor @*	*Inflows*	*Value*
	10%+2%=12%	*Rs.*	*Rs.*	*10%+8%=18%*	*Rs.*	*Rs.*
1	0.893	40,000	35,720	0.847	50,000	42,350
2	0.797	35,000	27,895	0.718	40,000	28,720
3	0.712	25,000	17,800	0.609	30,000	18,270
4	0.635	20,000	12,700	0.516	30,000	15,480
			94,115			1,04,820

Investment A

Net Present value = Rs, 94,115 – 1,00,000

= Rs. (-) 5,885

Investment B

Net Present value = Rs. 1,04,820 – 1,00,000

= Rs. 4,820

As even at a higher discount rate investment B gives a higher net present value, investment B should be preferred.

2. Certainty Equivalent Technique

In this method, Cash flows are corrected and reduced to conservative levels by multiplying them by certainty equivalent co-efficient (or correction factor).

$$\textit{Certainty Equivalent Co-efficient} = \frac{\text{Riskless Cash Flows}}{\text{Risky Cash Flows}}$$

This is another simple method of accounting for risk in capital budgeting is to reduce expected cash flows by certain amounts. It can be employed by multiplying the expected cash flows by certainly equivalent co-efficient as to convert the uncertain cash flows to certain cash flows.

Illustration 10:

There are two projects X and Y. each involves an investment of Rs. 40,000. The expected cash inflows and the certainly coefficients are as under:

Year	*Project X*		*Project Y*	
	Cash Inflow	*Certainty Coefficient*	*Cash Inflow*	*Certainty Coefficient*
	Rs.		*Rs.*	
1	25,000	0.8	20,000	0.9
2	20,000	0.7	30,000	0.8
3	20,000	0.9	20,000	0.7

Risk-free cut-off rate is 10%. Suggest which of the two projects should be preferred.

Solution:

Calculations of Cash Inflows with Certainty

Year	*Project X*			*Project Y*		
	Cash Inflow	*Certainty Coefficient*	*Certain Cash Inflow*	*Cash Inflow*	*Certainty Coefficient Cash Inflow*	*Certain*
	Rs.		*Rs.*	*Rs.*		*Rs.*
1	25,000	0.8	20,000	20,000	0.9	18,000
2	20,000	0.7	14,000	30,000	0.8	24,000
3	20,000	0.9	18,000	20,000	0.7	14,000

Calculations of Present Values of Cash Inflows

Year	*Discount*	*Project X*		*Project Y*	
	Factor @ 10%	*Cash Inflows*	*Present Values*	*Cash Inflows*	*Present Value*
1	0.909	20,000	18,180	18,000	16,362
2	0.826	14,000	11,564	24,000	19,824
3	0.751	18,000	13,518	14,000	10,514
			43,262		46,700

	Project X	**Project Y**
Net Present Value	= Rs. 43,262-40,000	46,700-40,000
	= Rs. 3,262	Rs. 6,700

As the net present value of present Y is more than that of Project X, Project Y should be preferred.

3. PROBABILITY TECHNIQUE

Probability is the at most chances of happening of a certain event. The probability lies between ***0 and 1***. If any chance is sure to be happened then it will carry probability 1 (which mean no probability at all but certainty). Under this method, the cash inflows estimates are multiplied by the probability assigned to them. The result

would be expected monetary values. Then these expected monetary values will be discounted at a discount rate available for present value.

A probability is the relative frequency with which an event may occur in the future. When future estimates of cash inflows have different probabilities the expected monetary values may be computed by multiplying cash inflow with the probability assigned. The monetary values of the inflows may further be discounted to find out the present values. The project that gives higher net present value may be accepted.

Illustration-11:

Two mutually exclusive investment proposals are being considered. The following information is available:

	Project A (Rs.)		**Project B (Rs.)**	
Cost	6,000		6,000	
	Cash Inflow			
Year	***Rs.***	***Probability***	***Rs.***	***Probability***
1	4,000	0.2	7,000	0.2
2	8,000	0.6	8,000	0.6
3	12,000	0.2	9,000	0.2

Assuming cost of capital at 10%, advice for the selection of the project.

Solution:

Calculation of the Net Present Values of the Two Projects

			Project X	***Project Y***					
Year	***P.V.***	***Cash***	***Probability***	***Monetary***	***Present***	***Cash***	***Probability***	***Monetary***	***Present***
	Factor	***Inflows***		***Value***	***Value***	***Inflows***		***Value***	***Value***
	@ 10%	***Rs.***		***Rs.***	***Rs.***	***Rs.***		***Rs.***	***Rs.***
1	0.909	4,000	0.2	800	727	7,000	0.2	1.400	1,273
2	0.826	8,000	0.6	4,800	3,965	8,000	0.6	4,800	3,965
3	0.751	12,000	0.2	2,400	1,802	9,000	0.2	1,800	1,352

Total Present Value	6,494	6,590
Total Present value	6,494	6,590
Less: Cost of Investment	6,000	6,000
Net Present Value	**494**	**590**

As net present value of Project Y is more than that of Project X after taking into consideration those probabilities of cash inflows, Project Y is more profitable.

4. STANDARD DEVIATION

The statistical tool often used to measure and used as a proxy for risk is the standard deviation. It is measure of the values of the variables around its mean or it is the square root of the sum of the squared deviations from the mean divided by the number of observances. The arithmetic mean of the returns may be same for two companies but the returns may vary widely.

Standard Deviation is the measure of variability of cash flow from the expected cash flow.

Standard deviation in the probability distribution is as:

$$\textbf{Standard Deviation } (\sigma) = \sqrt{\sum Pid^2}$$

Where d = Deviation of each of the cash flows

Pi = Associated probability

Advantages of Standard Deviation

The standard deviation and variance are conceptually equivalent quantitative measures of total risk. Standard deviation is preferred because of the following advantages:

1) Standard Deviation considers every possible event and assigns each event a weight equal to its probability.
2) Standard deviation is a very familiar concept and many calculators and computers are programmed to calculate it.
3) Standard deviation is a measure of dispersion around the expected (or average) value. This is in absolute consensus with the definition of risk as "variability of returns".
4) Standard deviation is obtained as the square root of the sum of squared differences multiplied by their probabilities. This facilitates comparison of risk as measured by standard deviation and expected returns as both are measured in the same costs. This is why standard deviation is preferred to variance as a measure of risk.

If two projects have the same cost and their net present value are also the same, standard deviations of the expected cash inflows of the two projects may be calculated to judge the comparative risk of the projects. The project having a higher standard deviation is said to be more risky as compared to the other.

Illustration-12:

From the following information, ascertain which project is more risky on the basis of standard deviation:

Project A		***Project B***	
Cash Inflow (Rs.)	***Probability***	***Cash Inflow***	***Probability (Rs.)***
2,000	.2	2,000	.1
4,000	.3	4,000	.4
6,000	.3	6,000	.4
8,000	.2	8,000	.1

Solution:

Calculation of Standard Deviation (Project A)

Cash Inflows (Rs.)	***Deviation from Mean (d) [5,000]***	***Square of Deviations***	***Probability*** *(Pi)*	***Weighted Square Deviations*** *(Pid^2)*
2,000	-3,000	90,00,000	.2	18,00,000
4,000	-1,000	10,00,000	.3	3,00,000

6,000	+1,000	10,00,000	.3	3,00,000
8,000	+3,000	90,00,000	.2	18,00,000
			n = 1	(Pid^2) = 42,00,000

Standard Deviation = $\sqrt{\sum Pid^2} = \sqrt{4200000} = 2{,}050$

(Project B)

Cash Inflows (Rs.)	*Deviation from Mean (d) [5,000]*	*Square of Deviations*	*Probability*	*Weighted Square Deviations*
2,000	-3,000	90,00,000	.1	9,00,000
4,000	-1,000	10,00,000	.4	4,00,000
6,000	+1,000	10,00,000	.4	4,00,000
8,000	+3,000	90,00,000	.1	9,00,000
			n = 1	26,00,000

Standard Deviation = $\sqrt{\sum Pid^2} = \sqrt{2600000} = 1{,}612$

As the Standard Deviation of Project A is more than that of project B, A is more risky.

5. Co-Efficient of Variation

Investment proposals involve substantially varied cash outlays and Standard Deviation is not a suitable comparison criterion. To overcome such adverse situation, relative measure of dispersion or variability is used. This relative measure of dispersion based on standard deviation is called Co-efficient of Standard Deviation or Co-efficient of Variation.

Coefficient of variation is a relative measure of dispersion. If the projects have the same cost but different net present values, relative measure, i.e., coefficient of variation should be computed to judge the relative position of risk involved. It can be calculated as:

$$\textit{Certainty Equivalent Co-efficient} = \frac{\textit{Standard Deviation } (\sigma)}{\textit{Mean of expected Cash Flows}} \times 100$$

Illustration 13:

The management of SK & ABC Ltd. is considering which of the two mutually exclusive projects to select. Details of each project are as follows:

Project A		*Project B*	
Probability	*Profit (Rs. '000)*	*Probability*	*Profit (Rs. '000)*
0.3	300	0.2	(800)
0.3	400	0.6	600

0.4	500	0.1	800
		0.1	1600

Solution:

Project A			***Project B***		
Probability	***Profit (Rs.)***	***MV (Rs.)***	***Probability***	***Profit (Rs.)***	***MV (Rs.)***
0.3	300	90	0.2	(800)	(160)
0.3	400	120	0.6	600	360
0.4	500	200	0.1	800	60
		_.	0.1	1600	160
		410			**440**

On the basis of MVs above, it is observed that project B is marginally preferable to X, by Rs. 30,000. Project B is however is more risky, offering profit Rs. 16,00,000 but also loss to the extent Rs. 8,00,000.

Let us compute standard deviation of each project as follows:

(Project A)

Probability	***Profit (Rs. '000)***	***(d)***	$P_i d^2$
p	***x***		
0.3	300	(110)	3,630
0.3	400	(10)	30
0.4	500	90	3,240
	MV = 410		**6,900**

Here $\overline{X}$ = 410

Standard deviation = $\sqrt{\sum Pid^2} = \sqrt{6,900}$ = Rs. 83.066

(Project B)

Probability	***Profit (Rs. '000)***	***(d)***	$P_i d^2$
p	***x***		
0.2	(800)	(1240)	3,07,520
0.6	600	160	15,360
0.1	800	360	12,960
0.1	1600	1160	134,560
	MV = 440		**4,70,400**

Standard deviation = $\sqrt{4,70,400}$ = 685.857

As the MV of the project differs, we have to find out coefficient of variation for each project, as follows:

		Project A	Project B
(a)	Standard deviation	Rs. 83.066	Rs. 685.857
(b)	Mean	410	440
	Coefficient of variation = $\frac{(a)}{(b)} x\ 100$	20.26	155.88

Here, Project A is, less risky and should be selected.

6. Sensitivity Technique

Where cash inflows are very sensitive under different circumstances, more than one forecast of the future cash inflows may be made. These inflows may be regarded as 'Optimistic', 'Most Likely' and 'Pessimistic'. Further cash inflows may be discounted to find out the net present values under these three different situations. If the net present values under the three situations differ widely it implies that there is a great risk in the project and the investor's decision to accept or reject a project will depend upon his risk bearing abilities.

Illustration 14:

Mr. ABC, a risky investor is considering two mutually exclusive projects A and B. You are required to advise him about the acceptability of the project from the following information.

	Project A (Rs.)	Project B (Rs.)
Cost of the investment	50,000	50,000
Forecast cash flows per annum for 5 years		
Optimistic	30,000	40,000
Most likely	20,000	20,000
Pessimistic	15,000	5,000
(The cut-off rate may be assumed to be 15%)		

Solution:

Calculation of Net Present Value of Cash Inflows at a Discount Rate of 15%

(Annuity of Re. 1 For 5 Years)

	Project A				Project B			
	Annual Cash Inflow (Rs.)	Discount Factor @15%	Present Value (Rs.)	Net Present Value (Rs.)	Annual Cash Inflow (Rs.)	Discount Factor @15%	Present Value (Rs.)	Net Present Value (Rs.)
Optimistic	30,000	3.3522	1,00,566	50,566	40,000	3.3522	1,34,088	84,088
Most Likely	20,000	3.3522	67,014	17,044	20,000	3.3522	67,044	17,044
Pessimistic	15,000	3.3522	50,283	283	5,000	3.3522	16,761	(33,239)

The net present values as calculated above indicate that Project B is more risky as compared to Project A. but at the same time during favorable conditions, it is more profitable also. The acceptability of the project will depend upon Mr. ABC's attitude towards risk. If he could afford to take higher risk, project B may be more profitable.

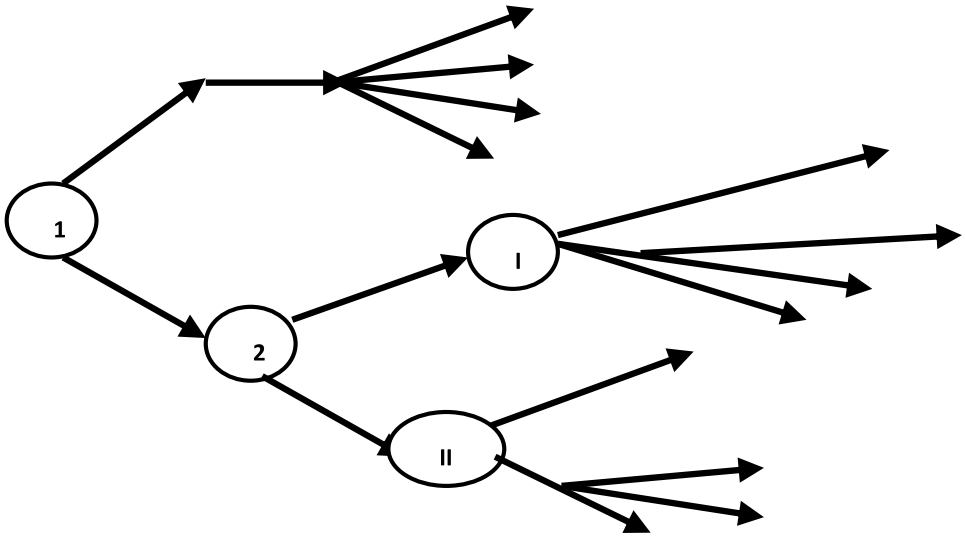
7. Decision Tree Technique

This technique is a graphical display of the relationship between a present decision and future events, future decisions and their consequences. In modern business there are complex investment decisions which involve a sequence of decisions over time. Such sequential decisions can be handled by plotting decisions trees.

A decision tree is a graphic representation of the relationship between a present decision and future events, future decisions and their consequences. The sequence of events is mapped out over time in a format resembling branches of a tree and hence the analysis is known as **decision tree analysis.**

The decision tree can be constructed with following five steps:

- **First:** Identification of the problem and defining the Proposal
- **Second:** Identifying maximum alternatives
- **Third:** Graphing the Decision Tree indicating the decision points, chance events, and other relevant data
- **Fourth:** Forecasting Cash Flow and specification of probabilities
- **Fifth:** Result Evaluation (Analysis of the alternatives)



F-1.7 A Decision Tree

For example, a company 'X' has an opportunity to invest in equivalent schemes that will last for two years and will cost r 1,00,000 initially. Cost of capital is 15%. It has the following estimated possible cash flow after tax (CFAT)

Year

One: 30% chance that (CFAT) will be r 40,000/-40% chance that (CFAT) will be r 60,000/- 30%

chance that (CFAT) will be r 80,000

Two: CFAT are conditional to those of year one.

The estimated conditional CFAT's and probabilities are as under:

If 1st year CFAT = r 40,000		If 1st year CFAT = r 60,000		If 1st year CFAT = r 80,000	
2nd year CFAT	**Probability**	**2nd year CFAT**	**Probability**	**2nd year CFAT**	**Probability**
20,000	0.2	70,000	0.3	80,000	0.1
50,000	0.6	80,000	0.4	1,00,000	0.8
80,000	0.2	90,000	0.3	1,20,000	0.1

From the above data we may plan the decision as under:

							Decision Tree	*Expected*
	Prob-ability	***CFAT Year 1 (r)***	***Probability***	***CFAT Year 2(r)***	***PV of CFAT at 15% (PV of CFAT at yr1 + PV of CFAT at yr2)***	***(a) NPVat 15% r***	***(b) Joint Probability***	***NPV a x b(r)***
	0.3	40,000	0.2	20,000	49,920	- 50,080	0.06	- 3,005
			0.6	50,000	72,600	- 27,400	0.18	- 4,932
			0.2	80,000	95,280	- 4,720	0.06	- 283
Cash outlay 1,00,000	0.4	60,000	0.3	70,000	1,05,120	5,120	0.12	614
			0.4	80,000	1,12,680	12,680	0.16	2,029
			0.3	90,000	1,20,240	20,240	0.12	2,428
	0.3	80,000	0.1	80,000	1,30,080	30,080	0.03	902
			0.8	1,00,000	1,45,200	45,200	0.24	10,848
			0.1	1,20,000	1,60,320	60,320	0.03	1,810
							1.00	10,411

Note: Present value of cash inflows are worked out on the basis of three decimal points.

The above decision tree shows possible CFAT outcomes in each year and the probabilities associated with these outcomes. The decision tree shows nine distinct paths, or combinations of outcomes that the project would take if accepted. One possibility is that one year's CFAT is Rs. 40,000 and the second year's CFAT is

Rs. 20,000. This is worst combination of outcomes that could occur. The company X would have paid Rs.1,00,000 for a CFAT stream of Rs. 40,000 and Rs. 20,000 in years one and two respectively. If the company X determined that an appropriate discountrate for this project is 15%, the NPV of the worst path is –Rs. 50,080. By looking at the decision tree figure, the best path for the firm is CFAT1 = Rs. 80,000 and CFAT2 = Rs. 1,20,000. The NPV at 15% of that path is Rs. 60,320. The decision tree shows NPV of each of the nine possible CFAT paths in the tree at discount rate of 15%. The expected net present value (NPV) of the problem depicted by the decision tree is the weighted average of net present values of all the paths:

$$NVP=\sum_{J=0}^{N}(Probj)\ (NPVj)$$

Where NPVj = net present value of the jth path

Probj = the probability of the jth path occurring N = number of possible paths

The probability of a path occurring is called its joint probability. It is equal to the product of the probabilities along with the path.

In the decision tree calculations the last column shows the calculation of expected NPV which is the weighted average of individual path NPVs where the weights are the path probabilities. NPV for example is Rs. 10,411 and project should be accepted.

For short period projects the above technique is good but for long period projects it becomes more complicated with the multiplication of paths, for the number of possibilities. In the above case, there had been 9 paths for 2 years, but for the 3 years these could be (3 × 3 × 3) = 27 paths and likewise the increase of path complicates the diagram and calculations.

CASE STUDIES

Question 1 - The Capital Budget Committee of SK company is making a preliminary screening of capital expenditure proposals. The following proposals are under consideration:

Proposal	*Investment*	*Annual Net Cash inflows (after tax but before depreciation)*	*Service Life (in years)*	*Present Value Factor at 20%*
	Rs.	*Rs.*		
A	31,300	6,000	10	4.192
B	97,400	20,000	20	4.870
C	98,075	25,000	10	4.192
D	27,200	4,000	15	4.675

a) Rank the proposals according to pay-back period. The period of pay-back should not exceed 6 years.

b) Rank the proposals according to the rate of return on investment (Discounted Cash Flow Method). The Company's cut-off rate is 20%.

Solution

a) Ranking According to Pay-back Period

Proposal (1)	*Investment (2)*	*Annual Net Cash inflows (3)*	*Pay-back Period (4)*	*Rank (5)*
	Rs.	Rs.	(2) / (3)	
A	31,300	6,000	5.22 years	3
B	97,400	20,000	4.97 years	2
C	98,075	25,000	3.81 years	1
D	27,200	4,000	6.80 years	4

Decision: - The pay-back period of the project D is more than 6 years; hence, it will be rejected. Remaining projects will be accepted as per ranks given.

b) Ranking According to Present Value Index Method DCF Method)

Proposal (1)	*Life in Years (2)*	*Annual Cash flows (3)*	*P.V. Factor at 20% (4)*	*P.V. of Total Cash Flows (5) = (3) x (4)*	*Initial Outlay (6)*	*Net Present Value Index (7) = (5) x (6)*	*Rank (8)*
		Rs.		Rs.	Rs		
A	10	6,.000	4.192	25.152	31,300	0.80	3
B	20	20,000	4.870	97,400	97,400	1.00	2
C	10	25,000	4.197	1,04,800	98,075	1.07	1
D	15	4,000	4.675	18,700	27,200	0.69	4

Decision: - Profitability index (PI) of the projects A and D is less than 1, hence, these will be rejected. Project C would be selected. The project B will be rejected due to its index being equal to one.

Question 2 - Calculate the 'pay-back period', 'average rate of return' and 'net present value' for a project which requires an initial outlay of Rs. 10,000 and generates year ending cash flows (after tax but before depreciation) of Rs. 6,000; Rs. 3,000; Rs. 2,000; Rs. 5000 and Rs. 5,000 from the end of the first year to the end of fifth year. The required rate of return is 10 percent and pays tax at 50 percent rate. The project has a life of five years and depreciated on straight line basis.

Year	1	2	3	4	5
Discount Rate at 10%	.909	.826	.751	.683	.620

Solution:

i) Pay-back Period Method

Year	*Initial Investment*	*Cash Inflows*	*Cumulative Cash Inflows*
	Rs.	*Rs.*	*Rs.*
1	10,000	6,000	6,000
2	-	3,000	9,000
3	-	2,000	11,000
4	-	5,000	16,000
5	-	5,000	21,000

Pay-back Period = 2 + (10,0000 – 9,000) / 2,000 = 2.5 years

ii) Average Rate of Return Method

ARR = (Average Annual Cash Inflows – Annual Depreciation)/Average Investment x 100

= (Rs. 4,200 – Rs. 2,000) / 5,000 x 100

= (Rs. 2,200 / Rs. 5,000) x 100 = 44%

Average Annual Cash Inflows = Total Cash Inflows / Life in Years = Rs. 21,000 / 5 = Rs.4,200

iii) Net Present Value Method

Year	*Cash inflows*	*P.V. Factor at 10%*	*Present Value*
	Rs.		*Rs.*
1	6,000	.909	5,454
2	3,000	.826	2,478
3	2,000	.751	1,502
4	5,000	.683	3,415
5	5,000	.621	3,105
		Total Present Value	**15,954**

Net Present Value = Present Value – Initial Investment

= Rs. 15,954 – Rs. 10,000

= Rs. 5,954

Question 3 - SK. Ltd. is considering the purchase of a new machine which will come out some operations which are at present performed by labour X and Y are alternative models. The following information's are available:

	Machine X	*Machine Y*
Cost of Machine	15,000	24,000
Estimated life of machine	5 years	6 years
Estimated saving in scrap p.a.	1,000	1,500

Estimated cost of indirect materials p.a.	600	800
Estimated savings in direct wages p.a.	9,000	12,000
Additional cost of maintenance p.a.	700	1,100
Additional cost of supervision p.a.	1,200	1,600

Depreciation will be charged on a straight-line basis. A tax rate of 50% is assumed.

a) The pay back method;

b) Unadjusted return on average investment method; and

c) Net present value index method (cost of capital 8 percent)

Note: - The present value of Re. 1 @ 8% per annum received annually for 5 years is 3,993 and for 6 years are 4.623.

Solution:

Profitability Statement

	Machine X	***Machine Y***
Savings per annum	***Rs.***	***Rs.***
Wages	9,000	12,000
Scrap	1,000	1,500
Gross Saving(A)	10,000	13,500
Additional Cash Cost per annum:		
Indirect material	600	800
Maintenance	700	1,100
Supervision	1,200	1,600
Total Cash Costs (B)	2,500	3,500
Cash Savings p.a. (A – B)	7,500	10,000
Less: Depreciation (straight line)	3,000	4,000
Annual Savings p.a. (before tax)	4,500	6,000
Less: Income tax @ 50 %	2,250	3,000
Annual Savings p.a. (after tax)	2,250	3,000
Add: Depreciation	3,000	4,000
Annual Cash Inflow	5,250	7,000

Evaluation of Projects

i) Pay-back Method:

a. Pay-back Period = Initial Investment / Annual Cash Inflows

Machine X = Rs. 15,000 / Rs. 5,250 = 2.86 years

Machine Y = Rs. 24,000 / Rs. 7,000 = 3.43 years

b. Post Pay-back Profitability = Annual Cash Inflows x (Whole life – Pay-back period)

Machine X = Rs. 5,250 x (5 – 2.86) = Rs. 11,235

Machine Y = Rs. 7,000 x (6 – 3.43) = Rs. 17,990

Decision: According to Pay-back period method, the machine X should be purchased, but if post pay-back profitability method is used, then machine Y should be purchased.

ii) Unadjusted Return on Average Investment Method:

Average Rate of Return = Average Annual Net Savings / Average Investment x100

Machine X = Rs. 2,250 / Rs. 7,500 x 100 = 30%

Machine Y = Rs. 3,000 / Rs. 12,000 x 100 = 25%

Average Investment = Initial Investment / 2

Decision: According to this method machine X should be purchased.

iii) Net Present Value Index Method:

Present Value = Annual Cash Inflows x P.V. Factor at 8%

Machine X = Rs. 5,250 x 3.993 = Rs. 20,963

Machine Y = Rs. 7,000 x 4.623 = Rs. 32,361

Net Present Value Index = Present Value / Investment

Machine X = Rs. 20,963 / Rs.15, 000 = 1.3975

Machine Y = Rs. 32,361 / Rs.24, 000 = 1.3484

Question 4 - The following details of SK & ABC Co. relate to the two machines X and Y:

	Machine X	***Machine Y***
Cost	Rs. 56,125	Rs. 56,125
Estimated Life	5 years	5 years
Estimated salvage value	Rs. 3,000	Rs. 3,000
Annual income after tax and depreciation:		
Year	Rs.	Rs.
I	3,375	11,375
II	5,375	9,375
III	7,375	7,375
IV	9,375	5,375
V	11,375	3,375

Overhauling charges at the end of third year Rs. 25,000 on machine Y. Depreciation has been charged at straight line method. Discount rate is 10%, P.V.F. at 10% for five years are 0.909, 0.826, 0.751, 0.683 and 0.621. Suggest which project should be accepted.

Solution:

i) Calculation of Present Value of Cash-outflows:

Year	*Investment*		*P.V. Factor at 10%*	*Present Value*	
	X	*Y*		*X*	*Y*
	Rs.	Rs.		Rs.	Rs.
0	56,125	56,125	1.000	56,125	56,125
III	-	25,000	0.751	-	18,775
				56,125	74,900

ii) Calculation of Cash Inflows:

Year	*Machine X*			*Machine Y*		
	Annual Income	*Depreciation*	*Cash Inflows*	*Annual Income*	*Depreciation*	*Cash Inflow*
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
I	3,375	10,625	14,000	11,375	10,625	22,000
II	5,375	10,625	16,000	9,375	10,625	20,000
III	7,375	10,625	18,000	7,375	10,625	18,000
IV	9,375	10,625	20,000	5,375	10,625	16,000
V	11,375	10,625	22,000	3,375	10,625	14,000

iii) Calculation of present Value of Cash Inflows:

Year	*Cash Inflows Machines*		*P.V. Factor at 10%*	*Present Value Machines*	
	X	*Y*		*X*	*Y*
	Rs.	Rs.		Rs.	Rs.
I	14,000	22,000	0.909	12,726	19,998
II	16,000	20,000	0.826	13,216	16,520
III	18,000	18,000	0.751	13,518	13,518
IV	20,000	16,000	0.683	13,660	10,928
V	22,000	14,000	0.621	15,525	10,557
	3,000*	3,000*			
	Total Present Value			68,645	71,521

*Salvage value at the end of life of the machines.

Net Present Value = P.V. of Cash Inflows – P.V. of Cash Outflows

Machine X = Rs. 68,645 – Rs. 56,125 = Rs. 12,520

Machine Y = Rs. 71,521 - Rs. 74,900 = Rs. (-) 13,379

Decision: Machine X should be selected.

Question 5 - ABC Ltd. is contemplating adding a new product line. The new product line would be marketable for only five years, after which time it would have to be discontinued. The costs and revenues that would be associated with the new line are:

Cost of equipments required	80,000
Working Capital needed	70,000
Salvage value of equipment in 5 years	10,000
Annual sales revenues	75,000
Annual out of pocket costs for salaries, advertising etc.	45,000
Overhaul of the equipment required in 4 years.	5,000

The company's cost of capital is 12%. Would you recommend that the new line be introduced? Ignore income tax.

The Present value of Re. 1 for 5 years at 12% discount factor is .893, .797, .636 and .567.

Solution:

Computation of Present Value of Cash Outflows

	Rs.
Cost of Equipment	80,000
Working Capital needed	70,000
Overhauling of Equipment in 4th year (Rs. 5,000 x 0.636)	3,180
	1,53,180

Computation of Present Value of Cash Inflows

Year	***Cash Inflows Rs.***	***P.V. Factor At 12%***	***Present Value Rs.***
1	30,000	.893	26,790
2	30,000	.797	23,910
3	30,000	.712	21,360
4	30,000	.636	19,080
5	1,10,000	.567	62,370
			1,53,510

*This includes Rs. 70,000 for released Working Capital and Rs. 10,000 for salvage value.

Net Present Value = Rs. 1, 53,510 – Rs. 1, 53,180 = Rs. 330

Net Present Value is Rs. 330; hence new line may be introduced.

Working Note:

i) Annual Cash Inflows

Annual Sales Revenues	75,000
Less: Annual out of pocket cash for salaries, adv. Etc	45,000
	30,000

ii) Income tax ignored in absence of information.

Question 6 - From the following information, ascertain which project is more risky on the basis of coefficient of variation:

Project A		***Project B***	
Cash Inflow (Rs.)	***Probability***	***Cash Inflow***	***Probability (Rs.)***
2,000	.2	2,000	.1
4,000	.3	4,000	.4
6,000	.3	6,000	.4
8,000	.2	8,000	.1

Solution:

Calculation of Standard Deviation (Project A)

Cash Inflows (Rs.)	***Deviation from Mean (d) [5,000]***	***Square of Deviations***	***Probability (Pi)***	***Weighted Square Deviations (Pid^2)***
2,000	-3,000	90,00,000	.2	18,00,000
4,000	-1,000	10,00,000	.3	3,00,000
6,000	+1,000	10,00,000	.3	3,00,000
8,000	+3,000	90,00,000	.2	18,00,000
			n = 1	$\sum Pid^2$= 42,00,000

Standard Deviation = $\sqrt{\sum Pid^2} = \sqrt{4200000} = 2050$

Coefficient of variation = $\dfrac{\textbf{Standard Deviation } (\sigma)}{\textbf{Mean of expected Cash Flows}} \times 100 \quad \dfrac{2050}{5000} \times 100 = 41\%$

(Project B)

Cash Inflows (Rs.)	***Deviation from Mean (d) [5,000]***	***Square of Deviations***	***Probability***	***Weighted Square Deviations***
2,000	-3,000	90,00,000	.1	9,00,000
4,000	-1,000	10,00,000	.4	4,00,000
6,000	+1,000	10,00,000	.4	4,00,000
8,000	+3,000	90,00,000	.1	9,00,000
			n = 1	= 26,00,000

Standard Deviation = $\sqrt{\sum Pid^2} = \sqrt{2600000} = 1612$

$$\text{Coefficient of variation} = \frac{\textbf{Standard Deviation } (\sigma)}{\textbf{Mean of expected Cash Flows}} \times 100 = \frac{1612}{5000} \times 100 = 32.24\%$$

As the coefficient of variation of Project A is more than of B, Project A is more risky. Hence project B should be accepted.

LESSON ROUND-UP

- Capital Budgeting refers to long-term planning for proposed capital outlays and their financing. Capital Budgeting may also be defined as "the firms' decision to invest its current fund more efficiently in long- term activities in anticipation of an expected flow of future benefit over a series of years.
- Capital Rationing helps the firm to select the combination of investment projects that will be within the specified limits of investments to be made during a given period of time and at the same time provide greatest profitability.
- Pay Back technique estimates the time required by the project to recover, through cash inflows, the firm's initial outlay. Payback period = Initial Investment / Annual cash inflows
- Average Rate of Return method is designated to consider the relative profitability of different capital investment proposals as the basis for ranking them – the fact neglected by the payout period technique.
- Net Present Value: The cash outflows and inflows associated with each project are ascertained first and both are reduced to the present values at the rate of return acceptable to the management. The rate of return is either cost of capital of the firm or the opportunity cost of capital to be invested in the project.
- Internal Rate of Return: The internal rate of return refers to the rate which equates the present value of cash inflows and present value of cash outflows.
- Profitability Index (PI): Profitability Index is defined as the ratio of present value of the future cash benefits at the required rate of return to the initial cash outflow of the investment.

GLOSSARY

Internal Rate of Return: The internal rate of return calculation is used to determine whether a particular investment is worthwhile by assessing the interest that should be yielded over the course of a capital investment.

Net Present Value: Net present value (NPV) is used for the same purpose as the internal rate of return, analyzing the projected returns for a potential investment or project. The net present value represents the difference between the current value of money flowing into the project and the current value of money being spent. The value can be calculated as positive or negative, with a positive net present value implying that the earnings generated by a project or investment will exceed the expected costs of the venture and should be pursued.

Profitability Index: The profitability index is a capital budgeting tool designed to identify the relationship between the cost of a proposed investment and the benefits that could be produced if the venture was successful. The profitability index employs a ratio that consists of the present value of future cash flows over the initial investment. As this ratio increases beyond 1.0, the proposed investment becomes more desirable to companies. When this ratio does not exceed 1.0, the investment should be deferred, as the project's present value is less than the initial investment.

Accounting Rate of Return: The accounting rate of return is the projected return that an organization can expect from a proposed capital investment. To discover the accounting rate of return, finance professionals must divide the average profit by the initial investment. The accounting rate of return is a useful metric for quickly calculating the profitability of a company, and it is widely used for analysing the success rates of investments that feature multiple projects.

Payback Period: The payback period is a unique capital budgeting method. Specifically, the payback period is a financial analytical tool that defines the length of time necessary to earn back money that has been invested. A subcategory, price-to-earnings growth payback period, is used to define the time required for a company's earnings to find equivalence with the stock price paid by investors. The price-to-earnings growth payback period is also widely used to get a basic understanding of how risky an investment opportunity may be. Understanding the payback period of an investment limits the risks associated with taking on costly projects.

Equivalent Annuity: The equivalent annuity method expresses the NPV as an annualized cash flow by dividing it by the present value of the annuity factor. It is often used when comparing investment projects of unequal lifespans. For example, if project A has an expected lifetime of seven years, and project B has an expected lifetime of 11 years, it would be improper to simply compare the net present values (NPVs) of the two projects, unless the projects could not be repeated.

Real Options Analysis: The discounted cash flow methods essentially value projects as if they were risky bonds, with the promised cash flows known. But managers will have many choices of how to increase future cash inflows or to decrease future cash outflows. In other words, managers get to manage the projects, not simply accept or reject them. Real options analysis try to value the choices–the option value–that the managers will have in the future and adds these values to the NPV.

TEST YOURSELF

TRUE / FALSE

1.	The long term investment decisions are synonymous.	True
2.	Pay back period methods measure the true profitability of a project.	False
3.	Rate of return method does not take into account the time value of money.	True
4.	Is the Net present value method takes the earning over the entire life of the project?	True
5.	Time adjusted rate of return and internal rate of return are the same things.	True
6.	Discounted cash flow techniques takes into account time value of money.	True
7.	IRR and NPV both are discounting cash flow technique.	True
8.	Capital budgeting decisions are for short period	False

MULTIPLE CHOICE QUESTIONS

1. The payback method measures:

   (A) The cash flow from an investment

   (B) How quickly the investment may be recovered

   (C) The profitability of the project

   ANS – (B)

2. In the calculation of cash earnings:

   (A) Depreciation should be added to profit after tax

   (B) Depreciation should be added to profit before tax

   (C) Depreciation should be ignored

   ANS – (A)

3. Which of the following does not consider the time value of money?

   (A) Payback period (B) Profitability index (C) IRR

   ANS – (A)

4. Which of the following method does not consider the profitability of the whole life of the project?

   (A) Payback period method (B) Net present value method

   (C) Accounting rate of return method

   ANS - (A)

5. The result of NPV and IRR method:

   (A) Will always be same

   (B) Will always be conflicting

   (C) May or may not be same

   ANS – (C)

ESSAY TYPE QUESTIONS

1. What so you mean by capital budgeting? Also discuss its features and objectives.
2. Discuss the process of capital budgeting.
3. Discuss the need and importance of capital budgeting.
4. Explain the scope and limitation of capital budgeting.
5. Explain the concept of Payback Period. Why does this method enjoy such popularity among businessmen? What are its limitations?
6. What considerations other than profitability are made in managerial decisions about investment proposal?
7. Describe the decision tree approach.

8. Explain the various techniques of capital budgeting.
9. What are the various DCF Techniques being applied for capital budgeting decisions?

PRACTICAL TYPE QUESTIONS

Question 1. SK Co. is considering the purchase of a Machine. Model 'A' and Model 'B' are available for this purpose each costing Rs. 1,00,000. Estimated working life of each machine is 5 years and salvage value is Rs. 4,000 and Rs. 6,000 respectively. Estimated annual cash flows are estimated to be as under:

Year	Machine A (Rs.)	Machine B (Rs.)
First	60,000	20,000
Second	50,000	30,000
Third	40,000	40,000
Fourth	20,000	50,000
Fifth	20,000	60,000

Evaluate these proposals according to pay back period method.

Answer: P.B.P – $1\frac{4}{5}$ years; B: $3\frac{1}{5}$ years. Hence, A is better.

Question 2. From the followings details of SK Corporation relating to two projects, calculate the payback period and suggest which project is better:

	Project A	***Project B***
Cost of the Project	Rs. 1,80,000	2,00,000
Estimated Scrap Value	20,000	25,000
Estimated Savings:		
1st year	25,000	35,000
2nd year	30,000	50,000
3rd year	45,000	70,000
4th year	50,000	65,000
5th year	40,000	30,000
6th year	30,000	20,000
7th year	10,000	-

Answer: P.B.P. A – 4 years 9 months; B – 3 years $8\frac{4}{13}$ months. Project B is better.

Question 3. Cost of a Machine is Rs. 2,50,000 and its working life is estimated to be 5 year. Annual cash inflows are as under:

Year	*I*	*II*	*III*	*IV*	*V*
Annual Cash Inflows (Rs.)	60,000	70,000	60,000	90,000	50,000

Calculate:

A) Pay Back Period
B) Post Payback Period
C) Post Payback Profits
D) Index of Post Payback Profits

Answer: (A) 3 years 8 months, (B) 1 year 4 months, (C) Rs. 80,000, (D) 32%

Question 4. SK Ltd. is considering the purchase of a new machine. Two machines A and B are available, each costing Rs. 50,000. Earnings after taxation are expected to be as under:

	Cash Flow	
Year	***Machine A***	***Machine B***
	Rs.	**Rs.**
1	15,000	5,000
2	20,000	15,000
3	30,000	20,000
4	15,000	30,000
5	5,000	20,000

Evaluate the two alternatives according to (a) Payback Period Method (b) Return on Investment Method (c) Present Value Index Method. A discount rate of 10% is to be used.

Answer:

(a) P.B.P.: A – 2 years 6 months, B – 3 years 4 months,
P.P.B. Profitability: A – Rs. 35,000; B – Rs. 40,000;

(b) ROI: A – 28%, B – 32%, Machine A is better according to P.B.P.
According to P.P.B.P. and ROI, Machine B would be preferred.

(c) A – 1.345; B - 1.322

Question 5. SK Ltd. is considering the purchase of a machine. Two machine X and Y are available each costing Rs. 5,000. Earnings after taxation and depreciation on the basis of fixed installment system are expected to be as follows:

Year	*Machine X*	*Machine Y*
1	500	200
2	1,000	300
3	1,500	1,000
4	400	2,000
5	100	1,000

Evaluate the two alternatives according to:

(a) The payback period method, and

(b) Return on investment method.

Answer: (a) P.B.P.: X - 2 $\frac{3}{5}$ years; Y - 3 $\frac{1}{6}$ years, Machine X is better.

(b) ROI: X – 28%; Y – 36%, Machine Y is better

Question 6. Given data for ABC Ltd.:

Initial Investment	20,000
Net Cash Inflow:	
Ist year	2,000
IInd year	2,000
IIIrd to 10th year	2,500

Work out net present value with a discount rate at 10% and express whether the investment will be worthwhile. The P.V.F. @ 10% are as follows:

Year	1	2	3	4	5	6	7	8	9	10
P.V.F.	.909	.826	.751	.683	.621	.564	.513	.467	.424	.386

Answer: NPV = Rs. 5,507.50; Hence, investment is not worthwhile.

Question 7. ABC Ltd. has to purchase a machine. Two models A and B are available. You are to determine as to which machine should be purchased using

(i) Payback Period Method,

(ii) Unadjusted Rate of Return Method and

(iii) Present Value Index Method (Cost of Capital - 12%):

Particulars	***Machine A***	***Machine B***
Cost of Machine	Rs. 42,000	Rs. 54,000
Working Life	4 years	5 years
Scrap Value	Rs. 2,000	Rs. 4,000
Annual Savings after depreciation and tax:		
Ist year	Rs. 12,000	Rs. 12,000
IInd year	Rs. 16,000	Rs. 12,000
IIIrd year	Rs. 10,000	Rs. 12,000
IVth year	Rs. 8,000	Rs. 12,000
Vth year	-	Rs. 12,000

Answer: (i) PBP: A 1 year 281 days, B 2 years 166 days; (ii) ROI: A 52.27%, B 41.38%

(iii) PVI: A 1.603, B 1.51

[***Hint:*** Annual Cash Flow = Annual Savings + Depreciation]

Question 8. Rank the following investment proposals in order of their profitability according to:

(a) Payback period method,

(b) Unadjusted rate of return method and

(c) Present value index method. The cost of capital is 10%.

Project No.	*Initial Quality*	*Annual Cash Flow*	*Life*
	Rs.	*Rs.*	*(in years)*
A	60,000	8,000	15
B	25,000	3,000	10
C	3,000	1,000	5
D	2,150	1,000	3
E	20,000	4,000	10
F	40,000	8,000	8

Answer: (a) 4, 5, 2, 1, 3, 3; (b) 5, 6, 1, 2, 3, 4; (c) 5, Rejected, 1, 3, 2, 4

Question 9. Golden Brick Company has got up to Rs. 3,50,000 to invest. The following proposals are under consideration:

Proposal	*Initial outlay*	*Annual Cash Flow*	*Life (years)*
A	1,25,000	16,000	15
B	2,50,000	75,000	20
C	3,00,000	25,000	18
D	60,000	9,000	12
E	1,00,000	26,000	11

Cost of Capital is 10%.

Rank these projects according to (i) Payback period and (ii) Net present value index method. Which projects would you recommend?

Answer: (1) 4, 1, 5, 3, 2, (ii) Reject., 1, Reject., 3, 2 ; Hence, invest in B and E

Question 10. A project requires an initial outlay of Rs. 32,400. Its estimated economic life is 3 years. The cash streams generated by it are expected to be as follows:

Year	*Estimated Annual Cash Flows (Rs.)*
1	16,000
2	14,000
3	12,000

Compute its IRR. If the cost of capital to the firm is 12%, advise the management whether the project should be accepted or rejected.

Answer: IRR = 15%. The project must be accepted as its IRR exceeds the cost of the funds. The project will contribute 3% to the value of the firm.

LIST OF FURTHER READINGS

1. Business Finance—Theory and Management. New York: Macmillan
2. Financial Management for Decision Making. New York: Macmillan.
3. Financial Management: Theory and Practice. 8th ed. Florida: Dryden Press.
4. Capital Budgeting: Theory and Practice, Pamela P. Peterson, Frank J. Fabozzi

Cost of Capital

Lesson 14

KEY CONCEPTS

■ Long term finance ■ Cost of capital ■ Risk free rate ■ Beta ■ Risk premium

Learning Objectives

To understand:

- Factors affecting the cost of capital of a company
- Calculation of cost of capital for different sources of finance
- Calculation of Weighted Average Cost of Capital
- Calculation of Marginal Cost of Capital

Lesson Outline

- Meaning of Cost of Capital
- Factors affecting Cost of Capital
- Measurement of Cost of Capital
- Cost of redeemable debt
- Cost of irredeemable debt
- Cost of irredeemable preference shares
- Cost of redeemable preference shares
- Cost of equity
- Cost of retained earnings
- Weighted Average Cost of Capital
- Marginal Cost of Capital
- Case studies
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION

The cost of capital is the rate of return a firm must earn on its investments so that the market value of the firm remains unchanged. Thus, it is a yardstick or basis of approval or rejection of an investment. In this way it becomes a target rate of return, cut off rate or hurdle rate or the financial standard of assessment of performance of a project.

Cost of capital is the required rate of return on its investments which belongs to equity, debt and retained earnings. If a firm fails to earn return at the expected rate, the market value of the shares will fall and it will result in the reduction of overall wealth of the shareholders.

The choice of financing makes the cost of capital a crucial variable for every company, as it will determine its capital structure. Companies look for the optimal mix of financing that provides adequate funding and minimizes the cost of capital.

> "The cost of capital is the minimum rate of return which a firm requires as a condition for undertaking an investment."
>
> - ***Milton H. Spencer***

> "Cost of capital is the minimum required rate of earnings or the cut off rate for capital expenditures."
>
> -***Solomon Ezra***

> "A cut-off rate for the allocation of capital to investment of projects. It is the rate of return on a project that will leave unchanged the market price of the stock".
>
> ***-James C. Van Horne***

> "Cost of capital is the rate of return the firm required from investment in order to increase the value of the firm in the market place"
>
> ***- John J. Hampton***

IMPORTANCE OF THE CONCEPT OF COST OF CAPITAL

The importance of this concept to modern management is summarized as follows:

i) Designing the Optimal Capital Structure:

This concept is very helpful in designing a sound, optimal and economical capital structure of the firm. Each source of capital involves different cost and different risk. By comparing various specific costs of different sources, the financial manager can select the best and the most economical source of finance.

ii) Helpful in Evaluation of Expansion Projects:

It helps in the evaluation of financial soundness of a given expansion project. An expansion project will be accepted by the management only when the marginal return on investment exceeds the cost of its financing.

iii) Rational Allocation of National Resources:

The concept of cost of capital is important for national economy as well since it provides the basis of optimum allocation of financial resources.

iv) Evaluation of Financial Performance of Top Management:

The cost of capital framework can be used to evaluate the financial performance of top executives. Such an evaluation can be done by comparing the actual profitability of the projects undertaken with the projected overall cost of capital, and an appraisal of the actual costs incurred in raising the required funds.

v) Financing and Dividend Decisions:

This concept is useful in other areas of financial decision making, such as dividend decisions, decisions on capitalization of profits and rights issue, working capital management and capital expenditure control etc.

FACTORS DETERMINING THE FIRM'S COST OF CAPITAL

Cost of capital, like all other costs, is a variable term, subject to changes in a number of factors. The various factors that play a part in determination of cost of capital are described below. There are four main factors which mainly determine the cost of Capital of a firm.

1. General Economic Conditions

General economic conditions determine the demand for and supply of capital within the economy, as well as the level of expected inflation. This economic variable is reflected in the risk less rate of return. This rate represents the rate of return on risk- free investments, such as the interest rate on short-term government securities. In principle, as the demand for money in the economy changes relative to the supply, investors alter their required rate of return. For example, if the demand for money increases without an equivalent increase in the supply, lenders will raise their required interest rate. At the same time, if inflation is expected to deteriorate the purchasing power of money, investors require a higher rate of return to compensate for this anticipated loss.

2. Market Conditions

When an investor purchases a security with significant risk, an opportunity for additional returns is necessary to make the investment attractive. Essentially, as risk increases, the investor requires a higher rate of return. This increase is called a risk premium. When investors increase their required rate of return, the cost of capital rises simultaneously. If the security is not readily marketable when the investor wants to sell, or even if a continuous demand for the security exists but the price varies significantly, an investor will require a relatively high rate of return. Conversely, if a security is readily marketable and its price is reasonably stable, the investor will require a lower rate of return and the company's cost of capital will be lower.

3. Operating and Financing Decisions

Risk, or the variability of returns, also results from decisions made within the company. Risk resulting from these decisions is generally divided into two types: business risk and financial risk. Business risk is the variability in returns on assets and is affected by the company's investment decisions. Financial risk is the increased variability in returns to common stockholders as a result of financing with debt or preferred stock. As business risk and financial risk increase or decrease, the investor's required rate of return (and the cost of capital) will move in the same direction.

4. Amount of Financing

The last factor determining the corporation's cost of funds is the level of financing that the firm requires. As the financing requirements of the firm become larger, the weighted cost of capital increases for several reasons. For instance, as more securities are issued, additional flotation costs, or the cost incurred by the firm from issuing securities, will affect the percentage cost of the funds to the firm. Also, as management approaches the market for large amounts of capital relative to the firm's size, the investors' required rate of return may rise. Suppliers of capital become hesitant to grant relatively large sums without evidence of management's capability to absorb this capital into the business. This is typically "too much too soon". Also, as the size of the issue increases, there is greater difficulty in placing it in the market without reducing the price of the security, which also increases the firm's cost of capital.

MEASUREMENT OF COST OF CAPITAL OR COMPONENTS OF COST OF CAPITAL

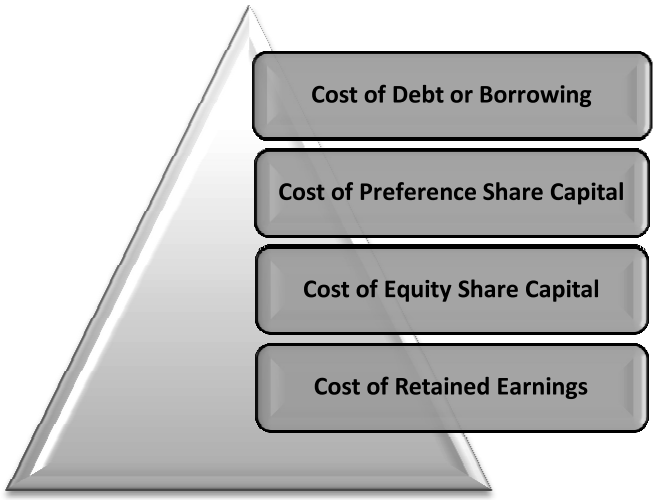
A company receives capital from different sources and cost of each source differs from each other because cost of issue of raising capital from different sources, interest payable (or dividend payable) and degree of corporate tax burden differ. Hence, in order to find out cost of capital of a company, the first step is the calculation of the cost of individual sources of funds (i.e., specific costs) and thereafter weighted average cost of proceeds from different sources of capital is ascertained. This is known as company's cost of capital.

Assumption of Cost of Capital

While computing the cost of capital, the following assumptions are made:

1. The financial and business risks are not affected by investing in new investment in new investment proposals.
2. The firm's capital structure remains unchanged.
3. Cost of each source of capital is determined on an after tax basis.
4. Cost of previously obtained capital is not relevant for computing the cost of capital to be raised from a specific source.

A company has a capital structure with the different components. Each component carries its own importance as well as burden over the firm. This burden is in term of the cost charged over the firm to carry such component; therefore it is required to calculate their cost on individual basis. These are as follows:



1. COST OF DEBT CAPITAL:

Generally, debt may be in form of term loans, bonds and debentures from financial institutions and banks. The debts always carry a fixed rate of interest as a charge for the users which a firm is ready to pay to maximize its profitability and wealth. This rate of interest is called as cost of capital.

The cost of Capital is the amount or a rate of interest which is paid to hire a debt.

The rate adjoined with the debt as generally shown (as 10% Debenture) is the rate of interest to be paid over the Debenture/debt but the actual cost may differ from this rate. To find the actual charge (real cost of debt), it is required to know the relation of interest over the actual amount realized (Net Proceed).

The Net Proceed is that amount which is actually realized after adjusting discount or premium on the face value of loan or debentures after charging floatation costs.

The Net Proceeds will be calculated as follows:

Net Proceeds at Par = Par Value - Floation Cost

Net Proceeds at Premium = Par Value + Premium - Floation Cost

Net Proceeds at Discount = Par Value - Discount - Floation Cost

The floatation costs include all types of charges or expenses which incurred to obtain such loan.

The floatation costs include the following expenditures:

- Advertisements Charges
- Postage
- Stationery & Printing
- Stamp duty
- Brokerage
- Underwriting commission
- Etc.

Debt-capital is of two types:

A) Perpetual or Irredeemable Debt

B) Redeemable Debt

A) Perpetual or Irredeemable Debt:

These are the debts which are repayable only on the liquidation of the company. For calculating cost of this type of debt-capital, amount of interest payable on it is divided by the net proceeds from its issue.

The formula is:

$$C_d \text{ (or } K_d) = \frac{i}{NP} \times 100$$

where i = Amount of Annual Interest

NP = Net Proceeds

B) Redeemable Debt:

Mostly debentures are repayable within a stipulated time period. In the calculation of cost of such debts, time period of their redemption is very important.

The formula for calculating the cost of debenture-capital can be adapted as follows:

$$C_d = \frac{i + \frac{MV-NP}{n}}{\frac{MV+NP}{2}} \times 100$$

where, C_d = cost of debt capital

i = annual interest payment

MV = maturity value

NP = net proceeds

n = number of years to maturity

For calculating after tax cost of debt capital, the amount of interest is to be adjusted as follows:

a) In case of irredeemable debts:

$$C_d \text{ (after tax)} = \frac{i\,(1-t)}{NP} \times 100$$

or C_d (after tax) = Before tax cost (1 – t)

b) In case of redeemable debts:

$$C_d \text{ (after tax)} = C_d = \frac{i(1-t) + \frac{MV-NP}{n}}{\frac{MV+NP}{2}} \times 100$$

Illustration-1:

SK Ltd. issued 10,000, 14% debentures of Rs. 100 each at a discount of 5%. The debentures are irredeemable. Cost of issue is 2% and the rate of tax is 50%. Calculate cost of capital before tax.

Solution:

$$C_d \text{ (before tax)} = \frac{i}{NP} \times 100 = \frac{1,40,000}{9,30,000} \times 100 = 15.05\%$$

Workings: i = 14% of 10,00,000 = Rs. 1,40,000

NP = 10,00,000 – (5% of 10,00,000 + 2% of 10,00,000) = Rs. 9,30,000

$$C_d \text{ (after tax)} = \frac{i\,(1-t)}{NP} \times 100 = \frac{1,40,000\,(1-0.50)}{9,30,000} \times 100 = 7.525\%$$

Illustration-2:

SK Co. is willing to issue 1,000 7% Debentures of Rs. 100 each and for which the company will have to incur the following expenses:

Underwriting commission 1.5% Brokerage 0.5% Printing and Other Expenses Rs. 500. Assuming tax rate at 50% find out the cost of debt capital.

Solution:

$$C_d \text{ (before tax)} = \frac{i}{NP} \times 100 = \frac{7{,}000}{97{,}000} \times 100 = 7.18\%$$

Where, i = 7% of 1,00,000 = 7,000

N.P. = (1,00,000 – (1,500 + 500 + 500) = 97,500

$$C_d \text{ (after tax)} = \frac{i\,(1 - t)}{NP} \times 100 = \frac{7{,}000\,(1 - 0.50)}{97{,}000} \times 100 = 3.59\%$$

Illustration-3:

SK Company issued 10,000 ten-years 8% Debentures of Rs. 100 each at 4% discount. Under the terms of Debentures Trust, these debentures are to be redeemed after 10 years at 5% premium. The cost of issue is 2%. Assuming tax rate at 50%, Calculate the cost of debt capital.

Solution:

NP = 10,00,000 – 40,000 – 20,000 = Rs. 9,40,000

MV = 10,00,000 + 50,000 = Rs. 10,50,000

i = 8% of 10,00,000 = Rs. 80,000

$$C_d \text{ (before tax)} = \frac{i + \frac{MV - NP}{n}}{\frac{MV + NP}{2}} \times 100 = \frac{\frac{10{,}50{,}000 - 9{,}40{,}000}{10}}{\frac{10{,}50{,}000 + 9{,}40{,}000}{2}} \times 100$$

$$= \frac{80{,}000 + 11{,}000}{9{,}95{,}000} \times 100 = 9.15\%$$

$$C_d \text{ (after tax)} = \frac{i(1-t) + \frac{MV-NP}{n}}{\frac{MV+NP}{2}} \times 100$$

$$= \frac{80{,}000 \times (1-0.50) + \frac{10{,}50{,}000 - 9{,}40{,}000}{10}}{\frac{10{,}50{,}000 + 9{,}40{,}000}{2}} \times 100 = 5.126\%$$

Illustration-4:

SK Company issued 1,000 10% debentures of Rs. 100 each at a premium of 5%, with a maturity period of 10 years. The cost of issue is 2%. The tax rate applicable to the firm is 50%. Find out the cost of capital.

Solution:

Net Proceeds (NP) = 1,05,000 – 2% of 1,00,000 = Rs. 1,03,000

$$C_d(\text{before tax}) = \frac{i + \frac{MV-NP}{n}}{\frac{MV+NP}{2}} x100 = \frac{10,000 + \frac{1,00,000 - 1,03,000}{10}}{\frac{1,00,000 - 1,03,000}{2}} x100$$

$$= \frac{10,000 - 300}{1,01,500} x100 = 9.556\%$$

$$C_d(\text{after tax}) = \frac{i(1-t) + \frac{MV-NP}{n}}{\frac{MV+NP}{2}} x100$$

$$C_d(\text{after tax}) = \frac{10,000 \text{ x } (1-0.50) + \frac{1,00,000-1,03,000}{10}}{\frac{1,00,000-1,03,000}{2}} \text{ x } 100$$

$$= \frac{5,000 - 300}{1,01,500} \times 100 = 4.63\%$$

2. COST OF PREFERENCE SHARE CAPITAL:

Preference shares are also fixed cost bearing securities like debentures. The rate of dividend payable on these shares is fixed well in advance at the time of their issue. Since dividend is not an admissible deduction in the computation of taxable income, unlike debentures, cost of preference share capital is 'after tax cost' of capital which may be converted into before tax cost by applying the following formula:

$$C_d \text{ (before tax)} = \frac{\text{After tax cost}}{1 - \text{tax rate}}$$

The preference shares may be

(i) Irredeemable or

(ii) Redeemable.

Cost of Irredeemable Preference Share Capital:

Cost of such preference shares is the ratio of annual dividend burden on each such share to its net proceeds. As per formula:

$$C_p \text{ (or } K_p) = \frac{PD}{NP} \text{ x } 100$$

Where, = Cost of preference capital

PD = Preference dividend amount per share

NP = Net Proceeds per share

If dividend tax is paid, the formula will be as follows:

$$C_p = \frac{PD\ (1 + D_t)}{NP} \times 100$$

Where, D1 = Dividend Tax

Illustration-5:

SK Ltd. has issued 8% 10,000 Preference Shares of Rs. 100 each and has incurred the following expenses:

Underwriting Commission 2%, Brokerage 1%, Other Expenses Rs. 5,000. If the present company tax rate is 50%, what will be the cost of capital after tax and before tax?

Also calculate cost of preference capital, if corporate dividend tax is 10%.

Solution:

NP = 10,00,000 – 20,000 – 10,000 – 5,000 = Rs. 9,65,000

$$C_p\ (\text{after} - \text{tax}) = \frac{PD}{NP} \times 100 \quad \frac{80,000}{9,65,000} \times 100 = 8.29\%$$

$$C_p\ (\text{before} - \text{tax}) = \text{After tax cost} \frac{1}{1 - t} = 8.29 \quad \frac{1}{1 - 0.5} = 16.58\%$$

If corporate dividend tax is paid:

$$C_p\ (\text{after tax}) \quad \frac{PD\ (1 + D_t)}{NP} \times 100 = \frac{8\ (1 + 0.1)}{95.5} = \times 100 = 9.12\%$$

Cost of Redeemable Preference Share Capital:

Such shares are redeemed after a specified period. Cost of such shares is calculated in the same way as discussed in the case redeemable debentures. Necessary adjustments will have to be made for terms of issue, terms of redemption and floatation charges. The following formula may be used for this purpose:

$$C_p = \frac{PD + \frac{MV - NP}{n}}{\frac{MV + NP}{2}} \times 100$$

Where, PD = amount of annual preference dividend

MV = amount to be paid on maturity

NP = net proceeds

n = number of years after which the preference shares will be repaid

Illustration-6:

SK Ltd. issued at par 10,000 10% Preference Shares of Rs. 100 each. These shares are redeemable after 10 years at a premium of Rs. 5 per share. The cost of issue is Rs. 2 per share. Find out the cost of preference capital. Assume 50% tax rate.

Solution:

$$C_p\text{(after tax)}=\frac{1,00,000+\dfrac{10,50,000-9,80,000}{10}}{\dfrac{10,50,000-9,80,000}{2}}x100$$

$$=\frac{1,00,000+7,000}{10,15,000}x100=10.54\%$$

$$C_p\text{(before tax)}=10.54\left(\frac{1}{1-0.50}\right)=21.08\%$$

3. COST OF EQUITY SHARE CAPITAL:

The calculation of cost of equity share capital is relatively difficult task because like preference share capital there is neither any prefixed rate of dividend payable on these shares nor there is any legal obligation to pay dividend on them. But it does not mean that equity share capital is cost-free. The cost of such capital is equal to that expectation of equity shareholders, which they expect to be fulfilled by the management to maintain of their company.

Following are the four approaches of estimating the cost equity share capital:

1) CAPM model

This is a popular approach to estimate the cost of equity. According to the CAPM, the cost of equity capital is:

Ke = Rf + (Rm - Rf) ß

Where:

Ke = Cost of equity

Rf = Risk-free rate

Rm = Equity market required return (expected return on the market portfolio)

ß = beta is Systematic Risk Coefficient.

Beta is the measure of market risk. Market risk is the risk that cannot be diversified away.

Illustration-7:

Calculate the cost of equity capital for a company whose Risk-free rate =10%, equity market required return =18% with a beta of 0.5.

Solution

Ke = 0.10 + 0.5(0.18 - 0.10)

= 0.14 or 14%.

2) Dividend Yield Method:

This is also called as Dividend/Price Ratio Method or D/P Ratio Method. This Method is based on the thinking that when an investor invests his savings in a company, he expects dividend at least at current rate of return.

As such cost of equity capital is calculated on the basis of the future steam of dividends which the shareholders expect to receive from a company. The formula is

$$C_e \text{ (after tax)} = \frac{DPS}{MP} \times 100$$

Where, = Cost of Equity Share Capital

DPS = Current Cash Dividend per Share

MP = Market Price per Share.

Illustration-8:

SK Ltd. has issued 20,000 equity shares of Rs. 100 each as fully paid. The present market price of these shares of Rs. 160 per share. The company has paid a dividend of Rs. 8 per share. Find out the cost of equity capital.

Solution:

$$C_e = \frac{DPS}{MP} \times 100 \quad \frac{8}{160} \times 100 = 5\%$$

3) Earnings Yield Method:

This is also known as Earnings/Price Ratio Method or E/P Ratio Method. This method is based on the assumption that market price of the shares is based on earning per share and so shareholders capitalize the expected future earnings (as distinguished from dividends) in order to evaluate their shareholders. Hence, cost of equity capital is found by relating earnings per share with its market price.

The formula is as follows:

$$C_e \text{ (after tax)} = \frac{EPS}{MP} \times 100$$

Where, C_e= Cost of Equity Share Capital

EPS = Earnings Per Share

MP = Market Price Per Share.

Illustration-9:

SK Ltd. has issued 1,000 equity shares of Rs. 100 each as fully paid. It has earned a profit of Rs. 10,000 after tax. The market price of these shares is Rs. 160 per share. Find out the cost of equity capital before and after tax assuming a tax rate of 50%.

Solution:

$$C_e \text{ (after tax)} = \frac{EPS}{MP} \times 100 \quad \frac{\text{Rs. } 10{,}000/1{,}000}{160} \times 100 = 6.25\%$$

$$C_e \text{ (before tax)} = \frac{\text{After tax cost}}{1 - \text{tax rate}} = \frac{6.25}{1 - 50\%} = \frac{6.25}{1 - 0.5} = 12.5\%$$

4) Dividend Yield + Growth in Dividend Method:

This method is also known as Dividend/Price + Growth in Dividend Method or D/P + G Method. This method is based on the thinking that each equity shareholder is not satisfied with the present rate of dividend only, he wants an increased in it each year based on his expectations of increase in future earnings of the company. In this method, cost of equity share capital is found by making appropriate adjustment in current rate of dividend on the basis of probable rate of increase in future earnings of the company. This rate of increase is termed as growth rate.

i) When dividends are expected to grow at a uniform rate perpetually:

in this case, the yearly growth rate in dividend is added to the cost of equity capital as ascertained in accordance with D/P ratio method. The formula is:

$$C_e\text{(After tax)}=\left(\frac{\text{DPS}}{\text{MP (or NP)}}\times 100\right)+G$$

Where, C_e = Cost of Equity Share Capital

DPS = Expected Dividend Per Share

MP = Current Market Price Per Share

NP = Net Proceeds per share

G = Growth Rate in expected Dividend (or expected annual percentage rate of increase in future dividends)

Illustration-10:

The average rate of dividend paid by SK Ltd. for the last five years is 21 per cent. The earnings of the company have recorded a growth rate of 3 per cent per annum. The market value of the equity shares is estimated to be Rs. 105. Find out (a) the cost of equity share capital. (b) Determine the estimated market price of the equity shares if the anticipated growth rate of the firm rises to 5%. (c) If the company's cost of capital is 20% and anticipated growth rate is 5%, determine the market price of the share, assuming the same dividend per share.

Solution: (a)

$$C_e\text{(After tax)}=\left(\frac{\text{DPS}}{\text{MP (or NP)}}\times 100\right)+G=\left(\frac{21}{105}\times 100\right)+3=23\%$$

(b) Determination of market price of growth rate rises to 5%:

$$C_e=\left(\frac{\text{DPS}}{\text{MP (or NP)}}\times 100\right)+G$$

$$23=\left(\frac{21}{\text{MP}}\times 100\right)+G$$

$$\text{or } 23-5=\frac{2{,}000}{\text{MP}} \quad \text{or } 18\text{ MP} = 2{,}100$$

MP = 2,100 ÷ 18 = Rs. 116.67 per share

(c) Determination of market price if cost of capital is 20%:

$$C_e(\text{After - tax})=\left(\frac{DPS}{MP} \text{ x } 100\right)+G \text{ or } 20=\left(\frac{21}{MP} \text{ x } 100\right)+5$$

= 20 – 5 = 2,100 / MP

MP = 2,100 15 = Rs. 140 per share

ii) When dividends grow at different rates

In such a case, the constant growth equation mentioned above is to be modified to take into account two or more growth rates. For example: if dividends are expected to grow at a super normal growth rate, for any years and thereafter, at a normal perpetual growth rate, beginning in the year n + 1, then the cost of equity share will be determined by applying the following formula:

$$\left(\frac{DPS}{MP} \text{ x } 100\right)+G$$

$$MP=\sum_{t=1}^{n}\frac{D_0(1+g_n)^{t-1}}{(1+K_e)^t}+\sum_{t=n+1}^{\infty}\frac{D_n(1+g_n)^{t-1}}{(1+K_e)^t}$$

Where, g_n= rate of growth in earlier years.

g_c= constant growth in late years

Instead of applying the above formula, the problem can be solved with the help of present value table as under.

Illustration-11:

The SK Company declared last dividend of Rs. 1.50 last year. The company is likely to have growth rate of 12% in the next two years, 10% in the third year and fourth year and thereafter the growth rate would stabilize at 8%. Find the price at which the share shall be purchased if the shareholders expected rate of return is 16%.

Solution:

In this case, we need to determine the intrinsic value of the shares which will be equal to the present value of the next four dividends + present value of the market price of the share in the fourth year.

Year	Dividend	PV@ 16%	Total PV
0	1.5	Not required	
1	1.68	0.862	1.44
2	1.88	0.743	1.39
3	2.06	0.641	1.32
4	2.27	0.552	1.25
Total			5.40

Price in the fourth year= P_4=D_5 / (Ce – g)

D_5 = Expected dividend = 2.27 (1 + 8%)

D_5= Expected dividend = 2.45

Price at the end of fourth year = $\frac{2.45}{16\% - 8\%}$

Therefore, price at the end of the fourth year = Rs. 30.62

Present value of the market price at the end of fourth year = 30.62 x 0.552 = 16.90

Total Intrinsic Value = Rs. 5.40 + Rs. 16 .90 = Rs. 22.30

The share shall not be bought for rupees more than 22.30.

COST OF NEWLY ISSUED EQUITY SHARES:

Cost of newly issued equity shares will be higher than the old shares because the company will have to pay flotation charges on new issue of shares which reduces the net proceeds of the issue. In such a case, for calculating the cost of such newly issued shares, earning per share (or dividend per share) will be divided by the net proceeds per share (and not market price per share). Rest is the same as for existing equity share capital. If cost if equity capital is being estimated by E/P ratio method, the formula will be adjusted as follows:

$$C_e(\text{After - tax}) = \frac{EPS}{NP} x100 \text{ or } \left(\frac{DPS}{MP} \times 100\right) \text{or} \left(\frac{DPS}{NP} \times 100\right) + G$$

Where, EPS = Earnings per Share; NP = Net Proceeds

Illustration-12:

Calculate cost of new equity capital issue from the following information:

Face value of share	= Rs. 100
Market value	= Rs 105
Securities premium	= Rs. 3 per share
After-tax net earnings	= Rs. 10.50 per share
Cost of issue	= Rs. 3 per share
Tax Rate	= 50%

Solution:

$$C_e \text{ (After – tax)} = \frac{EPS}{NP} \times 100 = \frac{10.50}{103 - 3} \times 100 = 10.50\%$$

It must be noted that the present E/P Ratio is

$$C_e \text{ (before – tax)} = \frac{\text{After tax cost}}{1 - \text{tax rate}} = \frac{10.50}{1 - 50\%} = 21\%$$

4. COST OF RETAINED EARNINGS:

That part of earnings of a company which remains with it after distribution on dividend among the shareholders is called as 'retained earnings'. They are commonly known as internal equity of the concern. There is no explicit cost of this type of profits because there is no formal or implied obligation on the company to pay any return on this amount. But it is not correct to treat them as cost free. In fact, cost of this source of finance is its opportunity cost. If retained earnings were not retained, they would have been paid out to the shareholders as dividend and

the shareholders should have invested it in some alternative investments and should have earned return. When earnings are retained, the shareholders are forced to forego such return. Hence, the expected return foregone by the shareholders on forgone dividends may be treated as the cost of retained earnings. The following formula will be applied for calculating cost of retained earnings:

$$C_r \text{ (or } K_r) = \frac{DPS\ (1 - T_i)\ (1 - B)}{MP\ (1 - T_e)} \times 100$$

$$C_r \text{ (or } K_r) = \frac{(DPS + G)\ (1 - T_i)\ (1 - B)}{MP\ (1 - T_e)} \times 100$$

Where, C_r= Cost of Retained Earnings

DPS = Dividend Per Share

T_i = Marginal tax rate applicable to individual shareholder

B = Brokerage Cost

MP = Present Market Price per share

T_e = Capital Gains Tax

G = Growth rate of dividends

Notes: Cost of retained earnings calculated by the above formula is after tax cost. It can, however, be converted into before tax cost by applying the following formula:

$$\text{Before tax cost} = \frac{\text{After tax cost}}{1 - \text{tax rate}}$$

Illustration-13:

Find out the cost of retained earnings from the information given below:

Dividend Per Share	= Rs. 10
Personal Income – Tax Rate	= 30%
Personal Capital Gains Tax Rate	= 20%
Corporate Tax Rate	= 50%
Market Price Per Share	= Rs. 100
Brokerage	= 2%

Solution:

$$C_r \text{ (After - tax)} = \frac{DPS\ (1 - T_i)\ (1 - B)}{MP\ (1 - T_e)} \times 100 = \frac{10(1 - .30)\ (1 - .02)}{100\ (1 - .20)} \times 100 = 8.575\%$$

$$C_r \text{ (Before - tax)} = 8.575 \times \left(\frac{1}{1 - .50}\right) = 17.15\%$$

OVERALL COST OF CAPITAL

A company finances its projects by different sources, although the specific cost of each source of finance is different. Some are cheaper and some are dearer. There are two objectives of this policy – firstly, to balance the capital structure, and secondly to increase the return of equity shareholders. These objectives can be achieved only when firm's average cost of financing is lower than its return on investment. This requires the computation of overall or average cost of capital. Overall cost of capital may be defined as the average cost of the specific costs of different sources of financing. This is used as acceptance/ rejection criterion in capital expenditure decisions.

The average can be a simple average or weighted average. However, weighted average is more reasonable and appropriate as it gives due emphasis to different sources of capital in the capital structure of a firm.

Computation of Weighted Average Cost of Capital

It involves the following four steps:

1) The computation of specific costs of various sources. It has already been explained in the preceding pages in this chapter.
2) Assignment of weights to each type of funds.
3) Each specific cost is multiplied by the corresponding weight and in this way weighted cost of each source is determined.
4) Finally, weighted cost of all sources of capital as calculated in (3) are added together to get an overall weighted average cost of capital.

Assignment of Weights

This involves the determination of share of each source of capital in the total capital structure of the company. There are three approaches of assigning weights:

i) Historical Weights Approach:

According to this approach, the relative proportions of various sources of capital to the existing capital structure are used to assign weights. The assumption of this approach is that the company's present capital structure is optimum and it will raise additional funds from various sources in proportion to their share in the existing capital structure.

Historical weights can be given on the basis of face or book value of securities or on the basis of their market value.

Book Value Weights:

This is most convenient to be used. In this method proportion of each source in total capital structure is determined on the basis of the book value of securities.

Illustration 14:

The capital structure of a company and its specific costs are given below. Find out simple and the weighted average cost of capital of the company.

Source	***Amount***	***Specific Cost*** *(after tax)*
Long-term Debts	Rs. 15,00,000	4%
Preference Shares	10,00,000	12%

Equity Shares	20,00,000	15%
Retained Earnings	5,00,000	15%
		50,00,000

Solution:

Calculation of Average Cost of Capital (using historical weights)

Source of Capital	*Amount Rs.*	*Book-Value Weighted*		*Specific Cost Rate*	*Weighted Costs*
		Percentage	*Proportion*		
Long-term Debts	15,00,000	30%	0.30	4%	1.20
Preference Shares	10,00,000	20%	0.20	12%	2.40
Equity Shares	20,00,000	40%	0.40	15%	6.00
Retained Earnings	5,00,000	10%	0.10	15%	1.50
Total	**50,00,000**	**100%**	**1.00**	**46%**	**11.10**

Thus, weighted average cost of capital is 11.10% while simple average of cost of capital = 46% / 4 = 11.50%.

Market Value Weights:

In this method, market value of invested capital funds of each type of security is calculated on the basis of their prevailing market values and proportion of each type of security to the total of market values of all securities is used as weight. This is theoretically more sound and appealing approach since market values of the securities closely approximate the actual rupees to be received from their sale. However, it is more difficult to calculate the market values of a firm's sources of equity financing (i.e., preference shares, equity shares and retained earning) than to use book values.

Illustration-15

In illustration no.14, assume market value of preference shares at 150% equity shares and retained earnings at 160% and debentures at par, calculate average cost of capital.

Solution:

Source of Capital	*Market Value*	*Market Value Weights*		*Specific Costs*	*Weighted Costs*
		Percentage	*Proportion*		
Long-term Debts	15,00,000	21.4	.214	4	0.856
Preference Shares	15,00,000	21.4	.214	12	2.568
Equity Shares	32,00,000	45.7	.457	15	6.855
Retained Earnings	8,00,000	11.5	.115	15	1.725
Total	**70,00,000**	**100.0**	**1.000**	**46**	**12.004**

Thus, weighted average cost of capital is 12%.

Target Weights Approach:

If a firm has determined the capital structure which it believes most consistent with its goal of owner's wealth maximization and it is directing its financing policies toward achievement of this "optimal" capital structure, then the use of these target capital structure weights may be appropriate.

Illustration-16

If illustration no.14, the firm believed that its optimal capital structure is consisting of 40% debt, 10% preference shares, 35% equity shares and 15% retained earnings, calculate weighted average cost of capital using target weights.

Solution:

Calculation of Weighted Average Cost of Capital
(Using Target Weights)

Source	*Target Proportions*		*Specific Cost*	*Weighted Cost*
Long-term Debts	40%	.40	4%	1.60
Preference Shares	10%	.10	12%	1.20
Equity Shares	35%	.35	15%	5.25
Retained Earnings	15%	.15	15%	2.25
Total	**100%**		**1.00**	**10.30%**

Marginal Weights Approach:

According to this approach, specific costs are assigned weights in proportion of funds to be raised from each source to the total funds to be raised. This approach presumes that new project is to be financed wholly by raising fresh capital.

Illustration-17:

A company's cost of capital for specific sources is as under:

Cost of Debentures	5%
Cost of Preference Shares	10%
Cost of Equity Shares	14%
Cost of Retained Earnings	13%

The company wishes to raise Rs. 5,00,000 for the expansion of its plant. It is estimated that Rs. 1,00,000 will be available as retained earnings and the balance of the additional funds will be raised as under:

Debenture issue	Rs. 3,00,000
Preference share issue	Rs. 1,00,000

Using marginal weights, calculate weighted average cost of capital.

Solution:

Calculation of Weighted Average Cost

Source	*Amount*	*Weights*	*Specific*	*Weighted Average*
	Rs.		*Cost %*	*Cost %*
1. Retained Earnings	1,00,000	.2	13	2.6
2. Debentures	3,00,000	.6	5	3.0
3. Preference Shares	1,00,000	.2	10	2.0
Total	**5,00,000**	**1.0**		**7.6**

Illustration-18:

The capital structure of SK Ltd. is as under:

3,000	12% Debentures of Rs. 100 each	Rs. 3,00,000
2,000	10% Preference shares of Rs. 100 each	2,00,000
4,000	Equity Shares of Rs. 100 each	4,00,000
	Retained Earnings	1,00,000

The earning per share of the company in the past many years have been Rs. 15. The shares of the company are sold in the market at book value. The company tax rate is 50%. The shareholder's tax liability may be assumed as 25%. Find out the Weighed Average Cost of Capital.

Solution:

(1) Cost of Debentures (after- tax) = $\frac{i\,(1-t)}{NP} \times 100 = \frac{12\,(1-.05)}{100} \times 100 = 6\%$

(2) Cost of Preference Share Capital (after- tax) = $\frac{PD}{NP} \times 100 = \frac{10}{100} \times 100 = 10\%$

(3) Cost of Equity Share Capital (after – tax) = $\frac{EPS}{MP} \times 100 = \frac{15}{125} \times 100 = 12\%$

(4) Cost of Retained Earnings (after – tax) = $\frac{DPS\,(1-t_i)}{MP\,(1-t_i)} \times 100$

$= \frac{15\,(1-.25)}{125\,(1-0)} \times 100 = \frac{11.25}{125} \times 100 = 9\%$

Workings:

Market Price Per Share = $\frac{4,00,000+1,00,000}{4,000}$ = Rs.125

In the absence of any information to the contrary, it has been assumed that company's pay-out ratio is 100% and so dividend per share and earnings per share are equal in this company.

Calculation of Weighted Average Cost of Capital

Source	*Amount*	*Weights*	*Specific*	*Weighted Average*
	Rs.		*Cost %*	*Cost %*
Debentures	3,00,000	.3	6	1.8
Preference Shares	2,00,000	.2	10	2.0
Equity Shares	4,00,000	.4	12	4.8
Retained Earnings	1,00,000	.1	9	0.9
Total	**10,00,000**	**1.0**		**9.5**

Illustration-19:

The capital structure of A Ltd. is as follows:

20,000 Equity shares of Rs. 100 each	Rs. 20,00,000
10% Preference shares of Rs. 100 each	5,00,000
12% Rs. 100 Debentures	15,00,000

The market price of equity shares is Rs. 160.

It is expected that the company will pay a current dividend of Rs. 20 share which will grow at 7.5% for ever. The tax rate may be assumed to be 50%. You are required to calculate:

a) Weighted average cost of capital based on existing capital structure.

b) The new weighted cost of capital if the company raises an additional Rs. 10,00,000 debt by issuing 14% Debentures. This would result sin increasing the dividend rate to Rs. 25 per share and leave the growth rate unchanged but the price of share will fall to Rs. 150 per share.

c) The weighted cost of capital if in (b) above, the growth rate rises to 10%.

Solution:

(1) Cost of Equity Share Capital = $C_e = \left(\frac{DPS}{MP} \times 100\right) + g = \frac{126}{160} \times 100 + 7.5 = 20\%$

(2) Cost of Preference Share Capital = $\frac{PD}{NP} \times 100 = \frac{10}{100} \times 100 = 10\%$

(3) Cost of Debentures (after tax) = $\left(\frac{I\,(1 - t)}{NP} \times 100\right) = \left(\frac{12(1 - .5)}{100} x100\right) = 6\%$

Case (a)

Calculation of Weighted Average Cost of Capital

Source	*Amount*	*Weights*	*Specific*	*Weighted Average*
	Rs.		*Cost %*	*Cost %*
1. Equity Shares	20,00,000	.500	20	10.00
2. Preference Shares	5,00,000	.125	10	1.25
3. Debentures	15,00,000	.375	6	2.25
	40,00,000			**13.50**

Case (b)

Due to raising additional funds, cost of equity shares and debentures will change as follows:

Cost of Equity Share Capital = $\frac{25}{150}$ x 100+735=24.75%

Cost of New Debentures $\frac{14(1-0.50)}{100}$ x 100 =7%

Calculation of Weighted Average Cost of Capital

Source	*Amount*	*Weights*	*Specific*	*Weighted Average*
	Rs.		*Cost %*	*Cost %*
1. Equity Shares	20,00,000	.4	24.17	9.668
2. Preference Shares	5,00,000	.1	10.00	1.000
3. 12 % Debentures	15,00,000	.3	6.00	1.800
4. 14% Debentures	10,00,000	.2	7.00	1.400
	50,00,000			**13.868**

Case (c)

In this case, the cost of equity shares will change as follows:

Cost of Equity Share = $\frac{25}{150}$ x 100+10%=26.67%

Calculation of Weighted Average Cost of Capital

Source	*Amount*	*Weights*	*Specific*	*Weighted Average*
	Rs.		*Cost %*	*Cost %*
1. Equity Shares	20,00,000	.4	26.67	10.668

2. Preference Shares	5,00,000	.1	10.00	1.000
3. 12% Debentures	15,00,000	.3	6.00	1.800
4. 14% Debentures	10,00,000	.2	7.00	1.400
	50,00,000			**14.868**

Marginal Cost of Capital (MCC)

MCC can be defined as the cost of additional capital introduced in the capital structure since we have assumed that the capital structure can vary according to changing requirements of the firm.

The following illustration shows how marginal cost of capital can be calculated:

Let us assume that the capital structure of the firm has been expanded by addition to various components. The addition has been Rs. 2,000 lacs for debt, Rs. 1,000 lacs for preference capital, Rs. 2,000 lacs for equity capital and Rs. 6,000 lacs for retained earnings. The cost of each component of the capital structure after addition would be the weighted average of the old and new values of the component:

(Rs. in lakhs)

Component	***Existing Value***	***Cost(%)***	***Additional Value***	***Cost(%)***	***Weighted average Cost (%)***
Debt	4,000	14	2,000	16	14.6
Preference Capital	1,000	9	1,000	12	10.5
Equity Capital	1,000	15	2,000	20	18.34
Retained Earnings	4,000	18	6,000	18	18.00

Having calculated the weighted cost of each component, we calculate the weighted average cost of the entire capital structure now:

Component	***Weight (%)***	***Cost (%)***	***Weighted cost***
Debt	28.57	14.6	14.6 x 0.29 = 4.23
Preference capital	9.52	10.5	10.5 x 0.0952 = 1.00
Equity capital	14.28	18.34	18.34 x 0.1428 = 2.62
Retained earnings	47.62	18	18 x 0.4762 = 8.57
Total	WACC = 4.23 + 1.00 + 2.62 + 8.57 = 16.42 %		

Marginal cost of addition is 16.42 – 15.2 = 1.22%. The return on investment has to be more than the revised weighted average cost of capital in order to ensure that the investors stay invested.

CASE STUDIES

Question 1 - The capital structure of a firm consists of equity of Rs. 80 lakhs; 10% preference shares 20lakhs and 14% debentures of Rs. 60 lakhs. At present its equity share is selling for Rs. 25. It is expected that the company will pay a dividend of Rs. 2. It has been growing @ 7% p.a. If the company is subject to 50% tax rate, determine its weighted average cost of capital.

Solution:-

Cost of Debt (after tax)

Kd= 14 (1-.5) = 7%

Cost of Equity Share Capital

Ke = DPS/MP + g

= Rs. 2/Rs. 25 + 0.7

= .08 + .07 = 15%

Calculation of Weighted Average Cost of Capital (WACC)

Source	*Amount Rs.*	*Weight*	*Specific cost of capital*	*Weight x Cost of capital*
Equity Share Capital	80,000	.500	.15	.07500
10% Pref. Share Capital	20,00,000	.125	.10	.01250
14% Debentures	60,00,000	.375	.07	.01625
	1,60,000			**.11375**

Question 2 - Calculate weighted average cost of capital from the following information:

4,000 Equity Shares (fully paid up)	4, 00,000
3,000 6% Debentures	3, 00,000
2,000 6% Preference Shares	2, 00,000
Retained Earnings	1, 00,000

Earning per equity share has been Rs. 10 during the past year and equity shares are being sold in the market at par. Assume corporate tax at 50 per cent and shareholders' personal tax liability 10%.

Solution: -

(A) Specific Cost of Various Components of Capital

i) Cost of Equity share Capital

Ke (after tax) = EPS/MP x 100= 10/100 x 100 =10%

ii) Cost of Retained Earnings

Kr (after tax) = E(1 – tp) / MP x 100 = 10 x (1 - .10) / 100 x 100 = 9%

iii) Cost of Preference share Capital

Kp (after tax) = DPS / NP x 100 = 6/100 x 100 = 6%

iv) Cost of Debentures

Kd (after tax) = R x100 (1 – t)/NP = 6 x 100(1- .50) /100

= 6 x .50 = 3%

(B) Computation of Weighted Average Cost of Capital

Source *(1)*	*Amount Rs.* *(2)*	*Weight* *(3)*	*Cost of Capital* *(4)*	*Weighted Average Cost* *(5) = (3) x (4)*
Equity Share Capital	4,00,000	.4	.10	.040
Debentures	3,00,000	.3	.03	.009
Pref. Share Capital	2,00,000	.2	.06	.012
Retained Earnings	1,00,000	.1	.09	.009
Weighted Average Cost of Capital				.070 or 7 %

Question 3- The Capital structure of Vandana Ltd. is as under:

		Rs.
2,000	6% Debentures of Rs. 100 each (first issue)	2, 00,000
1,000	7% Debentures of Rs. 100 each (second issue)	1, 00,000
2,000	8% Cumulative Preference Shares of Rs. 100 each	2, 00,000
4,000	Equity Shares of Rs. 100 each	4, 00,000
	Retained Earnings	1, 00,000

The earnings per share of the company in the past many years has been Rs. 15. The shares of the company are sold in the market at book value. The company's tax rate is 50% and shareholders' personal tax liability is 10%. Find out the weighted average cost of capital.

Solution: -

i) Cost of Equity Capital

Ke (after tax) = EPS / MP x 100 = 15/125 x 100 = 12%

MP = (Rs. 4, 00,000 + Rx. 1, 00,000) / 4,000 = Rs. 125

ii) Cost of Debentures (first issue)

Kd (after tax) = R/NP x 100(1-t)

= 6 / 100 x 100(1 - .50)

= 6 x .50 = 3%

iii) Cost of Debentures (second issue)

Kd (after tax) = R / NP x 100(1 – t)

= 7/100 x 100(1 - .50) = 6 x .50 = 3.5%

iv) Cost of Preference Share Capital

Kp (after tax) = DPS/NP x 100

= 8/100 x 100 = 8%

v) Cost of Retained Earnings

Kr (after tax) = E (1-tp) / MP x 100

= 15 x (1 - .10) /100 x 100

= 10.8%

Weighted Average Cost

Source (1)	*Amount Rs. (2)*	*Weight (3)*	*Cost of Capital (4)*	*Weighted Average Cost (5) = (3) x (4)*
Equity Share Capital	4,00,000	.4	.12	.0480
Debentures(first issue)	2,00,000	.2	.03	.0060
Debentures (second issue)	1,00,000	.1	.035	.0035
Pref. Share Capital	2,00,000	.2	.08	.0160
Retained Earnings	1,00,000	.1	.108	.0108
Weighted Average Cost of Capital				**.0843 or 8.43 %**

Question 4 - A company has obtained capital from the following sources, the specific costs are also noted down against them:

Source of Capital	*Book Value*	*Market Value*	*Cost of Capital*
	Rs.	*Rs.*	
Debentures	4,00,000	3,80,000	5%
Preference Shares	1,00,000	1,10,000	8%
Equity Shares	6,00,000	12,00,000	13%
Retained Earnings	2,00,000	--	9%

You are required to calculate weighted average cost of capital using (i) book value weights, and (ii) market value weights.

Solution

Weighted Average Cost

(Book Value Weights)

Source (1)	*Amount Rs. (2)*	*Weight (3)*	*Cost of Capital (%) (4)*	*Weighted Average Cost (5) = (3) x (4)*
Debentures	4,00,000	.308	5	1.540
Preference Share	1,00,000	.007	8	0.616
Equity Shares	6,00,000	.461	13	5.993
Retained Earnings	2,00,000	.154	9	1.386
Total	**13,00,000**	**1.000**		**9.535**

Weighted Average Cost

(Market Value Weights)

Source *(1)*	*Amount Rs.* *(2)*	*Weight* *(3)*	*Cost of Capital (%)* *(4)*	*Weighted Average Cost* *(5) = (3) x (4)*
Debentures	3,80,000	.225	5	1.125
Preference Share	1,10,000	.065	8	0.520
Equity Shares	9,00,000	.533	13	6.929
Retained Earnings	3,00,000	.177	9	1.593
Total	**13,00,000**	**1.000**		**10.167**

Working Note: - The Market value of equity share capital and retained earnings has been ascertained as follows:

Market Value of Retained Earnings = (12, 00,000 x 2, 00,000) /8, 00,000 = Rs. 3, 00,000

Market Value of Equity Share = (12, 00,000 x 6, 00,000) / 8, 00,000 = Rs. 9, 00,000

LESSON ROUND-UP

- The cost of capital is a term used in the field of financial investment to refer to the cost of a company's funds (both debt and equity), or, from an investor's point of view "the shareholder's required return on a portfolio company's existing securities"
- Cost of capital is used to evaluate new projects of a company and it is the minimum return that investors expect for providing capital to the company.
- For an investment to be worthwhile, the expected return on capital must be greater than the cost of capital. The cost of capital is the rate of return that capital could be expected to earn in an alternative investment of equivalent risk.
- There are four main factors which mainly determine the cost of Capital of a firm. General economic conditions, the marketability of the firm's securities (market conditions), operating and financing conditions within the company, and the amount of financing needed for new investments.
- There are factors affecting cost of capital that the company has control over and includes Capital Structure Policy, Dividend Policy, Investment Policy etc.
- There are some factors affecting cost of capital that these factors includes Level of Interest Rates, Tax Rates etc.
- The weighted average cost of capital (WACC), as the name implies, is the weighted average of the costs of different components of the capital structure of a firm. WACC is calculated after assigning different weights to the components according to the proportion of that component in the capital structure.
- Marginal Cost of Capital (MCC) can be defined as the cost of additional capital introduced in the capital

GLOSSARY

Component Cost and Composite Cost: Component cost refers to the cost of individual components of capital viz., equity shares, preference shares, debentures and so on. Composite cost of capital refers to the combined or weighted average cost of capital of the various individual components. For capital budgeting decisions, it is the composite cost of capital which is considered.

Average Cost and Marginal Cost: The average cost refers to the weighted average cost of capital. Marginal cost refers to the incremental cost attached with new funds raised by the company.

Explicit Cost and Implicit Cost: Explicit cost is the one which is attached with the source of capital explicit or apparently. Implicit cost is the hidden cost which is not incurred directly. E.g. In case of the debt capital, the interest which the company is required to pay on the same is explicit cost of capital.

Risk-free Interest Rate: The risk free interest rate is the interest rate on the risk free and default-free securities. For example, the securities issued by the Government of India are taken as risk free and default free in respect of payment of periodic interest as well as principal repayment on maturity.

Real Interest Rate: The real interest rate is the interest rate payable to the lender for supplying the funds or in other words, for surrendering the funds for a particular period.

Business Risk: Another factor affecting the cost of capital is the risk associated with the firm's promise to pay interest and dividends to its investors. The business risk is related to the response of the firm's Earnings before Interest and Taxes, EBIT, to change in sales revenue. Every project has its effect on the business risk of the firm. If a firm accepts a proposal which is more risky than average present risk, the investor will probably raise the cost of funds so as to be compensated for the increased risk.

Financial Risk: The financial risk is an other type of risk which can affect the cost of capital of the firm. The particular composition and mixing of different sources of finance, known as the financial plan or the capital structure, can affect the return available to the investors. The financial risk is often defined as the likelihood that the firm would not be able to meet its fixed financial charges. It is related to the response of the firm's earning per share to a variation in EBIT.

TEST YOURSELF

OBJECTIVE TYPE QUESTIONS

TRUE / FALSE

1. The minimum rate of return, which a company should get on its investment, is known as cost of capital.
   True
2. Retained earning is free of cost. **False**
3. In the Weighted Average cost of capital the weights are assigned randomly. **False**
4. Debt is cheaper than Equity. **True**
5. All sources of capital have the same cost. **False**
6. Book value and Market value cannot be same. **False**
7. Both NI and NOI approach are contributed by Durand. **True**

8. Capital structure is the mix of Equity and Preference share capital. **False**
9. Increased use of debt increases the financial risk of equity shareholders. **True**
10. High capital on gearing and Trading on equity both are same. **True**

MULTIPLE CHOICE QUESTIONS

1. When Debt capital exceeds owned capital, it is:

   A) Low capital gearing B) High capital gearing

   C) Over capitalization D) Under capitalization

   ANS- B

2. Capital structure technique does not include:

   A) Cost of capital B) Capital Budgeting

   C) Capital gearing D) Trading on equity

   ANS- B

3. Which of the following is not a source of long term finance?

   A) Equity share B) Preference share

   C) Debenture D) Cash credit

   ANS- D

4. The maximum period of Redeemable Debenture is:

   A) 5 Years B) 10 Years

   C) 15 Years D) 20 Years

   ANS- D

5. Cost of capital depends upon:

   A) Source of capital B) Volume of capital

   C) Time for capital D) All of the above

   ANS- B

6. Which of the following statement is true?

   A) The cost of retained earning is always less than the cost of external equity.

   B) The cost of retained earning is lower than the cost of external equity in the presence of floatation costs.

   C) The cost of external equity is always less than the cost of retained earnings.

   D) None of the above

   ANS- B

7. A ltd. Issued 1,000 10% Preference shares of Rs. 100 each at 2% discount. Cost of issue is Rs. 2 per share. Cost of preference capital is:

   A) 10% B) 10.64%

   C) 10.56% D) 9.9%

   ANS- B

ESSAY TYPE QUESTIONS

1. Explain the concept of cost of capital as a device for establishing a cutoff point of capital investment proposals. Explain its relevance in corporate investment and financing decisions.
2. Explain the different types of cost of capital.
3. Define Weighted Average Cost of Capital and its implications.
4. "Retained earning is not a cost free source of capital", Explain. How is the cost of retained earnings determined?
5. How overall cost of capital is calculated? Explain various approaches for calculation of cost of equity.

PRACTICAL TYPE QUESTIONS

Question 1. SK company has issued 12% perpetual debt for Rs. 5,00,000. The company is in tax bracket of 35%. Find after tax cost of debt if the debt is issued:

(1) At par

(2) At a discount of 10%

(3) at a premium of 10%.

Answer: (1) 7.8%, (2) 8.6%, (3) 7%

Question 2. A Co. issues Rs. 2,00,000 10% redeemable debentures of Rs. 100 each at par. The cost of flotation is Rs. 5,000. The debentures are redeemable after 10 years. Find out before tax and after tax cost of debt capital assuming a tax rate of 50%.

Answer: 10.38% & 5.19%

Question 3. SK Co. Ltd. wishes to issue 1,000, 10% Debentures of Rs. 500 each for which the company will be required to incur the following expenses:

(a) Underwriting commission 2%,

(b) Brokerage 0.5%,

(c) Printing and other expenses Rs.7,500.

Calculate cost of capital (before tax as well as after tax) assuming the debt is issued:

(i) at 10% discount repayable after 10 years and

(ii) at 10% premium repayable after 10 years.

The tax rate is 45%.

Answer: (i) 12.26%, 7.419% (ii) 9.13%, 4.757%

Question 4. SK Company issued 10,000 10% Debentures of Rs. 100 each at a discount of 5%. The cost of issue is 2%. These debentures are redeemable after 10 years at a premium of 3%. Assuming corporate tax rate at 50%, calculate before tax and after tax cost of debt capital.

Answer: Before tax cost = 11.224%, After tax cost = 6.122%

Question 5. SK Ltd. issued 5,000 12% debentures of Rs. 100 each at par, redeemable after 10 years at 10% premium. Cost of issue included administrative and other expenses Rs. 5,000 and commission 2%. Calculate cost of capital before and after tax (Tax Rate 40%).

Answer: Before tax rate 12.85%, After tax rate 8.21%

Question 6. AR Ltd. issued 10,000, 10% preference shares of Rs. 100 each. Cost of issue is Rs. 2 per share. Calculate cost of preference capital if these shares are issued:

(i) at par, (ii) at 10% premium and (iii) at 10% discount.

Answer: (i) 10.20% (ii) 9.26%, (iii) 11.36%

Question 7. AR Ltd. issued at par 4,000, 12% preference shares of Rs. 100 each. These shares are redeemable after 10 years at a premium of Rs. 5 per share. The cost of issue is Rs. 3 per share. Find out the after tax cost of preference share capital.

Answer: 12.67%

Question 8. SK Company Limited has issued, 10,000 8% preference shares of Rs. 200 each. Cost of issue is 5%. Calculate cost of capital before tax and after tax if these shares are issued: (a) 5% discount and (b) at 10% premium. Company tax rate is 50%.

Answer: (a) 17.78%, 8.89% (b) 15.24%, 7.62%

Question 9. SK Ltd. issued 20,000 equity shares of Rs. 10 each at a premium of Rs. 2 per share. The company has been paying a dividend of 20% on its equity shares. Market price of such shares is Rs. 16 per share. Tax rate is 40%. Calculate cost of capital before and after tax.

Answer: After tax 12.50%, Before tax 20.83%

Question 10. Calculate the cost of retained earnings from the following information obtained from SK Limited.

Current market price of a share	Rs. 140
Expected dividend per share	Rs. 14
Growth in expected dividends	5%
Brokerage per share	3% on market value
Tax rate on income distributed as dividends	30%

Answer: 10.185%

Question 11. The capital structure of a SK's firm is as follows:

Source	*Amount Rs.*	*After Tax specific Cost Rate (%)*
1. Debt	3,00,000	8
2. Preference Capital	2,00,000	14
3. Equity Capital	5,00,000	17

Calculate the weighted average cost of capital.

Answer: 13.7%

Question 12. The capital structure of SK Ltd. and after tax cost of capital of each source is as under:

Source	*Amount (Rs.)*	*Cost of Capital*
Equity Capital	4,00,000	12%
Preference Capital	3,00,000	10%
Debentures	2,00,000	6%
Retained ESKnings	1,00,000	8%

Find out the weighted average cost of capital.

Answer: 9.8%

Question 13. SK Company has on its books the following amounts and specific costs of each type of capital:

Type of Capital	*Book Value*	*Market Value*	*Specific Costs (%)*
Debt	8,00,000	7,60,000	5
Preference Capital	2,00,000	2,20,000	8
Equity Capital	12,00,000	18,00,000	15
Retained Earnings	4,00,000	6,00,000	13
	26,00,000	33,80,000	

Determine the weighted average cost of capital using (a) Book value weights and (b) Market value weights. How are they different? Can you think of a situation where the average cost of capital would be the same using either of the weights?

Answer: (a) 11.1% (b) 11.9%

Question 14. SK Company has after tax cost of capital for specific sources is as under:

Cost of Debentures	5%
Cost of Preference Shares	10%
Cost of Equity Shares	14%
Cost of Retained Earnings	13%

The company wishes to raise Rs. 5,00,000 for the expansion of its plant. It is estimated that Rs. 1,00,000 will be available as retained earnings and the balance of the additional funds will be raised as under:

Debenture issue	Rs. 3,00,000
Preference Shares issue	Rs. 1,00,000

Calculate Weighted Average Cost of Capital.

Answer: 7.6%

Question 15. Calculate Weighted Average Cost of Capital from the following information:

	Rs.
4,000 Equity Shares	4,00,000
3,000 8% Debentures	3,00,000
2,000 6% Preference Shares	2,00,000
Retained Earnings	1,00,000

Earnings per equity Shares have been Rs. 10 during the past years and equity Shares are being sold in the market at par. Assume corporate tax at 50% and Shares holders tax liability 25%.

Answer: 7.15% assuming EPS and DPS be the same

LIST OF FURTHER READINGS

- Financial Management: Theory and Practice by Eugene F. Brigham
- Guide to Financial Management by John Tennent
- Financial Management: Theory and Practice, 10e by Prasanna Chandra
- Financial Intelligence: A Manager's Guide to Knowing What the Numbers Really Mean
- Financial Management by I. M. Pandey
- Financial Management by A.K. Arora
- Working Capital Management: Applications and Case Studies by James Sagner
- Working Capital Management by V. K. Bhalla

Capital Structure

Lesson 15

KEY CONCEPTS

■ Capital Structure ■ Horizontal Capital Structure ■ Vertical Capital Structure ■ Pyramid Shaped Capital Structure ■ Inverted Pyramid Shaped Capital Structure ■ Optimal Capital Structure ■ Operating Risk ■ Financial Risk

Learning Objectives

To understand:

- Nature, scope and significance of capital structure
- Factors affecting Capital Structure
- Capital structure vis-à-vis Financial structure
- Optimal Capital Structure
- Capital Structure & Valuation
- Theories of Capital Structure
- Leverage- Operating leverage, Financial leverage and Combined Leverage
- EBIT – EPS Analysis
- Effect of leverages on return on equity

Lesson Outline

- Meaning and Significance of a Capital Structure
- Types of Capital Structure
- Planning and Designing of Capital Structure
- Capital Structure Theories
  - Net Income Approach
  - Net Operating Income Approach
  - Traditional Approach
  - Modigliani Miller (MM) Approach
- EBITDA Analysis
- Measures of Operating and Financial Leverage
- Hamada Equation
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION, DEFINITION AND SIGNIFICANCE OF CAPITAL STRUCTURE

Introduction

Given the Capital Budgeting decision of a firm, it has to decide the way in which the capital projects will be financed. Every time the firm makes an Investment decision, it has to undertake a financing decision also. For example, a decision to purchase a new machinery or plant implies specific ways of financing that project. Should the firm employ equity or debt or both? What may be its implications/ What is the appropriate mix of debt and equity? These are some questions that a firm needs to answer before taking up any Financing decision.

Capital structure means the structure or constitution or break-up of the capital employed by a firm. The capital employed consists of both the owners' capital and the debt capital provided by the lenders. Debt capital is understood here to mean the long term debt which has been deployed to build long term assets. Apart from the elements of equity and debt in the capital structure, a firm could have quasi equity in the form of convertible debt.

The Financing or Capital Structure decision is a significant managerial decision as it influences the shareholder's return and risk. Consequently, the market value of the share may be affected by the capital structure decision.

Definition of Capital Structure

The following definitions clearly initiate, the meaning and objective of the capital structure.

According to the definitions of **Gerstenberg**, "Capital Structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources".

According to the definition of **James C. Van Horne**, Captial Structure is "The mix of a firm's permanent long- term financing represented by debt, preferred stock and common stock equity".

Type of Capital Structure

Capital Structure of a firm is a reflection of the overall investment and financing strategy of the firm. It shows how much reliance is being placed by the firm on external sources of finance and how much internal accruals are being used to finance expansions etc. Capital structure can be of various kinds as described below:

1. ***Horizontal Capital Structure***

   In a Horizontal capital structure, the firm has zero debt components in the structure mix. The structure is quite stable. Expansion of the firm takes in a lateral manner, i.e. through equity or retained earning only. The absence of debt results in the lack of financial leverage. Probability of disturbance of the structure is remote.

2. ***Vertical Capital Structure***

   In a vertical capital structure, the base of the structure is formed by a small amount of equity share capital. This base serves as the foundation on which the super structure of preference share capital and debt is built. The incremental addition in the capital structure is almost entirely in the form of debt. Quantum of retained earnings is low and the dividend pay-out ratio is quite high. In such a structure, the cost of equity capital is usually higher than the cost of debt. The high component of debt in the capital structure increases the financial risk of the firm and renders the structure unstable. The firm, because of the relatively lesser component of equity capital, is vulnerable to hostile takeovers.

3. ***Pyramid shaped Capital structure***

   A pyramid shaped capital structure has a large proportion consisting of equity capital and retained

earnings which have been ploughed back into the firm over a considerably large period of time. The cost of share capital and the retained earnings of the firm is usually lower than the cost of debt. This structure is indicative of risk averse conservative firms.

4. ***Inverted Pyramid shaped Capital Structure***

   Such a capital structure has a small component of equity capital, reasonable level of retained earnings but an ever increasing component of debt. All the increases in the capital structure in the recent past have been made through debt only. This may be due to shrinking of retained earnings on account of accumulating losses. Such a capital structure is highly vulnerable to collapse.

Significance of Capital Structure

Capital structure is significant for a firm because the long term profitability and solvency of the firm is sustained by an optimal capital structure consisting of an appropriate mix of debt and equity. The capital structure also is significant for the overall ranking of the firm in the industry group. The significance of the capital structure is discussed below:

1. ***It reflects the firm's strategy***

   The capital structure reflects the overall strategy of the firm. The strategy includes the pace of growth of the firm. In case the firm wants to grow at a faster pace, it would be required to incorporate debt in its capital structure to a greater extent. Further, in case of growth through acquisitions or the inorganic mode of growth as it is called, the firm would find that financial leverage is an important tool in funding the acquisitions.

2. ***It is an indicator of the risk profile of the firm***

   One can get a reasonably accurate broad idea about the risk profile of the firm from its capital structure. If the debt component in the capital structure is predominant, the fixed interest cost of the firm increases thereby increasing its risk. If the firm has no long term debt in its capital structure, it means that either it is risk averse or it has cost of equity capital or cost of retained earnings less than the cost of debt.

3. ***It acts as a tax management tool***

   The capital structure acts as a tax management tool also. Since the interest on borrowings is tax deductible, a firm having healthy growth in operating profits would find it worthwhile to incorporate debt in the capital structure in a greater measure.

4. ***It helps to brighten the image of the firm***

   A firm can build on the retained earnings component of the capital structure by issuing equity capital at a premium to a spread out base of small investors. Such an act has two benefits. On the one hand, it helps the firm to improve its image in the eyes of the investors. At the same time, it reduces chances of hostile take-over of the firm.

CAPITAL STRUCTURE VIS-A-VIS FINANCIAL STRUCTURE

In engineering, structure refers to different parts of a building and thus in financial terms, financial structure refers to all the components of finance in an organization. In simple terms, financial structure consists of all assets, all liabilities and the capital. The manner in which an organization's assets are financed is referred to as its financial structure. There are some similarities between capital structure and financial structure. However, there are many differences also.

If you take a look at the balance sheet of a company, the entire left hand side which includes liabilities plus

equity is called the financial structure of the company. It contains all the long term and short term sources of capital. On the other hand, capital structure is the sum total of all long term sources of capital and thus is a part of the financial structure. It includes debentures, long term debt, preference share capital, equity share capital and retained earnings. In the simplest of terms, capital structure of a company is that part of financial structure that reflects long term sources of capital.

Consider the balance sheet of a company :

(Amt. in ₹)

Particulars	***Note***	***Amount as at 31st March, 2019***
1	***2***	***3***
I **EQUITY AND LIABILITIES**		
(1) **Shareholders' funds**		
(a) Share Capital		2,00,000
(b) Reserve and Surplus	1	72,000
(2) **Current liabilities**		
(a) Trade payable		1,28,000
(b) Provision for income Tax		60,000
TOTAL		4,60,000
II. **ASSETS**		
(1) **Non current-assets**		
(a) Fixed Assets		2,64,000
(b) Preliminary expenses	2	8,000
(2) **Current Assets**		
(a) inventories		48,000
(b) Trade receivable		88,000
(c) Cash at bank		52,000
TOTAL		**4,60,000**

In the above illustration, the total liabilities size of ₹ 4,60,000 is the financial structure of the firm while the long term block of ₹ 2,72,000 is the capital structure. We can also say that that the total financial structure minus the current liabilities structure gives us the capital structure. (Financial Structure - Current Liabilities = Capital Structure)

We can enunciate the following differences between financial structure and capital structure:

– Capital structure relates to long term capital deployment for creation of long term assets. Financial structure involves creation of both long term and short term assets.

- Capital structure is the core element of the financial structure. Capital structure can exist without the current liabilities and in such cases. Capital structure shall be equal to the financial structure. But we cannot have a situation where the firm has only current liabilities and no long term capital.
- Components of the capital structure may be used to build up the level of current assets but the current liabilities should not be used to finance acquisition of fixed assets. This would result in an asset liability mismatch.

PLANNING AND DESIGNING OF CAPITAL STRUCTURE

Just as planning and design of a physical structure is important, the same holds true for capital structure as well. A well thought out plan for the capital structure supplemented by a careful design ensures that prime goal of the firm, i.e. maximisation of the shareholder wealth is easily achieved.

Planning of the capital structure is a preliminary activity and it might commence as early at the time of incorporation of the firm. Once the firm is established, the next logical step is to move in the direction of implementation of the project. For meeting the cost of the project, the means of finance are to be arranged. Hence the need for timely and early planning of the capital structure.

The management of a company should seek answers to the following questions while making the decision regarding capital structure of the company:

- How should the investment project be financed?
- Does the way in which the investment projects are financed matter?
- How does financing affect the shareholders' risk, return and value?
- Does there exist an optimum financing mix in terms of the maximum value to the firm's shareholders?
- Can the optimum financing mix be determined in practice for a company?
- What factors in practice should a company consider in designing its financing policy?

Attributes of a Well Planned Capital Structure

A sound or appropriate capital structure should have the following features:

Return: The capital structure of the company should be most advantageous. Subject to other considerations, it should generate maximum returns to the shareholders without adding additional cost to them.

Risk: The use of excessive debt threatens the solvency of the company. To the point debt does not add significant risk. It should be sued, otherwise its use should be avoided.

Flexibility: The capital structure should be flexible. It should be possible for a company to adapt its capital structure with a minimum cost and delay if warranted by a changed situation. It should also be possible for the company to provide funds whenever needed to finance its profitable activities.

Capacity: The capital structure should be determined within the debt capacity of the company and this capacity should not be exceeded. The debt capacity of a company depends on its ability to generate future cash flows. It should have enough cash to pay creditors' fixed charges and principal sum.

Control: The capital structure should involve minimum risk of loss of control of the company. The owners of closely-held companies are particularly concerned about dilution of control.

Designing a Capital Structure

After planning the capital structure, we are faced with the issue of its design. Design takes off from where the

plan ends. Planning establishes the broad parameters of the structure. It is left for the design to fill in the minor details. While designing a capital structure, following points need to be kept in view:

1. ***Design should be functional:*** The design should create synergy with the long term strategy of the firm and should not be dysfunctional. It should facilitate the day to day working of the firm rather than create systematic bottlenecks.
2. ***Design should be flexible:*** The capital structure should be designed to incorporate a reasonable amount of flexibility in order to allow for temporary expansion or contraction of the share of each component.
3. ***Design should be conforming statutory guidelines:*** The design should conform to the statutory guidelines, if any, regarding the proportion and amount of each component. The limits imposed by lenders regarding the minimum level of owners' equity required in the firm should be complied with.

OPTIMAL CAPITAL STRUCTURE

Is there an optimal capital structure for a firm? By the term optimal capital structure we mean a particular arrangement of various components of the structure which is just in tune with the both the long term and short term objectives of the firm. An optimal capital structure is the best debt to equity ratio for a firm that maximises its value. The optimal capital structure for a company is one that offers a balance between the ideal debt to equity range and minimises the firm's cost of capital. A combination less or more than the optimal combination would be less than satisfying. Hence, a sub-optimal combination would affect the achievement of the goal of maximisation of the shareholders' wealth.

But can we plan and design an optimal capital structure? For designing such a structure, one would need the following information:

- The requirement of capital of the firm
- Availability of different components
- Cost of these components
- Rate of return from investment

It has to be further kept in mind that the above information should be exact information. In reality it is not possible to have the exact information on all the above four parameters. Secondly whatever information is available is for a particular period. Thus, we have to design the structure in a static set-up which makes the design devoid of all flexibility.

The real world of business, however, is a dynamic world with ever changing demand and supply of various components of the capital structure. Hence, we can not formulate the optimal capital structure in a static framework. The process has to be carried out in a dynamic framework of interdependent investment and financing decisions that yield optimal values within the constraints at the time and place when the decisions were made. We can, therefore, say that the optimal capital structure is an ideal situation which can function as the benchmark of performance for a firm. But this benchmark is invincible and the firm can expect to achieve moderated or toned down versions of this benchmark depending upon dynamics of each project.

FACTORS INFLUENCING CAPITAL STRUCTURE

Under the capital structure, decision regarding the proportion of long-term sources of capital is determined. Most favourable proportion determines the optimum capital structure. That happens to be the need of the company because EPS happens to be the maximum on it. Some of the chief factors affecting the choice of the capital structure are the following:

(1) Cash Flow Position

While making a choice of the capital structure the future cash flow position should be kept in mind. Debt capital should be used only if the cash flow position is really good because a lot of cash is needed in order to make payment of interest and refund of capital.

(2) Interest Coverage Ratio-ICR

With the help of this ratio an effort is made to find out how many times the EBIT is available to the payment of interest. The capacity of the company to use debt capital will be in direct proportion to this ratio.

It is possible that inspite of better ICR the cash flow position of the company may be weak. Therefore, this ratio is not a proper or appropriate measure of the capacity of the company to pay interest. It is equally important to take into consideration the cash flow position.

(3) Debt Service Coverage Ratio-DSCR

This ratio removes the weakness of ICR. This shows the cash flow position of the company.

This ratio tells us about the cash payments to be made (e.g., preference dividend, interest and debt capital repayment) and the amount of cash available. Better ratio means the better capacity of the company for debt payment. Consequently, more debt can be utilised in the capital structure.

(4) Return on Investment-ROI

The greater return on investment of a company increases its capacity to utilise more debt capital.

(5) Cost of Debt

The capacity of a company to take debt depends on the cost of debt. In case the rate of interest on the debt capital is less, more debt capital can be utilised and vice versa.

(6) Tax Rate

The rate of tax affects the cost of debt. If the rate of tax is high, the cost of debt decreases. The reason is the deduction of interest on the debt capital from the profits considering it a part of expenses and a saving in taxes.

For example, suppose a company takes a loan of Rs. 100 and the rate of interest on this debt is 10% and the rate of tax is 30%. By deducting 10/- from the EBIT a saving of in tax will take place (If 10% on account of interest are not deducted, a tax of @ 30% shall have to be paid).

(7) Cost of Equity Capital

Cost of equity capital (it means the expectations of the equity shareholders from the company) is affected by the use of debt capital. If the debt capital is utilised more, it will increase the cost of the equity capital. The simple reason for this is that the greater use of debt capital increases the risk of the equity shareholders.

Therefore, the use of the debt capital can be made only to a limited level. If even after this level the debt capital is used further, the cost of equity capital starts increasing rapidly. It adversely affects the market value of the shares. This is not a good situation. Efforts should be made to avoid it.

(8) Floatation Costs

Floatation costs are those expenses which are incurred while issuing securities (e.g., equity shares, preference shares, debentures, etc.). These include commission of underwriters, brokerage, stationery expenses, etc. Generally, the cost of issuing debt capital is less than the share capital. This attracts the company towards debt capital.

(9) Risk Consideration: There are two types of risks in business –

(i) Operating Risk or Business Risk

This refers to the risk of inability to discharge permanent operating costs (e.g., rent of the building, payment of salary, insurance installment, etc.).

(ii) Financial Risk

This refers to the risk of inability to pay fixed financial payments (e.g., payment of interest, preference dividend, return of the debt capital, etc.) as promised by the company.

The total risk of business depends on both these types of risks. If the operating risk in business is less, the financial risk can be faced which means that more debt capital can be utilised. On the contrary, if the operating risk is high, the financial risk likely occurring after the greater use of debt capital should be avoided.

(10) Flexibility

According to this principle, capital structure should be fairly flexible. Flexibility means that, if need be, amount of capital in the business could be increased or decreased easily. Reducing the amount of capital in business is possible only in case of debt capital or preference share capital.

If at any given time company has more capital than as necessary then both the above-mentioned capitals can be repaid. On the other hand, repayment of equity share capital is not possible by the company during its lifetime. Thus, from the viewpoint of flexibility to issue debt capital and preference share capital is the best.

(11) Control

According to this factor, at the time of preparing capital structure, it should be ensured that the control of the existing shareholders (owners) over the affairs of the company is not adversely affected.

If funds are raised by issuing equity shares, then the number of company's shareholders will increase and it directly affects the control of existing shareholders. In other words, now the number of owners (shareholders) controlling the company increases.

This situation will not be acceptable to the existing shareholders. On the contrary, when funds are raised through debt capital, there is no effect on the control of the company because the debenture holders have no control over the affairs of the company. Thus, for those who support this principle debt capital is the best.

(12) Regulatory Framework

Capital structure is also influenced by government regulations. For instance, banking companies can raise funds by issuing share capital alone, not any other kind of security. Similarly, it is compulsory for other companies to maintain a given debt-equity ratio while raising funds.

Different ideal debt-equity ratios such as 2:1; 4:1; 6:1 have been determined for different industries. Also, the public issue of shares and debentures has to be made under SEBI guidelines.

(13) Stock Market Conditions

Stock market conditions refer to upward or downward trends in capital market. Both these conditions have their influence on the selection of sources of finance. When the market is dull, investors are mostly afraid of investing in the share capital due to high risk.

On the contrary, when conditions in the capital market are cheerful, they treat investment in the share capital as the best choice to reap profits. Companies should, therefore, make selection of capital sources keeping in view the conditions prevailing in the capital market.

(14) Capital Structure of Other Companies

Capital structure is influenced by the industry to which a company is related. All companies related to a given industry produce almost similar products, their costs of production are similar, they depend on identical technology, they have similar profitability, and hence the pattern of their capital structure is almost similar.

Because of this fact, there are different debt- equity ratios prevalent in different industries. Hence, at the time of raising funds a company must take into consideration debt-equity ratio prevalent in the related industry.

CAPITAL STRUCTURE AND VALUATION

There is a theme that the capital structure should be conducive to increase in valuation of the firm. By valuation, we mean that the market value or the realisable value of the owners' equity should increase. This can happen in case value of both components of the shareholders' equity, i.e. share capital and retained earnings increases.

Value of the share capital is reflected in the market value of the firm in case the shares are traded on the stock exchange. This market value, under ideal conditions, is indicative of the inherent value and is different from both the face value and the book value. The capital structure should be such as maximises the inherent value of the firm.

Retained earnings also have a book value, i.e. the value at which these earnings are carried in the books of the firm. The inherent value of the retained earnings depends upon the future returns which these earnings can generate for the owners. As earnings of the firm increase, its valuation also increases. Earnings can increase either directly through increased level of operations of the firm or indirectly through decrease in cost of capital of the firm. The direct increase in earnings is dependent upon the investment decisions and the changes in capital structure have no explicit bearing upon these earnings. Capital structure plays an important part in increase in earnings brought about by change in cost of different components of the structure.

CAPITAL STRUCTURE THEORIES

There are basically four approaches to capital structure decision:

1. Net Income Approach
2. Net Operating Income Approach
3. Traditional Approach
4. Modigliani Miller (MM) Approach

1. Net Income Approach

According to this approach there is a relationship between capital structure and the value of the firm and therefore, the firm can affect its value by increasing or decreasing the debt proportion in the overall financial mix. The Net Income Approach makes the following assumptions:

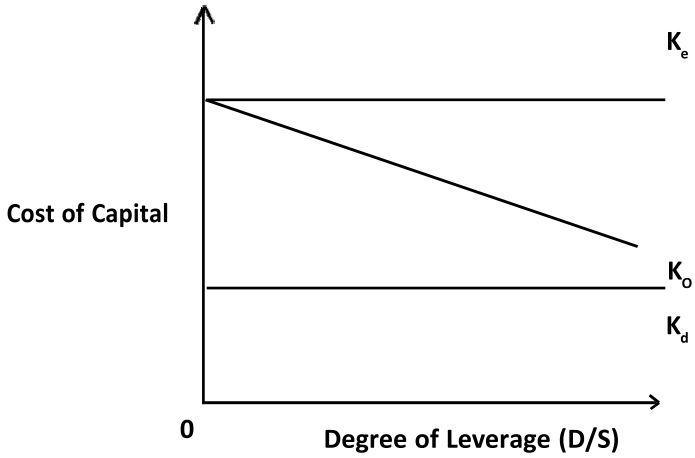
1. Cost of debt (K_d) is less than cost of equity (K_e) i.e. ($K_d < K_e$)
2. Both K_d and K_e. remain constant and increase i.e., in financial leverage i.e., use of more and more debt financing in the capital structure does not affect the risk perception of the investors.

3. There are no taxes.

Under this approach, the cost of debt capital, K_d and the cost of equity capital K_e remains unchanged when D/S, the degree of leverage, varies. Here S stands for total capital employed (S= D + E). The constancy of K_d and K_e with respect to the degree of leverage means that K_o the average cost of capital, measured by the following formula declines as the degree of leverage increases.

$$K_0 = K_d \times \frac{D}{(D+E)} + K_e \times \frac{E}{(D+E)}$$

This happens because when the degree of leverage increases, K_d which is lower than K_e receives a higher weight in the calculation of K_0. This can also be illustrated by a graph as shown below:



As our assumption is that the cost of debt and equity capital would not change with the change in the level of leverage, K is seen to go down with the increasing proportion of debt in the capital.

Let us take a company that has an investment of ₹ 2,00,000 and a net operating income of ₹ 50,000. It is considering two scenarios: (1) no debt and (2) equal levels of debt and equity of ₹ 1,00,000 each. Let us say that the company finds out that the cost of equity is 12% and the cost of debt is 8%.

Calculations show that equity earnings would be ₹ 50,000 and ₹ 42,000 respectively in the two scenarios and shown below. As the return expected on equity is 12%, we can say that this profit is 12% and therefore the market value of equity would be such that this return becomes 12% on the same. This means that the market value of equity would be ₹ 4,16,667 and ₹ 4,50,000 respectively in the two scenarios. Adding the market value of debt and the market value of equity gives us the total value of the firm in the market.

	Scenario A	Scenario B
Equity	2,00,000	1,00,000
Debt	0	1,00,000
Total Capital	2,00,000	2,00,000
Cost of Equity	12%	12%
Cost of Debt	8%	8%

Now the Calculation will be as under

	Scenario A	*Scenario B*
EBIT	50,000	50,000
Less Interest	0	(8,000)
Earnings available for Equity Shareholders	50,000	42,000
Value of Equity (Earnings Available/Ke)	4,16,667	3,50,000
Add - Market Value of Debt	0	1,00,000
Total Value of Firm	4,16,667	4,50,000

Average cost of capital Scenario A: 8% x (0/2,00,000) + 12% x (2,00,000/2,00,000) = 12% Scenario B: 8% x (1,00,000/4,50,000) + 12% x (3,50,000/4,50,000) = 11.10%

There are two points to be noted here

1. As the cost of capital decreases the value of the firm would go up. Inverse relationship exists between the value of the firm and cost of capital for any given level of return.
2. As we increase the level of debt in the company, the value of the firm would go up even further. This would mean that the companies would like to employ as much debt as possible.

Illustration 1: Super manufacturing company expects to earn net operating income of INR 1,50,000 annually. The company has INR 6,00,000, 8% debentures. The cost of equity capital of the company is 10%. What would be the value of the company? Also calculate overall cost of capital.

Solution:

Calculation of Value of Super Manufacturing Company

Particulars	**Amount (INR)**
Net Operating Income	1,50,000
Less: Interest on 8% debentures (I)	48,000
Earnings available to equity shareholders (NI)	1,02,000
Equity capitalisation rate (Ke)	0.10
Market value of equity (S) = NI / Ke	10,20,000
Market value of debt (B)	6,00,000
Total value of firms (S+B)= V	16,20,000

Overvall cost of capital = K_0 = EBIT / V = INR 1,50,000 / 16,20,000

= 0.093

= 9.3% approximately

Illustration 2: Find out the value of the Magic Limited with the help of given information:

Particulars	***Amount (Rs.)***
Earnings Before Interest and Tax	350000
Cost of Equity	10%
Cost of Debt	7.2%
Debenture	100000

Find out the overall cost of capital with the help of net income approach. (Assume tax rate-10%).

Solution:

Particulars	***Amount (Rs.)***
Earnings Before Interest and Tax	350000
Less: Interest @ 7.2%	7200
Earnings Before Interest and Tax	342800
Less: Tax@10%	34280
Net Income	308520
Cost of equity	10%
Market value of equity (S = net income / cost of equity)	3085200
Market value of Debt (B)	100000
Value of the firm (S+B)	**3185200**

Illustration 3: Compute the value of Elite limited from the following figures. Further, assume that the proportion of debt increases from US$300,000 to US$400,000, and everything else remains the same what will be the value of the company?

Particulars	***Amount (US$)***
Earnings before Interest and Tax (EBIT)	100000
Bonds (Debt part)	300000
Cost of bonds issued (Debt)	10%
Cost of Equity	**14%**

Solution:

Particulars	*Amount (US$)*
EBIT	100000
Less: Interest cost (10% of 300,000)	30,000
Earnings (since tax is assumed to be absent)	70,000
Shareholders' Earnings	70,000
Market value of Equity (70,000/14%)	500,000
Market value of Debt	300,000
Total Market value	800,000
Overall cost of capital	**100,000/800,000 =12.5%**

When the proportion of debt increases from US$300,000 to US$400,000

Particulars	*Amount (US$)*
EBIT	100,000
Less: Interest cost (10% of 400,000)	40,000
Earnings (since tax is assumed to be absent)	60,000
Shareholders' Earnings	60,000
Market value of Equity (60,000/14%)	428,570 (approx)
Market value of Debt	400,000
Total Market value	828,570
Overall cost of capital	100,000/828,570 = 12% (approx.)

2. Net Operating Income Approach

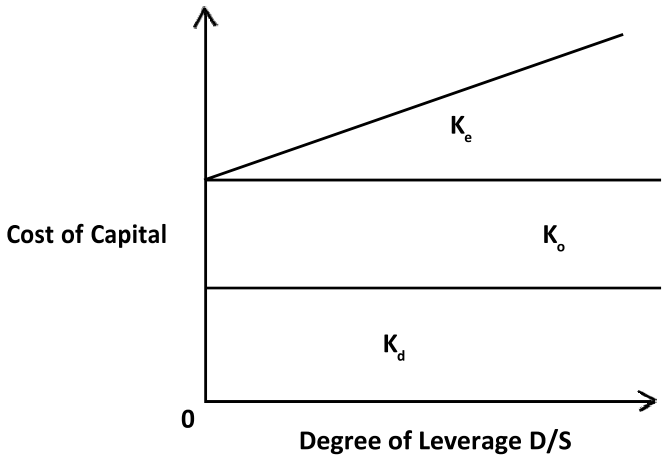
Net operating income approach is opposite to the Net income approach. According to NOI Approach, the market value of the firm depends upon the net operating profit or EBIT and the overall cost of capital. The financing mix or the capital structure is irrelevant and does not affect the value of the firm. The NOI Approach makes the following assumptions:

1. The investors see the firm as a whole and thus capitalize the total earnings of the firm to find the value of the firm as a whole.
2. The overall cost of capital K_O, of the firm is constant and depends upon the business risk which also is assumed to be unchanged.
3. The cost of debt, K_d, is also taken as constant.

4. The use of more and more debt in the capital structure increases the risk of the shareholders and thus results in the increase in the cost of equity capital i.e, K_e. The increase in K_e is such as to completely offset the benefits of employing cheaper debt, and

5. There is no taxes.

   Under NOI Approach the relationship between the leverage and cost of capital has been represented in the Figure below:



Let us repeat the example we discussed earlier in net income approach. Let us take a company that has an investment of ₹ 2,00,000 and net operating income of ₹ 50,000. It is considering two scenarios: 1) no debt and 2) equal levels of debt and equity of ₹ 100,000 each. Let us assume that the company finds out that the overall cost of capital is 10% and the cost of debt is 8%.

As the return expected on total capital is 10 per cent, therefore the market value of total capital would be such that this return becomes 10 per cent on the same. This means that the market value of capital would be ₹ 5,00,000 in both the scenarios as our assumption in this case is that the total market value remains constant. Also the value of debt would also remain constant as the cost of debt remains constant. This means that the equity capitalization can be calculated by subtracting the market value of debt from the total market value of the firm. Then the return on equity divided by the market capitalization of equity would give us the cost of equity.

Equity	***Scenario 'A'***	***Scenario 'B'***
Equity	₹ 2,00,000	₹ 1,00,000
Debt	0	₹ 1,00,000
Cost of Debt	8%	8%
Net operating income	₹ 50,000	₹ 50,000
Overall Capitalization rate	10%	10%
Total market value	₹ 5,00,000	₹ 5,00,000
Interest on debt	0	₹ 8,000
Debt capitalization rate	0.08	0.08
Market value of debt	0	₹ 1,00,000
Market value of equity	₹ 5,00,000	₹ 4,00,000

There are two points to be noted here:

- As the cost of total capital and debt is constant, the cost of equity would go up or down with increasing or decreasing leverage, i.e., the amount of debt in the capital structure.
- This means that as we increase the level of debt in the company, the value of the firm doesn't change and the company does not benefit by taking on debt. This would mean that the companies would like to employ as much equity as possible so as to reduce the risk of the company.

$$\text{Value of firm} = \frac{\text{Net Operating Income}}{\text{WACC}}$$

Or

$$\text{Value of firm} = \frac{\text{EBIT}}{\text{Ko}}$$

Alternatively, Value of the Firm = Value of Equity + Value of Debt

$$\text{Ke} = \frac{\text{Net Income after interest}}{\text{Value of equity}}$$

Cost of equity can also be calculated as follows:

$K_e = K_0 + (K_0 - K_d)\ D/E$

***Illustration 1*:** Bliss limited has an EBIT of Rs. 4,00,000 and belongs to a risk class of 10% i.e. its overall cost of capital is 10%. What is the value of equity capital if it employees 5% debt to the extent of 30%, 40% or 50% of the total capital of Rs. 20,00,000? Assume that Net Operating Income approach applies.

***Solution*:**

Particulars	***30% Debt***	***40% Debt***	***50% Debt***
EBIT (A)	4,00,000	4,00,000	4,00,000
Overall cost of capital (Ko)	10%	10%	10%
Value of the firm (V = EBIT/ Ko)	40,00,000	40,00,000	40,00,000
Value of debt (D) 30%, 40%, 50% of Rs. 20 lacs	6,00,000	8,00,000	10,00,000
Value of Equity (E = V–D)	34,00,000	32,00,000	30,00,000
Interest on debt @5% (B)	30,000	40,000	50,000
Net profit available for equity shareholders (A–B)	3,70,000	3,60,000	3,50,000
Ke (Net profit for equity shareholders / Value of Equity)	10.88%	11.25%	11.67%

The cost of equity capital increases with the increase in the proportion of debt capital.

Cost of Equity can also be calculated using the following formula

$K_e = K_0 + (K_0 - K_d)\ D/E$

$K_e = 10 + (10–5)\ 6,00,000/34,00,000 = 10.88\%$

$K_e = 10 + (10–5)\ 8,00,000/32,00,000 = 11.25\%$

$K_e = 10 + (10–5)\ 10,00,000/30,00,000 = 11.67\%$

***Illustration 2*:** Ample limited operating income (EBIT) is Rs.5,00,000. The firm's cost of debt is 10% and currently the firm employ Rs.15,00,000 of debt. The overall cost of capital of the firm is 15%.

You are required to calculate:

(i) Total value of firm

(ii) Cost of equity

***Solution*:**

(i) Statement showing value of the firm

Particulars	***Amount (Rs.)***
Net Operating Income (EBIT)	5,00,000
Less: Interest on debentures (10% of Rs.15,00,000)	1,50,000
Earnings available for equity holders	3,50,000
Total cost of capital (K_o) (given)	15%
Value of the firm V = EBIT / K_o = Rs.5,00,000 / 0.15	33,33,333

(ii) Calculation of cost of equity

Particulars	***Amount (Rs.)***
Market value of debt (D)	15,00,000
Market value of equity (S) = V – D = Rs.33,33,333 – Rs.15,00,000	18,33,333

$$K_e = \frac{\text{Earnings available for equity holders}}{\text{Value of equity (S)}}$$

$$\text{OR} = \frac{\text{EBIT – Interest paid on debt}}{\text{Market value of equity}}$$

$$= \frac{\text{Rs.3,50,000}}{\text{Rs.18,33,333}} \times 100 = 19.09\%$$

OR

$$K_e = K_e \times \left(\frac{S}{V}\right) + K_d \left(\frac{D}{V}\right)$$

$$K_e = K_e \times \left(\frac{V}{S}\right) + K_d \left(\frac{D}{S}\right)$$

$$=0.15\left[\frac{33,33,333}{18,33,333}\right]-0.10\left[\frac{15,00,000}{18,33,333}\right]$$

$$=\frac{1}{18,33,333}\left[(0.15x33,33,333)\right] - (0.15 \times 15,00,000)$$

= 19.09%

***Illustration 3*:** A ltd. and B ltd. are identical except for capital structures. A ltd. has 50 percent debt and 50 percent equity, whereas B ltd. has 20 percent debt and 80 percent equity. It is to be noted that all percentages are in market-value terms. The borrowing rate for both companies is 8 percent in a no-tax world, and capital markets are assumed to be perfect.

(a) (i) If you own 2 percent of the shares of A ltd., determine your return if the company has net operating income of Rs.3,60,000 and the overall capitalisation rate of the company, K_o is 18 percent?

(ii) Calculate the implied rate of return on equity?

(b) B ltd. has the same net operating income as A ltd.

i) Determine the implied required equity return of B ltd.

ii) Analyse why does it differ from A ltd.

Solution:

(a) Value of A ltd. = $\frac{NOI}{K_o} = \frac{Rs.3,60,000}{18\%}$ = Rs.20,00,000

(i) Return on shares of A ltd.

Particulars	***Amount (Rs.)***
Value of the company	20,00,000
Market value of debt (50%)	10,00,000
Market value of equity (50%)	10,00,000
Net Operating Income	3,60,000
Interest on debt (8% x Rs. 10,00,000)	80,000
Earnings available to shareholders	2,80,000
Return on equity (2% x 2,80,000)	5,600

(ii) Implied rate of return on equity

$$= \frac{Rs.2,80,000}{Rs.10,00,000} \times 100 = 28\%$$

(b) (i) Calculation of implied rate of return

Particulars	***Rs.***
Total value of company	20,00,000
Market value of debt (20% x Rs.20,00,000)	4,00,000
Market value of equity (80% x Rs.20,00,000)	16,00,000
	Rs.
Net Operating Income	3,60,000
Interest on debt (8% x Rs.4,00,000)	32,000
Earnings available to shareholders	3,28,000

$$\text{Implied required rate of return on equity} = \frac{\text{Rs.3,28,000}}{\text{Rs.16,00,000}} \times 100 = 20.5\%$$

(ii) It is lower than the A ltd. because B ltd. uses less debt in its capital structure. As the equity capitalisation is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline in required equity return offsets exactly the disadvantage of not employing so much in a way of "cheaper" debt funds.

3. Traditional Approach

The NI Approach and NOI Approach hold extreme views on the relationship between the leverage, cost of capital and the value of the firm. In practical situations, both these approaches seem to be unrealistic. The traditional view takes a compromising view between the two and incorporates the basic philosophy of both. The traditional approach to capital structure suggests that there exist an optimal debt to equity ratio where the overall cost of capital is the minimum and market value of the firm is the maximum. On either side of this point, changes in the financing mix can bring positive change to the value of the firm. Before this point, the marginal cost of debt is less than a cost of equity and after this point vice-versa.

The traditional approach to capital structure advocates that there is a right combination of equity and debt in the capital structure, at which the market value of a firm is maximum. As per this approach, debt should exist in the capital structure only up to a specific point, beyond which, any increase in leverage would result in the reduction in value of the firm.

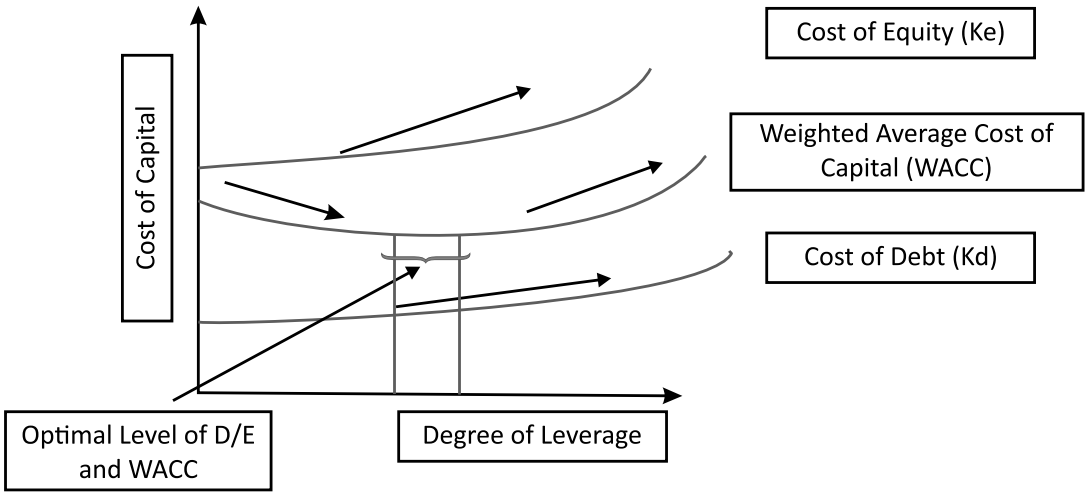
It means that there exists an optimum value of debt to equity ratio at which the Weighted Average Cost of Capital (WACC) is the lowest and the market value of the firm is the highest. Once the firm crosses that optimum value of debt to equity ratio, the cost of equity rises to give a detrimental effect to the WACC. Above the threshold, the WACC increases and market value of the firm starts a downward movement.

Assumptions under traditional approach:

1. The rate of interest on debt remains constant for a certain period and thereafter with an increase in leverage, it increases.
2. The expected rate by equity shareholders remains constant or increase gradually. After that, the equity shareholders starts perceiving a financial risk and then from the optimal point and the expected rate increases speedily.

3. As a result of the activity of rate of interest and expected rate of return, the WACC first decreases and then increases. The lowest point on the curve is optimal capital structure.

Traditional viewpoint on the relationship between leverage, cost of capital and the value of the firm is displayed in the figure below:



The following estimates of the cost of debt and cost of equity capital have been made at various level of the debt- equity mix of PQR Ltd:

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% of Debt (1)	Cost of Debt (2)	(3) = (1) * (2)	% of Equity (4)	Cost of Equity (5)	(6) = (4) * (5)	Cost of Capital {(3) + (6)} in %
0	5	0	1	12	12	12
0.10	5	0.5	0.90	12	10.8	11.3
0.20	5	1	0.80	12.5	10	11
0.30	5.5	1.65	0.70	13	9.1	10.75
0.40	6	2.4	0.60	14	8.4	10.8
0.50	6.5	3.25	0.50	16	8	11.25
0.60	7	4.2	0.40	20	8	12.20

4. Modigliani - Miller Theory

In 1958, Franco Modigliani and Merton Miller (MM) published a theory of modern financial management – they concluded that the value of a firm depends solely on its future earnings stream, and hence its value is unaffected by its debt/equity mix. In short, they concluded that a firm's value stems from its assets, regardless of how those assets are financed.

In their paper, MM began with a very restrictive set of assumptions, including perfect capital markets (which implies zero taxes). And then they used an arbitrage proof to demonstrate that capital structure is irrelevant. Under their assumptions, if debt financing resulted in a higher value for the firm than equity financing, then

investors who owned shares in a leveraged (debt-financed) firm could increase their income by selling those shares and using the proceeds, plus borrowed funds, to buy shares in an unleveraged (all equity- financed) firm. The simultaneous selling of shares in the leveraged firm and buying of shares in the unleveraged firm would drive the prices of the stocks to the point where the values of the two firms would be identical. Thus, according to MM Hypothesis, a firm's stock price is not related to its mix of debt and equity financing.

Modigliani and Miller have restated and amplified the net operating income position in terms of three basic propositions. These are as follows:

Proposition – I

The total value of a firm is equal to its expected operating income (PBIT when tax = 0) divided by the discount rate appropriate to its risk class. It is independent of the degree of leverage.

$$Vl = Vu = \frac{EBIT}{K_{ol}} = \frac{EBIT}{K_{ou}}$$

Here the subscript l is used to denote leveraged firm and subscript u is used to denote unleveraged firm.

Since the V (Value of the firm) as established by the above equation is a constant, then under the MM model, when there are no taxes, the value of the firm is independent of its leverage. This implies that the weighted average cost of capital to any firm is completely independent of its capital structure and the WACC for any firm, regardless of the amount of debt it uses, is equal to the cost of equity of unleveraged firm employing no debt.

Proposition – II

The expected yield on equity, K_e is equal to K_o plus a premium. This premium is equal to the debt – equity ratio times the difference between K_o and the yield on debt, K_d. This means that as the firm's use of debt increases its cost of equity also rises, and in a mathematically precise manner.

Proposition – III

The cut-off rate for investment decision making for a firm in a given risk class is not affected by the manner in which the investment is financed. It emphasizes the point that investment and financing decisions are independent because the average cost of capital is not affected by the financing decision.

Illustration 4:

Let us take the case of two firms X and Y, similar in all respects except in their capital structure. Firm X is financed by equity only; firm Y is financed by a mixture of equity and debt. The financial parameters of the two firms are as follows:

Financial Particulars of Firms X and Y

(Amount in ₹)

Particulars	*Firm X*	*Firm Y*
Total Capital Employed	10,00,000	10,00,000
Equity Capital	10,00,000	6,00,000
Debt	Nil	4,00,000
Net operating Income	1,00,000	1,00,000
Debt Interest	0	20,000

Market value of debt	0	4,00,000
Equity earnings Equity capitalization rate Market value of equity	1,00,000 10% 10,00,000	80,000 12% 6,66,667
Total market value of the firm	10,00,000	10,66,667
Average cost of capital	10%	9.37%
Debt-Equity ratio	0	0.6

Solution:

From the above particulars, it can be seen that the value of leverged firm Y is higher than that of the unleveraged firm. According to Modigliani Miller approach, such a situation cannot persist because equity investors would do well to sell their equity investment in firm Y and invest in the equity of firm X with personal leverage. For example, an equity investor who owns 1% equity in firm Y would do well to:

- Sell his equity in Firm Y for ₹ 6,667
- Borrow ₹ 4,000 at 5% interest on personal account and
- Buy 1.0667% of the equity of firm X with the amount of ₹ 10,667 that he has.

Such an action will result in the following income:

Particular	***(₹)***
Income on investment in firm X	1066.70
Less: Interest (4000 x 5%)	200.00
Net Income	866.70

This net income of ₹ 866.7 is higher than a net income of ₹ 800 foregone by selling 1 percent equity of firm Y and the leverage ratio is the same in both the cases.

When investors sell their equity in firm Y and buy the equity in firm X with personal leverage, the market value of equity of firm Y tends to decline and the market value of equity of firm X tends to rise. This process continues until the net market values of both the firms become equal because only then the possibility of earning a higher income for a given level of investment and leverage by arbitraging is eliminated. As a result of this the cost of capital for both the firms is the same.

The above example explains that due to the arbitrage mechanism the value of a leveraged firm cannot be higher than that of an unleveraged firm, other things being equal. It can also be proved that the value of an unleveraged firm cannot be higher than that of leveraged firm, other things being equal.

Let us assume the valuation of the two firms X and Y is the other way around and is as follows:

(Amount in INR)

Particulars	***Firm X***	***Firm Y***
Debt Interest	0	20,000

Market Value of debt (Debt capitalisation rate is 5%)	0	4,00,000
Equity earnings	1,00,000	80,000
Equity Capitalisation rate	8%	12%
Market value of equity	12,50,000	6,66,667
Total Market value	12,50,000	10,66,667

If a situation like this arises, equity investors in firm X would do well to sell the equity in firm X and use the proceeds partly for investment in the equity of firm Y and partly for investment in the debt of firm Y. For example, an equity investor who owns 1 percent equity in firm X would do well to:

- Sell his 1% equity in firm X for ₹ 12,500
- Buy 1.01% of the equity and debt in firm Y involving an outlay of INR 10,773

Such an action will result in an increase of income by INR 1727 without changing the risk shouldered by the investor. When investors resort to such a change, the market value of the equity of firm X tends to decline and the market value of the equity of firm Y tends to rise. This process continues until the total market value of both the firms becomes equal.

CRITICISM OF MM HYPOTHESIS

If the MM theory was correct, managers would not need to concern themselves with capital structure decisions, because such decisions would have no impact on stock prices. However, like most theories, MM's results would hold true only under a particular set of assumptions. Still, by showing the conditions under which capital structure is irrelevant, MM provided important insights into when and how debt financing can affect the value of a firm.

MM Hypothesis with Corporate Taxes

In 1963, MM added corporate taxes to their model. With corporate taxes considered, a firm's stock price was shown to be directly related to its use to debt financing – higher the percentage of debt financing, the higher the stock price. Under the MM with tax theory, firms should use virtually 100% debt financing. The reason for this result is the corporate tax structure – returns to stockholders come from after-tax earnings, but returns to creditors are paid before tax. The effect of this tax treatment is that more of a company's operating income is left for investors when more debt financing is used.

Empirical evidence against MM Hypothesis

In spite of the MM arguments, firms do not usually use anywhere close to 100% debt financing. In an attempt to modify MM's model to make it more consistent with actual behaviour, many of their assumptions were relaxed in papers by other authors. In particular, the possibility of financial distress drastically changed the MM results. In the modified model, tax savings cause the value of a firm to rise as more and more debt is used, but at some point (the optimal structure), the value of the firm begins to fall with additional debt because the tax benefits are more than offset by the increasing costs of potential financial distress.

The MM model as modified to include financial distress suggests to managers .

- that a certain amount of debt is good
- that too much debt is bad, and
- that there is an optimal amount of debt for every firm.

Thus, the modified MM theory, which is called the trade-off theory of capital structure, provides useful insights into the factors that affect a firm's optimal capital structure. Here the marginal costs and benefits of debt financing are balanced against one another, and the result is an optimal capital structure that falls somewhere between zero and 100% debt.

Pecking Order Theory

One of the most influential theory of corporate leverage is Pecking Order Theory. It assumes that there is no target capital structure and due to adverse selection, firms prefer internal finance to external finance. Even when outside funds are necessary, debt is preferred to equity since issue of debt involves lower information costs. The debt is preferred because issuing equity would bring external ownership into the company.

EBIT - EPS Analysis

One widely used means of examining the effect of leverage is to analyse the relationship between earnings before interest and taxes (EBIT) and earnings per share (EPS). The use of EBIT – EPS analysis indicates to management the projected EPS for different financial plans. Generally, management wants to maximise EPS if doing so also satisfies the primary goal of financial management - maximisation of the owner's wealth as represented by the value of business, i.e. the value of firm's equity. If the firm attempts to use excessive amounts of debt, shareholders (who are risk - averters) may sell their shares, and thus its price will fall. While the use of large amount of debt may result in higher EPS, it may also result in a reduction in the price of the firm's equity. The optimum financial structure for a firm (that is, the use of debt in relationship of equity and retained earnings as sources of financing) should be the one which maximises the price of the equity.

Given the importance of earnings per share (EPS) as a measure of a firm's performance, analysis of the impact of financing alternatives on EPS is an important first step. Essentially, the method involves the comparison of alternative methods of financing under various assumptions as to EBIT.

Let us assume that a firm has a capital structure of INR 1,00,000. The equity capital is of ₹ 100 each and debt carries rate of interest of 10% p.a. We further assume that the firm has the following combination of components of this structure:

Case No.	***Equity (%)***	***Debt (%)***
1.	100	0
2.	75	25
3.	50	50
4.	25	75

For calculating the impact on EPS of various levels of EBIT, we take five values of ₹ 5000, ₹ 7,500, ₹ 12,500 and ₹ 15,000. The tax rate is assumed to be 40 %.

(a) If EBIT is INR 5,000 *(Amount in INR)*

Debt Level (%)	0%	25%	50%	75%
EBIT	5,000	5,000	5,000	5,000
Less: Interest	0	(2,500)	(5,000)	(7,500)
PBT	5,000	2,500	0	2,500

Less: Tax @ 40%	2,000	1,000	0	0
PAT	(3,000)	(1,500)	0	(2,500)
No. of Equity Shares	1,000	750	500	250
EPS (PAT/No. of Equity Shares)	3.0	2.0	0	(1.0)

We find that with increasing level of debt in the capital structure, the EPS decreases.

(b) If EBIT is INR 7,500 *(Amount in INR)*

Debt Level (%)	0%	25%	50%	75%
EBIT	7,500	7,500	7,500	7,500
Less: Interest	0	(2,500)	(5,000)	(7,500)
PBT	7,500	5,000	2,500	0
Less: Tax @ 40%	(3,000)	(2,000)	(1,000)	0
PAT	4,500	3,000	1,500	0
No. of Equity Shares	1,000	750	500	250
EPS (PAT/No. of Equity Shares)	4.5	4.0	3.0	0

In this case also, the EPS decreases with increasing level of debt.

(c) If EBIT is INR 10,000 *(Amount in INR)*

Debt Level (%)	0%	25%	50%	75%
EBIT	10,000	10,000	10,000	10,000
Less: Interest	0	(2,500)	(5,000)	(7,500)
PBT	10,000	7,500	5,000	2,500
Less: Tax @ 40%	(4,000)	(3,000)	(2,000)	(1,000)
PAT	6,000	4,500	3,000	1,500
No. of Equity Shares	1,000	750	500	250
EPS (PAT/No. of Equity Shares)	6.0	6.0	6.0	6.0

At this level of EBIT, the EPS remains unchanged irrespective of any change in the capital structure.

(d) If EBIT is INR 12,500 *(Amount in INR)*

Debt Level (%)	0%	25%	50%	75%
EBIT	12,500	12,500	12,500	12,500
Less: Interest	0	(2,500)	(5,000	(7,500)

PBT	12,500	10,000	7,500	5,000
Less: Tax @ 40%	(5,000)	(4,000)	(3,000)	(2,000)
PAT	7,500	6,000	4,500	3,000
No. of Equity Shares	1,000	750	500	250
EPS (PAT/No. of Equity Shares)	7.5	8.0	9.0	12.0

Now we see that EPS increases with increasing level of debt.

(e) If EBIT is INR 15,000 *(Amount in INR)*

Debt Level (%)	0%	25%	50%	75%
EBIT	15,000	15,000	15,000	15,000
Less: Interest	0	(2,500)	(5,000)	(7,500)
PBT	15,000	12,500	10,000	7,500
Less: Tax @ 40%	(6,000)	(5,000)	(4,000)	(3,000)
PAT	9,000	7,500	6,000	4,500
No. of Equity Shares	1,000	750	500	250
EPS (PAT/No. of Equity Shares)	9.0	10.0	12.0	18.0

If we increase the EBIT further, the impact on EPS is better still.

We can conclude from the above illustration that the firm should resort to financing its operations through debt only beyond a threshold or indifference level in order to benefit from tax breaks provided by interest on borrowings. In other words, debt is suitable if the EBIT is expanding rapidly. If the operations are shrinking, it should change its capital structure immediately in favour of equity capital.

The EBIT-EPS analysis of the above illustration can be summarised in the form of following table :

	Debt Levels (%)			
	0%	25%	50%	75%
EBIT	**EPS at above levels**			
₹ 5,000	3.0	2.0	0	(1.0)
₹ 7,500	4.5	4.0	3.0	0
₹ 10,000	6.0	6.0	6.0	6.0
₹ 12,500	7.5	8.0	9.0	12.0
₹ 15,000	9.0	10.0	12.0	18.0

The indifference point of a firm (EBIT of ₹ 10000 in this case) varies from firm to firm but normally it approximates the breakeven point.

EBITDA ANALYSIS (EARNINGS BEFORE INTEREST, TAX, DEPRECIATION AND AMORTIZATION),

EBITDA, an acronym for "earnings before interest, taxes, depreciation and amortization," is an often-used measure of the value of a business. EBITDA is calculated by taking net income and adding interest, taxes, depreciation and amortization expenses back to it. EBITDA is used to analyze a company's operating profitability before non- operating expenses (such as interest and "other" non-core expenses) and non-cash charges (depreciation and amortization).

Analysis with EBITDA

EBIDTA enables analysts to exclude the impacts of non-operating activities and focus on the outcome of operating decisions. Non-operating activities include interest expenses, tax rates, and large non-cash items such as depreciation and amortization.

By removing the non-operating effects, EBITDA gives investors the ability to focus on the profitability of their operations. This type of analysis is particularly important when comparing similar companies across a single industry.

Limitations of EBITDA

Factoring out interest, taxes, depreciation and amortization can make even completely unprofitable firms appear to be fiscally healthy. The use of EBITDA as measure of financial health made these firms look attractive. EBITDA numbers are easy to manipulate. If fraudulent accounting techniques are used to inflate revenues and interest, taxes, depreciation and amortization are factored out of the equation, almost any company may appears to be profitable and great.

Operating cash flow is a better measure of how much cash a company is generating because it adds non-cash charges (depreciation and amortization) back to net income and includes the changes in working capital that also use or provide cash (such as changes in receivables, payables and inventories). These working capital factors are the key to determining how much cash a company is generating. If investors do not include changes in working capital in their analysis and rely solely on EBITDA, they will miss clues that indicate whether a company is losing money because it isn't making any sales.

Despite various shortcomings, there are some good reasons for using EBITDA.

1. The first factor to consider is that EBITDA can be used as a shortcut to estimate the cash flow available to pay debt on long-term assets, such as equipment and other items with a lifespan measured in decades rather than years. Dividing EBITDA by the amount of required debt payments yields a debt coverage ratio. Factoring out the "ITDA" of EBITDA was designed to account for the cost of the long-term assets and provide a look at the profits that would be left after the cost of these tools was taken into consideration

2. Another factor is that EBITDA estimate to be reasonably accurate, the company under evaluation must have legitimate profitability. Using EBITDA to evaluate old-line industrial firms is likely to produce useful results. This idea was lost during the 1980s, when leveraged buyouts were fashionable, and EBITDA began to be used as a proxy for cash flow. This evolved into the more recent practice of using EBITDA to evaluate unprofitable dotcoms as well as firms such as telecoms, where technology upgrades are a constant expense.

3. EBITDA can also be used to compare companies against each other and against industry averages. In addition, EBITDA is a good measure of core profit trends because it eliminates some of the extraneous factors and allows a more "apples-to-apples" comparison.

Ultimately, EBITDA should not replace the measure of cash flow, which includes the significant factor of changes

in working capital. Remember "cash is king" because it shows "true" profitability and a company's ability to continue operations.

MEASURES OF OPERATING AND FINANCIAL LEVERAGE

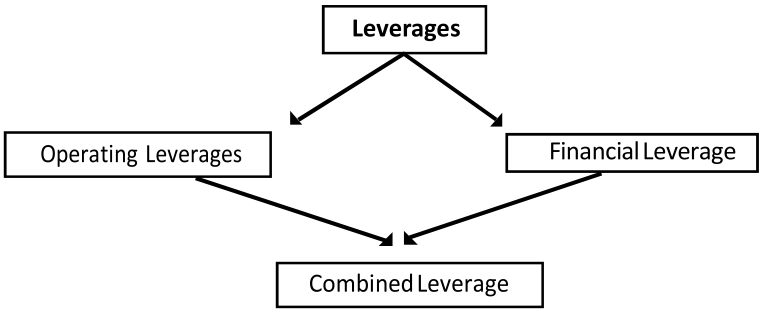
The term leverage refers to an increased means of accomplishing some purpose. Leverage is used to lifting heavy objects, which may not be otherwise possible. In the financial point of view, leverage refers to furnish the ability to use fixed cost assets or funds to increase the return to its shareholders.

Definition of Leverage

James Horne has defined leverage as, "the employment of an asset or fund for which the firm pays a fixed cost or fixed return.

Types of Leverage

Leverage can be classified into three major headings according to the nature of the finance mix of the company.



The company may use financial or leverage or operating leverage, to increase the EBIT and EPS.

The leverage associated with investment activities is called as operating leverage. It is caused due to fixed operating expenses in the company. Operating leverage may be defined as the company's ability to use fixed operating costs to magnify the effects of changes in sales on its earnings before interest and taxes. Operating leverage consists of two important costs viz., fixed cost and variable cost. When the company is said to have a high degree of operating leverage if it employs a great amount of fixed cost and smaller amount of variable cost. Thus, the degree of operating leverage depends upon the amount of various cost structure. Operating leverage can be determined with the help of a break even analysis.

Operating leverage can be calculated with the help of the following formula:

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{Operating Profit (EBIT)}}$$

Degree of Operating Leverage

The degree of operating leverage may be defined as percentage change in the operating income (EBIT) resulting from a percentage change in the sales. It can be calculated with the help of the following formula:

$$\text{DOL} = \frac{\text{Percentage change in EBIT}}{\text{Operating Profit (EBIT)}}$$

Illustration 5:

From the following selected operating data, determine the degree of operating leverage. Which company has the greater amount of business risk? Why?

Amount in ₹

	Company A (₹)	**Company B (₹)**
Sales	25,00,000	30,00,000
Fixed costs	7,50,000	15,00,000

Variable expenses as a percentage of sales are 50% for company A and 25% for company B.

Solution:

Statement of Profit

Amount in ₹

	Company A	***Company B***
Sales	25,00,000	30,00,000
Less : Variable cost	12,50,000	7,50,000
Contribution	12,50,000	22,50,000
Less : Fixed cost	7,50,000	15,00,000
Operating Profit (EBIT)	5,00,000	7,50,000

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{Operating Profit}}$$

$$\text{Company 'A Operating Leverage} = \frac{12,50,000}{5,00,000}$$

= 2.5

$$\text{Similarly for Company B Operating Leverage would be} = \frac{22,50,000}{7,50,000} = 3$$

Comments

Operating leverage for Company B is higher than that of Company A ; Company B has a higher degree of operating risk. The tendency of operating profit may vary proportionately with sales, is higher for Company B as compared to Company A.

Uses of Operating Leverage

Operating leverage is one of the techniques to measure the impact of changes in sales which lead for change in the profits of the company. If any change in the sales, it will lead to corresponding changes in profit. Operating leverage helps to identify the position of fixed cost and variable cost.

Operating leverage measures the relationship between the sales and revenue of the company during a particular period. Operating leverage helps to understand the level of fixed cost which is invested in the operating expenses of business activities. It describes the overall position of the fixed operating cost.

FINANCIAL LEVERAGE

A leverage activity with financing activities is called financial leverage. Financial leverage represents the relationship between the company's earnings before interest and taxes (EBIT) or operating profit and the earning available to equity shareholders.

Financial leverage is defined as "the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share". It involves the use of funds obtained at a fixed cost in the hope of increasing the return to the shareholders. "The use of long-term fixed interest bearing debt and preference share capital along with share capital is called financial leverage or trading on equity".

Financial leverage may be favourable or unfavourable depends upon the use of fixed cost funds.

Favourable financial leverage occurs when the company earns more on the assets purchased with the funds, then the fixed cost of their use. Hence, it is also called as positive financial leverage.

Unfavourable financial leverage occurs when the company does not earn as much as the funds cost. Hence, it is also called as negative financial leverage.

Financial leverage can be calculated with the help of the following formula:

$$\text{Financial Leverage} = \frac{\text{Operating Profit (EBIT)}}{\text{Profit Before Tax}}$$

Degree of Financial Leverage

Degree of financial leverage may be defined as the percentage change in taxable profit as a result of percentage change in earnings before interest and tax (EBIT). This can be calculated by the following formula :-

$$\text{DFL} = \frac{\text{Percentage change in taxable Income}}{\text{Percentage change in operating income}}$$

Alternative Definition of Financial Leverage

According to **Gitmar**, "financial leverage is the ability of a firm to use fixed financial changes to magnify the effects of change in EBIT on its EPS".

$$\text{DFL} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$$

Illustration 6:

A Company has the following capital structure :

Particulars	₹
Equity share capital	1,00,000
10% Preference share capital	1,00,000

8% Debentures	1,25,000

The present EBIT is ₹ 50,000. Calculate the financial leverage assuming that the company is in 50% tax bracket.

Solution:

Statement of Profit	₹
Earnings before Interest and Tax (EBIT) or operating profit	50,000
Less: Interest on Debenture (1,25,000 × $\frac{8}{100}$)	(10,000)
Earnings before Tax (EBT)	40,000
Income Tax	(20,000)
Profit	20,000

$$\text{Financial leverage} = \frac{\text{Operating Profit (OP)}}{\text{Profit before Tax (PBT)}}$$

$$= \frac{50,000}{40,000}$$

= 1.25

Uses of Financial Leverage

Financial leverage helps to examine the relationship between EBIT and EPS.

Financial leverage measures the percentage of change in taxable income to the percentage change in EBIT. It locates the correct profitable financial decision regarding capital structure of the company. It is one of the important devices which is used to measure the fixed cost proportion with the total capital of the company. If the firm acquires fixed cost funds at a higher cost, then the earnings from those assets, the earning per share and return on equity capital will decrease. The impact of financial leverage can be understood with the help of the following exercise.

Illustration 7:

XYZ Ltd. decides to use two financial plans and they need ₹ 50,000 for total investment.

Particulars	***Plan A***	***Plan B***
Debenture (interest at 10%)	₹ 40,000	₹10,000
Equity share (₹ 10 each)	₹ 10,000	₹40,000
Total investment needed	₹ 50,000	₹ 50,000
Number of equity shares	1,000	4,000

The earnings before interest and tax are assumed at ₹ 5,000, and 12,500. The tax rate is 50%. Calculate the EPS.

Solution

When EBIT is ₹ 5,000

Particulars	*Plan A*	*Plan B*
Earnings before interest and tax (EBIT)	₹ 5,000	₹ 5,000
Less : Interest on debt (10%)	₹ 4,000	₹ 1,000
Earnings before tax (EBT)	₹ 1,000	₹ 4,000
Less : Tax at 50%	₹ 500	₹ 2,000
Earnings available to equity shareholders.	₹ 500	₹ 2,000
No. of equity shares	1,000	4,000
Earnings per share (EPS) Earnings/No. of equity shares	₹ 0.5	₹ 0.5

When EBIT is ₹ 12,500

Particulars	*Plan A*	*Plan B*
Earnings before interest and tax (EBIT)	₹ 12,500	₹ 12,500
Less : Interest on debt (10%)	₹ 4,000	₹ 1,000
Earnings before tax (EBT)	₹ 8,500	₹ 11,500
Less : Tax at 50%	₹ 4,250	₹ 5,750
Earnings available to equity shareholders.	₹ 4,250	₹ 5,750
No. of equity shares	1,000	4,000
Earnings per share (EPS) Earnings/No. of equity shares	₹ 4.25	₹ 1.44

DIFFERENCE BETWEEN OPERATING LEVERAGE AND FINANCIAL LEVERAGE

Sl. No	*Operating Leverage*	*Financial Leverage*
1	Operating leverage is associated with investment activities of the company.	Financial leverage is associated with financing activities of the company.
2	Operating leverage consists of fixed operating expenses of the company.	Financial leverage consists of Fixed Financial Expenses of the company.
3	It represents the ability to use fixed operating cost.	It represents the ability to use fixed financial cost.
4	Operating leverage can be calculated by= Contribution/EBIT	Financial leverage can be calculated by= EBIT/EBT
5	A percentage change in the profits resulting from a percentage change in the sales is called as degree of operating leverage.	A percentage change in taxable profit is the result of percentage change in EBIT.

6	Trading on equity is not possible by using operating leverage	Trading on equity is possible only when the company uses financial leverage.
7	Operating leverage depends upon fixed cost and variable cost.	Financial leverage depends upon the operating profits & fixed financial costs.
8	Tax rate and interest rate will not affect the operating leverage.	Financial leverage will change due to tax rate and interest rate.

Financial Break Even Point

It is the level of EBIT which covers all fixed financing costs of the company. It is the level of EBIT at which EPS is zero.

$$FBP = Interest + \frac{Preference\ Dividend}{1 - t}$$

Illustration 8:

ABC Limited has the following capital structure and want to know its Financial Break Even Point

Equity shares (FV = ₹ 100)	₹ 5,00,000
12% Preference Shares (FV = ₹ 100)	₹ 5,00,000
10% Debentures (FV = ₹ 100)	₹ 10,00,000
Tax Rate	40%

Solution:

$$FBP = Interest + \frac{Preference\ Dividend}{(1 - t)}$$

$$= 1,00,000 + \frac{6,00,000}{(1 - 0.40)}$$

= ₹ 11,00,000

In other words, the EPS of the firm will be zero at Rs 11,00,000 level of EBIT.

	Amount in ₹
EBIT	11,00,000
Less : Interest	(1,00,000)
EBT	10,00,000
Less : Taxes @ 40%	(4,00,000)
EAT	6,00,000
Less : Preference Dividend	(6,00,000)
Earnings Available for Equity Shareholders	Nil
No. of Equity Shares	5,000
EPS	Nil

Indifference Point

It is the point at which different sets of debt ratios (percentage of debt to total capital employed in the company) gives the same EPS. Indifference level is the level of EBIT beyond which the benefits of financial leverage began to operate with respect to EPS.

In other words, if the expected levels of EBIT exceed the indifference level of EBIT, the use of fixed charge sources (debt) would be favorable from the point of view of EPS. In nutshell, financial leverage is favorable & leads to an increase in the EPS.

On the other hand, if the expected level of EBIT is less than the indifference point, the advantage of EPS would be available from the use of equity capital.

The indifference point between two financial plans can be calculated by using the following formula:

$$\frac{(\text{EBIT} - \text{Interest})\,(1\text{-}t) - \text{PD}\,(1+t)}{\text{No of equity shares in Plan A}} = \frac{(\text{EBIT} - \text{Interest})\,(1\text{-}t) - \text{PD}(1+t)}{\text{No of equity shares in Plan B}}$$

Illustration 9:

A new project requires a capital outlay of ₹ 400 lakhs. The required amount to be raised either fully by equity shares of ₹ 100 each or by equity shares of the value of ₹ 200 lakhs and by loan of ₹ 200 lakhs at 15% interest. Assuming a tax rate of 40%, calculate the figure of EBIT that would keep the equity investors indifferent to the two options.

Solution:

	Option A (Full Equity)	**Option B (Debt + Equity)**
Equity (FV 100)	₹ 400 Lakhs	₹ 200 Lakhs
15% Debt	Nil	₹ 200 Lakhs
Total Capital	₹ 400 Lakhs	₹ 400 Lakhs
No of Equity Shares	4,00,000	2,00,000

Let us assume Indifference Level of EBIT is ₹ X. Thus

$$\frac{\{(X - 0)\,(1 - 0.4) - 0\}}{4{,}00{,}000} = \frac{(X - 30{,}00{,}000)\,(1 - 0.4) - 0}{2{,}00{,}000}$$

$$\frac{0.6X}{4{,}00{,}000} = \frac{0.6X - 18{,}00{,}000}{2{,}00{,}000}$$

$$0.6X = \frac{(4{,}00{,}000)}{1} \quad \frac{\{0.6X - 18{,}00{,}000\}}{2{,}00{,}000}$$

0.6X = 1.2X - 36,00,000

36,00,000 = 1.2X - 0.6X

0.6X = 36,00,000 X = ₹ 60,00,000

Thus the EPS under two different financial options will be equal at ₹ 60 lakhs EBIT Level. This can be verified as follows:

	Option A (in ₹)	Option B (in ₹)
EBIT	60,00,000	60,00,000
Less : Interest	Nil	(30,00,000)
EBT	60,00,000	30,00,000
Less : Taxes @ 40%	(24,00,000)	(12,00,000)
Earnings available for equity shares	36,00,000	18,00,000
No. of Equity Shares	4,00,000	2,00,000
EPS (Earnings available for Equity Shares / No. of Shares)	9	9

COMBINED LEVERAGE

When the company uses both financial and operating leverage to magnification of any change in sales into a larger relative changes in earning per share. Combined leverage is also called as composite leverage or total leverage.

$$DCL = DOL \times DFL = \frac{Contribution}{EBIT} \times \frac{EBIT}{PBT} = \frac{Contribution}{PBT}$$

Combined leverage expresses the relationship between the revenue in the account of sales and the taxable income. Combined leverage can be calculated with the help of the following formulas:

Degree of Combined Leverage

The percentage change in a firm's earning per share (EPS) results from one percent change in sales. This is also equal to the firm's degree of operating leverage (DOL) times its degree of financial leverage (DFL) at a particular level of sales.

$$\text{Degree of combined leverage} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in sales}}$$

Illustration 10:

Kumar Company has sales of ₹ 25,00,000. Variable cost of ₹ 15,00,000 and fixed cost of ₹ 5,00,000 and debt of ₹ 12,50,000 at 8% rate of interest. Calculate combined leverage.

Solution

Statement of Profit

Amount in ₹

Sales	25,00,000
Less: Variable cost	(15,00,000)
Contribution	10,00,000
Less: Fixed cost	(5,00,000)

Operating Profit	5,00,000

Combined leverage =Operating leverage x Financial leverage

Calculation of operating leverage

$$\frac{\text{Contribution}}{\text{Operating Profit}} = \frac{10,00,000}{5,00,000} = 2$$

=

Calculation of financial leverage

Earning before Interest and Tax (EBIT)	₹ 5,00,000
Less: Interest on Debenture (8% of 12,50,000)	(₹ 1,00,000)
Earnings before Tax	₹ 4,00,000

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

$$\text{Financial Leverage} = \frac{5,00,000}{4,00,000}$$

$$= 1.25$$

Combined leverage = 2 × 1.25 = 2.5 OR = $\frac{10,00,000}{4,00,000}$ = 2.5

WORKING CAPITAL LEVERAGE

One of the new models of leverage is working capital leverage which is used to locate the investment in working capital or current assets in the company.

Working capital leverage measures the sensitivity of return in investment of charges in the level of current assets.

$$\text{Working Capital Leverage} = \frac{\text{Percentage Change in ROI}}{\text{Percentage Change in Working Capital}}$$

If the earnings are not affected by the changes in current assets, the working capital leverage can be calculated with the help of the following formula.

$$\text{Working Capital Leverage} = \frac{CA}{(TA+\Delta CA)}$$

where,

CA = Current Assets TA = Total Assets

Δ CA = Changes in the level of Current Assets

Illustration 11:

The following information is available for two companies.

You are required to compare the sensitivity earnings of the two companies for 30% change in the level of their current assets.

Solution:

$$\text{Working Capital Leverage} = \frac{CA}{TA + \Delta CA}$$

	X Ltd.	***Y Ltd.***
Fixed Assets	₹ 4,00,000	₹ 1,00,000
Current Assets	₹ 10,00,000	₹ 4,00,000
Total Assets	₹ 14,00,000	₹ 14,00,000
Earnings before interest and taxes	₹ 1,50,000	₹ 1,50,000

Working Capital Leverage for Company X = $\frac{10,00,000}{14,00,000 - 1,20,0000}$

$\frac{10,00,000}{11,00,000}$

= 0.90

Working Capital Leverage for Company Y = $\frac{4,00,000}{14,00,000 - 1,20,0000}$

$\frac{4,00,000}{12,80,000}$

= 0.3125

EFFECTS OF LEVERAGE ON SHAREHOLDERS' RETURNS

Financial plan is one of the vital decisions of a firm because a financial plan affects the market value, cost of capital and shareholders return of a firm. The Proportion of Debt to Equity in the financial plan of a firm is called leverage. Since optimal debt ratio influences a firm's market value and shareholder's return, different firms use different debt ratio at different levels to maximize market value and shareholders return. Leverage has statistically significant effect on the shareholders' return and proper management of leverage can maximize the value of EPS.

1. Operating Leverage Effect : % Change in EBIT is more than % Change in Sale

If % change of earning before interest and tax is more than % change in sale, this operating leverage will effect ROE positively because at this level, per unit fixed cost will decrease and small increase in sale will boost EBIT.

If EBIT will increase, ROE will also increase. Operating Leverage indicates, how will EBIT change if sales changes. 2:1 ratio of operating leverage means 100% increase in sales will increase EBIT by 200%. As interest is fixed cost, so ROE will increase.

A. ***Situation:*** **High Operating Leverage:**

Too high operating leverage is not good, it may be highly risky.

B. ***Situation*****: Low Operating Leverage:**

Low operating leverage may be useful when sale market is fluctuating.

2. Effect of Financial Leverage on ROE

If we have to check real effect of leverage on ROE, we have to study financial leverage. Financial leverage refers to the use of debt to acquire additional assets. Financial leverage may decrease or increase return on equity in different conditions.

A. ***Situation:*** **High Financial Leverage:**

Financial over-leveraging means incurring a huge debt by borrowing funds at a lower rate of interest and utilizing the excess funds in high risk investments in order to maximize returns.

B. ***Situation*****: Low Financial Leverage:**

Financial low-leveraging means incurring a low debt by borrowing funds. It may affect positively, if decrease the value of bought asset with this low debt.

3. Effect of High Operating leverage and High Financial Leverage

It will increase ROE but it is highly risky also.

4. Effect of Low Operating leverage and High Financial Leverage

It is optimum combination for bringing optimum return on equity.

RISK AND LEVERAGE

Risk is the probability that the future revenue streams of a firm shall show a variation from the expected figures. The variation is normally on the negative or the lower side because a positive variation reduces the investment risk and a reduction of risk is always welcome.

For linkage with leverage, we can divide risk into two broad categories, i.e. business risk and financial risk. Business risk pertains to risks associated with day to day operations of the firm. For example, decisions made regarding purchase of raw materials, manufacturing expenses and administrative expenses, etc. change the business risk profile of the firm. These decisions have an impact upon the operational profitability of the firm, i.e. the profits before interest and taxes. Financial risk, on the other hand, is associated with introduction of fixed interest bearing debt obligations in the capital structure of the firm. These obligations create a prior charge on EBIT before distribution of post tax profits among the owners.

The distinction between business risk and financial risk can be clarified through the following illustration:

ABC Company Limited

Profit and Loss Statement for the year ended 31.03.2012

(Amount in ₹ Lacs)

(a) Net Sales	8,500	
(b) Cost of goods Sold	5,000	(1)
(c) Gross Profit	3,500	
(d) Selling Expenses	1,500	(2)
(e) EBIT	2,000	(3)

Business risk is associated with the impact of item no. (3) above of changes in item nos. (1) and (2). The "Cost of goods sold" item consists of cost of raw materials, labour cost, factory rent and other manufacturing expenses. Out of these elements, labour cost and factory rent are fixed costs while the rest are variable depending upon the level of sales. Now if the fixed costs are increased the expectation would be that the sales would rise in anticipated proportion. However, if the sales do not rise as anticipated, business risk of the firm increases.

Till now we have assumed that the firm has no debt and as such, no interest cost. Let us assume that the firm raises debt with yearly interest payment of ₹ 500 lacs. The Profit & loss account would now be extended as shown below:

Sr. No.	***Particulars***	**Amount(₹ in lakh)**	
(a)	EBIT	2,000	
(b)	Less : Interest	500	(4)
(c)	Profit before tax	1,500	
(d)	Less : Tax @ 40%	600	
(e)	Profit after Tax	900	(5)

Now item no. (5) i.e. profit after tax is dependent on interest payments which are fixed. If EBIT decreases as a result of changes in items (1) and (2) and item no. (4) remains the same, the venture would become riskier as an additional element of financial risk has been built in. The change in risk profile of the firm has been caused by change in its leverage. The changes in fixed labour costs and factory rent are referred to as changes in operating leverage while the changes in fixed interest costs are described as changes in financial leverage.

A firm has operating leverage when it can expand output and sales without a proportionate increase in fixed costs. Let us assume that in our earlier illustration, cost of sales has the following break-up:

Cost of raw materials	₹ 2,500
Labour Cost	₹ 500
Factory rent	₹ 500
Other manufacturing costs	₹ 1,500

Labour cost and factory rent are fixed costs for running the factory for manufacturing, say, 1,00,000 units of

the product. The firm now plans to expand the capacity to 2,00,000 units in the same factory by increasing the number of factory labour and installation of new machinery. The profit and loss account under the two levels of capacity would now read as under:

Amount in ₹

Sr. No.	Particulars	Capacity (100000 units)	Capacity (200000 units)
1.	Net Sales	8,500	17,000
2.	Cost of raw material	2,500	5,000
3.	Labour cost	500	1,000
4.	Factory rent	500	500
5.	Other mfg. Costs	1,500	2,500
6.	Gross profit	3,500	8,000
7.	Selling Expenses	1,500	2,500
8.	EBIT	2,000	5,500
9.	Tax @ 40%	800	2,200
10.	Profit after tax	1,200	3,300

We see that while net sales have increased by 100%, the EBIT has increased by 175%, thanks to the operating leverage provided by the fixed factory rent and the fixed component of manufacturing expenses and selling expenses, which we assume to be ₹ 500 lacs each.

Now, if due to recessionary conditions, capacity utilisation of the factory is reduced to 50% and 40% in two subsequent years respectively, profitability of the firm would change as under:

Amount in ₹

Sr. No	Particulars	Capacity 50%	Capacity 40%
1.	Net Sales	8,500	6,800
2.	Cost of raw material	2,500	2,000
3.	Labour cost	1,000	1,000
4.	Factory rent	500	500
5.	Other mfg. Costs	1,500	1,300
6.	Gross profit	3,000	2,000
7.	Selling Expenses	1,500	1,300
8.	EBIT	1,500	700

9.	Tax @ 40%	600	280
10.	Profit after tax	900	420

We see that the fall in EBIT is much sharper than the decline in sales. This has happened due to operating leverage.

Let us assume that the firm decides to move from rented factory premises to own premises. This is achieved by borrowing a sum of ₹ 15 crores from the bank carrying fixed interest of 12% p.a. The capacity is also simultaneously doubled. The comparative profit & loss figures shall now read as under:

Amount in ₹

Sr. No.	***Particulars***	***Original Capacity***	***Double Capacity***
1.	Net Sales	8,500	17,000
2.	Cost of raw material	2,500	5,000
3.	Labour cost	500	1,000
4.	Other mfg. Costs	1,500	2,500
5.	Gross profit	4,000	8,500
6.	Selling Expenses	1,500	2,500
7.	EBIT	2,500	6,000
8.	Interest	180	180
9.	Profit before tax	2,320	5,820
10.	Tax @ 40%	928	2,328
11.	Profit after tax	1,392	3,492

By creating financial leverage, the firm has not only ensured rise in EBIT but in PAT as well. But at the same time, it has increased its financial risk, i.e. the risk of default on repayment of loan amount and the interest on loan.

Now let us see how financial leverage impacts the performance of the firm in recessionary conditions:

Amount in ₹

Sr. No.	***Particulars***	***Original Capacity***	***Double Capacity***
1.	Net Sales	8,500	6,800
2.	Cost of raw material	2,500	2,000
3.	Labour cost	1,000	1,000
4.	Other mfg. Costs	1,500	1,300
5.	Gross profit	3,500	2,500

6.	Selling Expenses	1,500	1,300
7.	EBIT	2,000	1,200
8.	Interest	180	180
9.	Profit before tax	1,820	1,020
10.	Tax @ 40%	728	408
11.	Profit after tax	1,092	612

We can see that in case of financial leverage, the impact on PAT upon reduction in capacity utilisation is much severe. The degree of financial leverage can be calculated by the rate of change of PAT for a one percent change in sales.

Relationship between Financial Risk and Financial Leverage

As the financial leverage increases, the break-even point of the company increases and the company now has to sell more of its product (or service) in order to break even. High financial leverage increases the risk to banks and other lenders because of the higher probability of bankruptcy and the risk to stockholders because greater losses may be incurred if the company goes bankrupt. Increase in financial leverage, increases the risk to stockholders because the higher leverage will cause greater volatility in earnings and greater volatility in the stock price.

SOME CASE STUDIES

Illustration 12: Calculate the operating, financial and combined leverage under situations 1 and 2 and the financial plans for X and Y respectively from the following information relating to the operating and capital structure of a company, and also find out which gives the highest and the least value ? Installed capacity is 5000 units. Annual Production and sales at 60% of installed capacity.

Selling price per unit ₹ 25 Variable cost per unit ₹ 15 **Fixed cost:**

Situation 1 : ₹ 10,000

Situation 2 : ₹ 12,000

	Financial Plan	
	X(`)	**Y (`)**
Equity	25,000	50,000
Debt (10%)	50,000	25,000
	75,000	75,000

Solution:

Annual production and sales 60% of 5,000 = 3000 Unit

	₹
Selling	25 Per Unit
Variable Cost	15 Per Unit

Contribution Per Unit 10 Per Unit

Total contribution is 3000 Units × ₹ 10 = ₹ 30,000

Computation of leverage. *Amount in ₹*

	PLAN- X		***PLAN- Y***	
Contribution	***Situation 1***	***Situation 2***	***Situation 1***	***Situation 2***
	30,000	30,000	30,000	30,000
Fixed cost	10,000	12,000	10,000	12,000
operating Profit or EBIT	20,000	18,000	20,000	18,000
Interest on Debts				
10% of 50,000	5,000	5,000		
10% of 25,000			2,500	2,500
Earnings before Tax	15,000	13,000	17,500	15,500
Operating Leverage (Contribution/ EBIT)	1.50	1.67	1.5	1.67
Financial Leverage (EBIT/EBT)	1.33	1.38	1.14	1.16
(iii) Combined leverage (OL X FL)	2.00	2.31	1.71	1.94

Highest and least value of combined leverage. Highest Value = 2.31 under situation 2 plan X. Least Value = 1.71 under situation 1 plan Y.

Illustration 13: XYZ' company has a choice of the following three financial plans. You are required to calculate the financial leverage in each case

	Plan I	***Plan II***	***Plan III***
Equity capital	₹ 2,000	₹ 1,000	₹ 3,000
Debt	₹ 2,000	₹ 3,000	₹ 1,000
EBIT	₹ 400	₹ 400	₹ 400

Interest @10% per annum on debts in all cases.

Solution: *Amount in ₹*

	Plan I	***Plan II***	***Plan III***
EBIT	400	400	400
Less Interest-(I)	200	300	100
EBT	200	100	300
FL (EBIT/EBT)	2	4	1.33

Illustration 14: Calculate operating leverage and financial leverage under situations A, B and C and financial plans 1, 2 and 3 respectively from the following information relating to the operating and financial leverage which give the highest value and the least value.

Installed capacity (units)		1,200
Actual production and sales (units)		800
Selling price per unit (₹)		15
Variable cost per unit (₹)		10
Fixed costs (₹)	Situation A	1,000
	Situation B	2,000
	Situation C	3,000

	Financial Plan		
Sources of Fund	***1***	***2***	***3***
Equity	₹ 5,000	₹ 7,500	₹ 2,500
Debt	₹ 5,000	₹ 2,500	₹ 7,500
Cost of debt	12 per cent per annum		

Solution: *Amount in ₹*

	A	***B***	***C***
S – VC	4,000	4,000	4,000
EBIT	3,000	2,000	1,000
Degree of Operative Leverage = (S – VC)/EBIT	1.33	2	4

FINANCIAL LEVERAGE

Situation A	**1**	**2**	**3**
EBIT	3,000	3,000	3,000
Less : Interest	600	300	900
EBT	2,400	2,700	2,100
Financial Leverage	1.25	1.11	1.43

Situation B

EBIT	2,000	2,000	2,000
Less : Interest	600	300	900
EBT	1,400	1,700	1,100
Financial Leverage	1.43	1.18	1.82

Situation C

EBIT	1,000	1,000	1,000
Less : Interest	600	300	900
EBT	400	700	100
Financial Leverage	2.5	1.43	10

Hamada Equation

The equation draws upon the Modigliani-Miller theorem on capital structure and extends an analysis to quantify the effect of financial leverage on a firm. Beta is a measure of volatility or systemic risk relative to the overall market. The Hamada equation, then, shows how the beta of a firm changes with leverage. The higher the beta coefficient, the higher the risk associated with the firm. The significant facets of Hamada equation are as under:

- The Hamada equation is a method of analysing a firm's cost of capital as it uses additional financial leverage.
- It draws upon the Modigliani-Miller theorem on capital structure.
- The higher the Hamada equation beta coefficient, the higher the risk associated with the firm.

Robert Hamada is a former professor of finance at the University of Chicago Booth School of Business. Hamada started teaching at the university in 1966 and served as the dean of the business school from 1993 to 2001. His equation appeared in his paper, "The Effect of the Firm's Capital Structure on the Systemic Risk of Common Stocks" in the Journal of Finance in May 1972.

The formula for the Hamada equation is:

$$\beta L = \beta u\left[1 + (1 - T)\left(\frac{D}{E}\right)\right]$$

Where:

ßL = Levered beta

ßu = Unlevered beta*

T = Tax Rate

D/E = Debt to Equity Ratio*

* Unlevered beta is the market risk of a company without the impact of debt.

* Debt-to-equity ratio is a measure of a company's financial leverage.

Illustration 15:

A company has a debt to equity ratio of 0.70:1.00, a tax rate of 34%, and an unlevered beta of 0.75. Calculate Hamada coefficient or leveraged beta.

Solution:

The Hamada coefficient or leveraged beta would be:

ßL = ßU [1+ (1-T) (D/E)]

0.75 [1 + (1-.34) (.70)] = 1.09

Here, the leveraged beta is 1.09,

It means that the financial leverage of the company increases the overall risk by the beta amount of 0.34 (1.09 less .75) or 34%.

Therefore, as the beta of the coefficient rises, the associated risk of having higher debt also rises.

LESSON ROUND-UP

- Capital Structure of a firm is a reflection of the overall investment and financing strategy of the firm. It shows how much reliance is being placed by the firm on external sources of finance and how much internal accruals are being used to finance expansions.
- Optimal capital structure means arrangement of various components of the structure in tune with both the long-term and short term objectives of the firm.
- The four Capital Structure Theories are—Net Income Approach, Net Operating Income Approach, Traditional Approach and Modigliani Miller Approach.
- Net income approach provides that the cost of debt capital, K_d and the cost of equity capital K_e remains unchanged when the degree of leverage, varies.
- Net Operating Income approach states that cost of the capital for the whole firm remains constant, irrespective of the leverage employed in the firm.
- Traditional Approach to capital structure advocates that there is a right combination of equity and debtin capital structure, at which market value of the firms is maximum.
- Modigliani and Miller have restated the net operating income position in terms of three basic propositions:

  Proposition I – The total value of a firm is equal to its expected operating income divided by the discount rate appropriate to its risk class.

  Proposition II – The expected yield on equity, Ke is equal to Ko plus a premium.

  Proposition III – The cut off rate for investment decision making for a firm in a given risk class is not affected by the manner in which the investment is financed.
- Leverage refers to relationship between two variables as reflected in a unit change in one variable consequent upon a unit change in another variable.
- Two major types of Leverages are: Financial leverage and operating leverage.
- Financial leverage measures the extent to which the cost of project has been funded by borrowed money as compared to owner's equity.
- EBIT –EPS Analysis indicates the projected EPS for different financial plans.

GLOSSARY

Optimal Capital Structure: An optimal capital structure is the best mix of debt and equity financing that maximizes a company's market value while minimizing its cost of capital.

Target Capital Structure: The target capital structure of a company refers to the capital which the company is striving to obtain. In other words, target capital structure describes the mix of debt, preferred stock and common equity which is expected to optimize the stock price of company.

Capital Structure Analysis: Capital structure analysis is a periodic evaluation of all components of the debt and equity financing used by a business. The intent of the analysis is to evaluate what combination of debt and equity the business should have.

Leverage Ratio: A leverage ratio is any one of several financial measurements that look at how much capital comes in the form of debt (loans) or assesses the ability of a company to meet its financial obligations.

Capital Structure Theory: In financial management, capital structure theory refers to a systematic approach to financing business activities through a combination of equities and liabilities. There are several competing capital structure theories, each of which explores the relationship between debt financing, equity financing, and the market value of the firm slightly differently.

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation)

1. What is the significance of capital structure? Describe its various kinds.
2. What points need to be kept in mind while deciding the capital structure of a firm?
3. Describe the process of planning and designing of capital structure.
4. Briefly discuss the theories of capital structure.
5. Illustrate the difference between operating leverage and financial leverage.
6. What factors determine the cost of capital?
7. Explain the various types and leverages and their significance in financial decision making.

LIST OF FURTHER READINGS

1. Capital Structure in Indian Corporate Sector by Niranjan Dhal,
2. Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice, H.Kent Baker, Geral S. Martin, Editors KOLB Series in Finance.
3. Corporate Finance and Capital Structure by Kentaro Asai.
4. Capital Structure Designing of Indian Companies by Raju Mondal, Palmview.
5. Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice by H. Kent Baker, Gerald S. Martin
6. Capital Structure in the Modern World by Anton Miglo

Dividend Decisions

Lesson 16

KEY CONCEPTS

■ Walter's Model ■ Gordon's Model ■ M.M. Approach

Learning Objectives

To understand:

- Dividend Policy
- Types of The Dividend Policies
- Determinants of Dividend Policy
- Dividend Relevance- Walter's Model, Gordon's Model
- Dividend Growth Model
- Dividend Irrelevance- Modigliani
- Stock Splits
- Share Repurchase

Lesson Outline

- Introduction
- Type/ Forms of Dividend
- Types of Dividend Policies
- Stock Splits
- Share Repurchase
- Determinants and Constraints of Dividend Policy
- Different Dividend Theories – (a) Walter's Model (b) Gordon's Model (c) Modigliani-Miller Hypothesis of Dividend Irrelevance Policy
- Case studies
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings

INTRODUCTION

Meaning of Dividend

The term dividend refers to that part of profits of a company which is distributed by the company among its shareholders. It is the reward of the shareholders for investments made by them in the shares of the company.

In other words, it is the return that a shareholder gets from the company out of profit on his shareholding.

According to the Institute of Chartered Accountant of India, "A dividend is a distribution to shareholders out of profit or reserves available for this purpose."

DIVIDEND POLICY

The term dividend policy refers to the policy concerning quantum of profit to be distributed as dividend. The concept of dividend policies implies that companies through their Board of Directors evolve a pattern of dividend payment which has a bearing on future action.

> "Dividend policy determines the division of earnings between payments to shareholders and retained earnings."
>
> ***-Weston and Brigham***

The dividend decision is not an easy task for the managers as dividend constitutes the cash flow that accrues to equity holders where as retained earnings are one of the most significant sources of funds for financing the corporate growth. Both dividend and growth are desirable but are conflicting goals to each other. Higher dividend means less retained earnings and vice versa.

The formulation of the dividend policy poses many problems. On the one hand theory would seem to dictate that the firm should retain all funds which can be employed at a higher rate than the capitalization rate; on the other hand, stock-holders preference must be considered.

KINDS (FORMS) OF DIVIDEND

Dividends can be classified in various forms. Dividends paid in the ordinary course of business are known as Profit dividends, while dividends paid out of capital are known as Liquidation dividends. Dividends may also be classified on the basis of medium in which they are paid:

A company may pay dividend in different forms which are shown in following figures as follows:

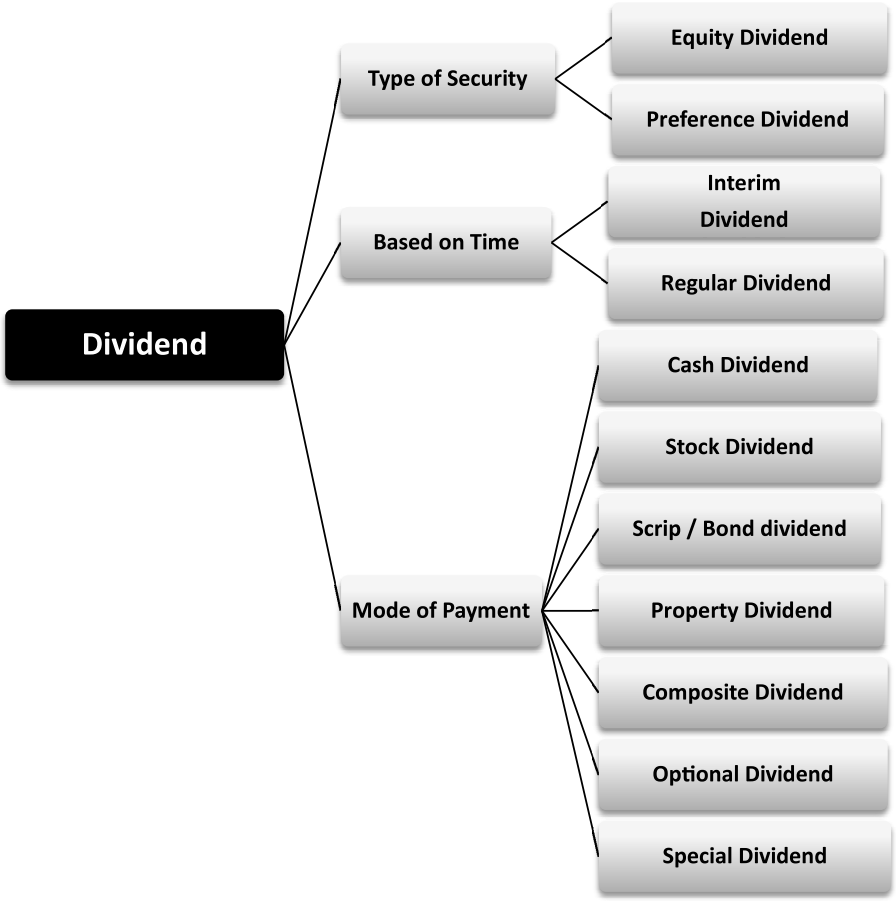


Fig.- 1 Different forms of Dividend

1) Equity Dividend:

The dividend paid on equity shares is called Equity Dividend. The rate of equity dividend is set (recommended) by the board of directors of a business firm and approved by their shareholders.

2) Preference Dividend:

Preference dividend is paid on Preference Shares. At the time of issue of such shares, the rate of dividend is mentioned which remains fixed in nature. This dividend on preference shares is paid before equity dividend. The board of directors of a business firm does not put any recommendation towards preference dividend viz. rate, payment mode etc.

3) Interim Dividend:

Interim dividend is paid by a company for the current year before the accounts for that period have been closed. Such dividend is paid when the company has heavy earning during the year.

4) Regular Dividend:

Payment of dividend at the usual rate is termed as regular dividend. The investors such as retired persons, widows and other economically weaker person prefer to get regular dividends.

5) Cash Dividend:

A cash dividend is a usual method of paying dividends. Payment of dividend in cash results in outflow of funds

and reduces the company's net worth, though the shareholders get an opportunity to invest the cash in any manner they desire. This is why the ordinary shareholders prefer to receive dividends in cash. But the firm must have adequate liquid resources at its disposal or provide for such resources so that its liquidity position is not adversely affected on account of cash dividends.

6) Stock Dividend:

Stock dividend means the issue of bonus shares to the existing shareholders. If a company does not have liquid resources it is better to declare stock dividend. Stock dividend amounts to capitalization of earnings and distribution of profits among the existing shareholders without affecting the cash position of the firm.

7) Scrip or Bond Dividend:

A scrip dividend promises to pay the shareholders at a future specific date. In case a company does not have sufficient funds to pay dividends in cash, it may issue notes or bonds for amounts due to the shareholders. The objective of scrip dividend is to postpone the immediate payment of cash. A scrip dividend bears interest and is accepted as a collateral security.

8) Property Dividend:

Property dividends are paid in the form of some assets other than cash. They are distributed under exceptional circumstances and are not popular in India.

9) Composite Dividend:

When dividend is paid partly in cash and partly in the form of property then it is known as composite dividend.

10) Optional Dividend:

Instead of paying composite dividend, if the company gives option to its shareholders either for cash dividend or for property dividend then it is called option dividend.

11) Extra or Special Dividend:

Special dividend is an abnormal and non-recurring form of dividend, when the management of company does not want to make frequent changes in the regular rate of dividend but company is having good amount of profits or undistributed reserves then they can declare extra or special dividend.

STOCK SPLITS

A stock split is a decision by a company's board of directors to increase the number of shares outstanding by issuing more shares to current shareholders. For example, in a 2-for-1 stock split, a shareholder receives an additional share for each share held. So, if a company had 10 million shares outstanding before the split, it will have 20 million shares outstanding after a 2-for-1 split. Generally a company announces a stock split when the price of the shares has risen to the point that it might be unappealing to investors who are more comfortable with lower-priced securities.

For investors, it can be pretty exciting to hear that a stock you own is about to be split, because a share price that is too high is a good problem to have and one that's typically confronted by successful and growing companies. While a split doesn't actually make your investment any more valuable in and of itself, a lower share price and the resulting increase in trading liquidity can certainly attract additional investors.

Stock Split Example

Suppose, a company has 2000 stocks each stock is worth 20 rupees. Now, if the company wants to increase the number of stocks, then it will split them. This means that the total number of stocks increases but there will be no impact on the cost of these stocks. Suppose, the company has split it in the ratio of 2:1, then:

Earlier, 1 stock = 20 rupees

After a 2:1 split,

1 stock= 10 rupees (per share price/number of parts in which split has occurred i.e. 20/2 here)

This means that the number of stocks will now be 4,000 but the total cost of stocks remains at 40,000.

Reason Behind Stocks Split

The following reasons facilitate this split:

1. One of the basic reasons behind the stock split is the inability of investors to afford the share. Once the share prices hit a specific high price, companies decide to go for a stock split since it will allow more investors to own stocks at a lower price.
2. Once the number of shares increases, it leads to greater liquidity in stocks. The increased liquidity eases trading for buyers and sellers without any major impact on share prices. Due to this companies can repurchase their shares at a lower cost as their order will not increase the share price of more liquid stock.
3. The number of shares owned by investors' increases. Now, after some time, when share prices reach a high, the investor will enjoy more profit.
4. Sometimes, the split is executed to meet the minimum criteria to stay listed on the exchange. This usually happens in the case of a reversed stock split.

SHARE REPURCHASE

A stock buyback occurs when a company buys back its shares from the marketplace with its accumulated cash. Also known as a share repurchase, a stock buyback allows a company to re-invest in itself. The repurchased shares are absorbed by the company, reducing the number of outstanding shares on the market. Because there are fewer shares on the market, the relative ownership stake of each investor increases.

Reasons of share repurchase:

- The board might feel that the company's stock is undervalued, making it a good investment.
- Investors often perceive a buyback as an expression of confidence by the company.
- If the excess cash is a windfall, the company may not want to commit to paying a dividend (if it doesn't already) or to increasing its existing dividend on an ongoing basis (if it already pays a dividend). An ongoing dividend can burden a company during lean times if it's maintained, and leave investors upset if it's cut.
- The company's large shareholders may not want the extra tax burden of an increased dividend. Unlike dividends, share-repurchase programs don't have immediate tax implications for shareholders, as there's no payment to investors.
- The company may wish to offset the dilution caused by generous employee stock-option plans.

Impact of a Share Repurchase

When a company buys back shares, the total number of shares outstanding diminishes. It paves the way for a few different phenomena.

First, technical analysis metrics such as earnings per share (EPS) or cash flow per share (CFPS) will increase due to a decrease in the denominator used to produce the figures. Thus, investors must be wary of the situation, as

EPS and CFPS will become artificially inflated – meaning that the increase cannot be attributed to economic value creation activities such as boosting earnings or cutting costs.

Second, following the concept of supply and demand, we can predict an increase in the stock price. Assuming that the demand for the stock remains constant in the face of a reduction in supply, we can project that the price of the stock will increase. Once again, investors must be wary of the phenomenon as it may not result from legitimate improvements in the business' financial health.

DETERMINANTS OF DIVIDEND POLICY

A company has to follows so many instructions and procedures for making a suitable dividend policy. These can be analyzed as follows:

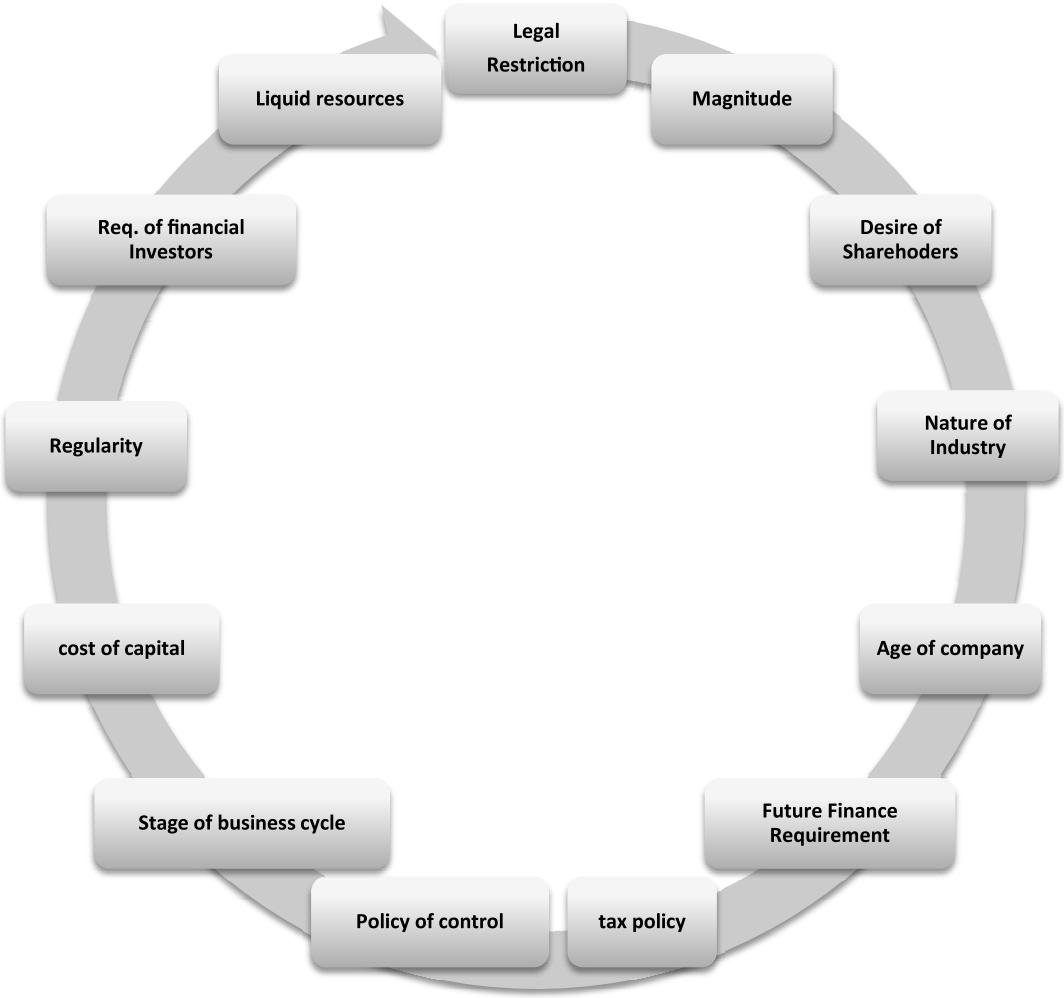


Fig.- 2 Determinants (Factors) of Dividend

1. Legal Restrictions:

As regards cash dividend policy several legal constraints bear upon it – a firm may not pay a dividend which will impair capital. Dividend must be paid out of firm's earnings/current earnings. Contract/ Agreements for bonds/loans may restrict dividend payments. The purpose of legal restriction is to ensure that the payment of dividend may not cause insolvency.

2. Magnitude and Trend of Earnings:

The amount and trend of earnings is an important aspect of dividend policy. It is rather the starting point of the dividend policy. As dividends can be paid only out of present or past year's profits, earnings of a company fix the upper limits on dividends. The dividends should, generally, be paid out of current year's earnings only as the retained earnings of the previous years because more or less a part of permanent investment in the business is to earn current profits. The past trend of the company's earnings should also be kept in consideration while making the dividend decision.

3. Desire and Type of Shareholders:

Although, legally, the discretion as to whether to declare dividend or not has been left with the Board of Directors, the directors should give importance to the desires of shareholders in the declaration of dividends as they are the representatives of shareholders. Desires of shareholders for dividends depend upon their economic status. Investors, such as retired persons, widows and other economically weaker persons view dividends as a source of funds to meet their day-to-day living expenses. To benefit such investors, the companies should pay regular dividends. On the other hand, a wealthy investor in a high income tax bracket may not benefit by high current dividend incomes. Such an investor may be interested in lower current dividends and high capital gains.

4. Nature of Industry:

Nature of industry to which the company is engaged also considerably affects the dividend policy. Certain industries have a comparatively steady and stable demand irrespective of the prevailing economic conditions.

5. Age of the Company:

The age of the company also influences the dividend decision of a company. A newly established concern has to limit payment of dividend and retain substantial part of earnings for financing its future growth and development, while older companies which have established sufficient reserves can afford to pay liberal dividends.

6. Future Financial Requirements:

It is not only the desires of the shareholders but also future financial requirements of the company that have to be taken into consideration while making a dividend decision. The management of a concern has to reconcile the conflicting interests of shareholders and those of the company's financial needs.

7. Taxation Policy:

High taxation reduces the earnings of the companies and consequently the rate of dividend is lowered down. Sometimes Government levies dividend-tax on distribution of dividend beyond a certain limit. It also affects the rate of capital formation.

8. Policy of Control:

Policy of control is another determining factor in so far as dividends are concerned. If the directors want to have control on company, they would not like to add new shareholders and therefore declare a dividend at low rate, because by adding new shareholders they fear dilution of control and diversion of policies and programmes of the existing management. So, they prefer to meet the needs through retained earnings. If the directors do not bother about the control of affairs they will follow a liberal dividend policy. Thus control is an influencing factor in framing the dividend policy.

9. Stage of business Cycle:

The demand for capital expenditure, money, supply, etc. changes during the different stages of a business cycle, as a result, dividend policy may fluctuate from time to time.

10. Cost of Capital:

If the cost of capital involved in external financing is greater than the cost of internally generated funds, a corporation adopts a conservative dividend policy.

11. Regularity:

Some corporations consider that regularity in payment of dividend is more important than anything else. They may use past earnings to pay dividends regularly irrespective of whether they have current profits or not.

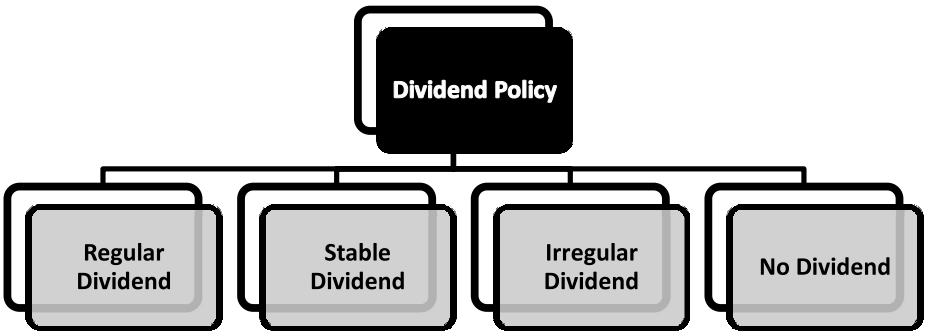
12. Requirements of Institutional Investors:

Dividend policy of a company can be affected by the requirements of institutional investors such as financial institutions, banks, insurance corporations, etc. These investors usually favor policy of regular payment of cash dividends and stipulate their own terms with regard to payment of dividend on equity shares.

13. Liquid Resources:

The dividend policy of a firm is also influenced by the availability of liquid resources. Although a firm may have sufficient available profits to declare dividends, yet it may not be desirable to pay dividends if it does not have sufficient liquid resources. Hence, the liquidity position of a company is an important consideration in paying dividends.

TYPES OF DIVIDEND POLICY



1) REGULAR DIVIDEND POLICY:

Payment of dividend at the usual rate is termed as regular dividend. The investors such as retired persons, widows and other economically weaker person prefer to get regular dividends.

A regular dividend policy offers the following advantages:

(a) It establishes a profitable record of the company.

(b) It creates confidence among the shareholders.

(c) It aids in long-term financing and renders financing easier.

(d) It stabilizes the market value of shares.

(e) The ordinary shareholders view dividends as a source of funds to meet their day-to-day living expenses.

(f) If profits are not distributed regularly and are retained, the shareholders may have to pay a higher rate of tax in the year when accumulated profits are distributed.

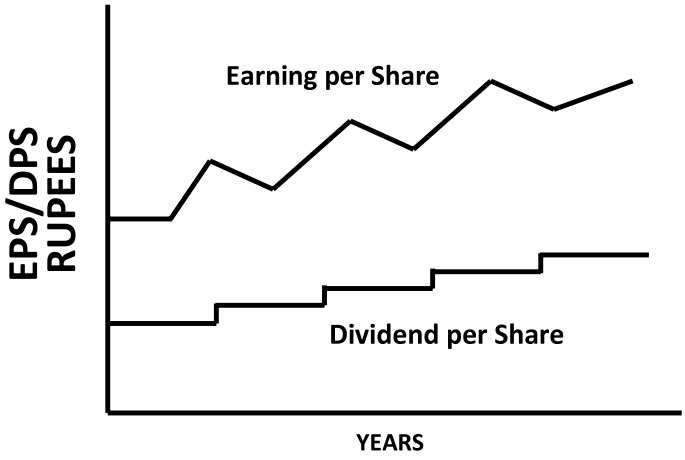
However, it must be remembered that regular dividends can be maintained only by companies of long standing and stable earnings. A company should establish the regular dividend at a lower rate as compared to the average earnings of the company.

2) STABLE DIVIDEND POLICY:

The term 'stability of dividend' means consistency or lack of variability in the stream of dividend payments. In more precise terms, it means payment of certain minimum amount of dividend regularly. A stable dividend policy may be established in any of the following three forms:

a) Constant Dividend Policy:

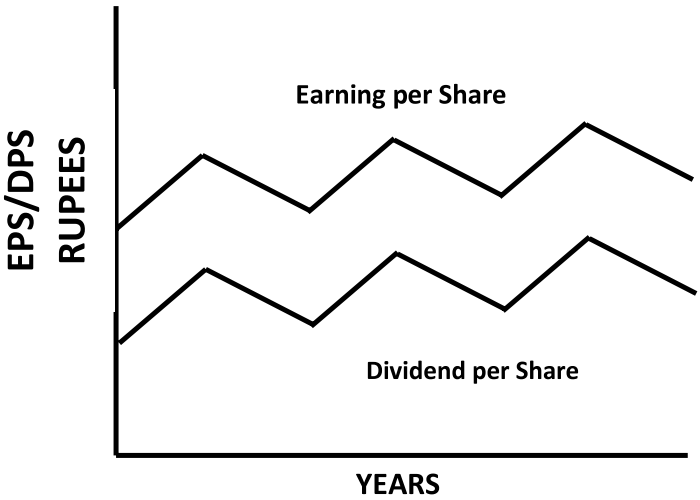
Some companies follow a policy of paying fixed dividend per share irrespective of the level of earnings year after year. Such, firms, usually, create a 'Reserve for Dividend Equalization' to enable them to pay the fixed dividend even in the year when the earnings are not sufficient or when there are losses. A policy of constant dividend per share is most suitable to concerns whose earning is expected to remain stable over a number of years.



Constant Dividend per share

b) Constant payout Ratio:

Constant pay-out ratio means payment of a fixed percentage of net earnings as dividends every year. The amount of dividend in such a policy fluctuates in direct proportion to the earnings of the company. The policy of constant pay-out is preferred by the firms because it is related to their ability to pay dividends.



Constant Dividend Pay-out Ratio

c) Stable Rupee Dividend Plus Extra Dividend:

Some companies follow a policy of paying constant low dividend per share plus an extra dividend in the years of high profits. Such a policy is most suitable to the firm having fluctuating earnings from year to year.

Advantages of Stable Dividend Policy:

A stable dividend policy is advantageous to both the investors and the company on account of the following:

i) It is sign of continued normal operations of the company.

ii) It stabilizes the market value of shares.

iii) It creates confidence among the investors.

iv) It provides a source of livelihood to those investors who view dividends as a source of funds to meet day-to-day expenses.

v) It meets the requirements of institutional investors who prefer companies with stable dividends.

vi) It improves the credit standing and makes financing easier.

vii) It results in a continuous flow to the national income stream and thus helps in the stabilization of national economy.

3) IRREGULAR DIVIDEND POLICY:

Some companies follow irregular dividend payments on account of the following:

i) Uncertainty of earnings

ii) Unsuccessful business operations

iii) Lack of liquid resources

iv) Fear of adverse effects of regular dividends on the financial standing of the company.

4) NO DIVIDEND POLICY:

A company may follow a policy of paying no dividends presently because of its unfavorable working capital position or on account of requirements of funds for future expansion and growth.

ESSENTIALS OF A SOUND DIVIDEND POLICY

Following are the essentials of a sound dividend policy of a company:

1. Stability:

Stability in dividend distribution implies regularity in payment of dividend. If a company pays high dividend in a year but fails to pay any dividend next year, then it can not be said as good. On the other hand, if a company pays dividend each year even though at a medium rate, its shareholders will remain satisfied and its shares will not be subjected to high speculation.

2. Gradually Rising Dividends:

The management of the company should always try to make some increase in dividend rate each year, though this increase will depend on increase in income of the company. If there are huge profits in any year then in that year the company should distribute additional or special dividend.

3. Distribution of Cash Dividend:

Dividend should be paid in cash. But, if the amounts of reserves and funds in the company become very high,

then stock dividend may also be declared. But the distribution of stock dividend should remain within reasonable limits otherwise the company may become victim of over-capitalization.

4. Moderate Start:

In the beginning years of company's incorporation, dividend should be declared at lower rates for some years so that company's financial position may become sound. Afterwards with the growth and progress of the company, dividend rates may be increased gradually.

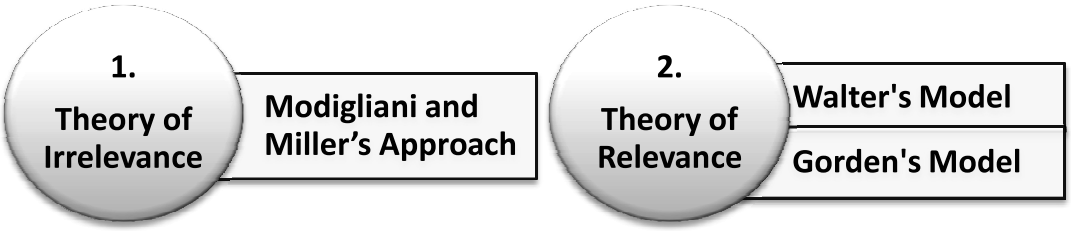
5. Other factors:

Dividend should be paid out of earned profits only. If there is carry forward of past losses, then dividend should not be declared till these are set off. Though, the dividend is usually paid only once in a year in order to keep the shareholders in high spirits, interim dividends should also be declared.

DIVIDEND THEORIES / DIVIDEND MODELS

Relationship between Dividend Policy and Value of Firm:

Dividend decision is a financial decision. There are conflicting theories regarding impact of dividend decision on the valuation of a firm. For the sake of convenience, these theories can be grouped into the following two categories:



1. IRRELEVANT CONCEPT OF DIVIDEND

MODIGLIANI AND MILLER'S APPROACH (M-M MODEL)

According to this theory, dividend decision is irrelevant so far as the valuation of the firm is concerned. The major argument indicating that dividends are irrelevant to the value of shares and the firm was first propounded by Franco Modigliani and Meston Miller in 1961.

According to Modigliani and Miller (M-M), dividend policy of a firm is irrelevant as it does not affect the wealth of the shareholders. They argued that the value of the firm depends on its earning potentiality and investment policy and not on the pattern of income distribution. Thus, when investment decision of the firm is given, dividend decision, *i.e.,* the split of earnings between dividends and retained earnings, is of no significance in determining the value of the firm.

As observed by M-M, "Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy may have no influence on the market price of the shares."

Assumptions of M-M Hypothesis

This hypothesis is based on the following assumptions:

1. The capital markets are perfect. Perfect capital markets imply that
   a) Information is freely available to all,

b) Transaction and floatation costs do not exist and

c) No investor is large enough to affect the market price of a share.

2. Investors behave rationally.

3. There are either no taxes or there are no differences in the tax rates applicable to dividends and capital gains. This means that investors value a rupee of dividend as much as a rupee of capital gains.

4. The firm has a fixed investment policy.

5. Risk or uncertainty does not exist, *i.e.,* investors are able to forecast future prices and dividends with certainty and one discount rate is appropriate for all securities at time periods.

Explanation of the Theory

The logic put forward by M-M in support of their hypothesis is that whatever increase in shareholders' wealth results from dividend payments, will be exactly offset by the decline in the market price of the shares because of external financing and, hence, there will be no change in the total wealth of the shareholders.

External financing results in 'increasing the number of shares' and 'fall in the future earnings per share'. Thus, whatever a shareholder is benefited in as a result of increased dividends will be neutralized completely on account of fall-in the value of shares due to decline in the expected earning per share as a result of external financing.

According to M-M hypothesis, the market value of a share in the beginning of the period is equal to the present value of dividends paid at the end of the period plus the market value of the share at the end of the period. This can be identified in the form of the following formula:

$$P_0 = \frac{D_1 + P_1}{1 + CR} \; and$$

$$P_1 = P_0(1 + CR) - D_1$$

Where, P0 = Market price at the beginning or at the 0 period.

P1 = Market price at the end of period 1.

CR (or Ke) = Capitalization rate of the firm or cost of equity capital.

D1 = Dividend per share at the end of period 1.

Illustration:

Show that the payment or non-payment of dividend does not affect the value of the firm as per MM approach with the help of the following information:

A company belongs to a risk class for which the appropriate rate of capitalization is 10%. The total number of equity shares is 30,000. The current market price of an equity share is Rs.80. The company is thinking to declare a dividend of Rs.4 per share at the end of the current year. The company expects to have a net income of Rs.3,00,000. It has proposal of making investment of Rs.6,00,000 in new proposals. If MM approach is adopted, show that payment or non-payment of dividend does not affect the value of equity shares of the company.

Solution:

Here, P0 = 80, D1 = Rs.4, CR = 10% or .1, P1 = ?

(A) When dividend is paid:

i) Price per share at the end of year 1:

$$P_0 = \frac{D_1 + P_1}{1 + CR}$$

$$80 = \frac{4 + P_1}{1 + 0.1}$$

88 – 4 = P1

P1 = Rs.84

ii) Value of the company:

a)	Amount needed for investments		Rs.6,00,000
	Less Profit retained:		
	Profit	3,00,000	
	Less Dividend (30,000 × Rs.4)	1,20,000	1,80,000
	Amount to be raised through new issue		4,20,000

b) No. of new shares = $\frac{\text{Rs.4,20,000}}{\text{Rs.84}}$ = 5,000 shares

c) Total No. of shares = 30,000 + 5,000 = 35,000

d) Value of Total Shares = 35,000 × Rs.84 = Rs.29,400,000

e) Value of the Firm = $\frac{\text{Value of total shares} - (\text{I} - \text{E})}{1 + \text{CR}}$

Where, I = Total investment required

E = Earnings during the period

Value = $\frac{29,40,000 - (6,00,000 - 3,00,000)}{1 + 0.1}$

Value = $\frac{26,40,000}{1.1}$

= Rs.24,00,000

(B) When dividend is not paid, total profit is retained and additional funds required for proposals are raised by issuing equity shares:

i) Price per share at the end of year 1:

$$P_0 = \frac{D_1 + P_1}{1 + CR}$$

P1 = Rs.88

ii) Value of the company:

a)	Amount needed for investments	Rs.6,00,000
	Less Profit retained	3,00,000
	Amount to be raised by new issue	3,00,000

b) No. of new shares = $\frac{Rs.3,00,000}{Rs.88}$ = 3,409 shares

c) Total no. of shares = 30,000 + 3,409 = 33,409

d) Value of total shares = 33,409 × Rs.88 = Rs.29,39,992

e) Value of the firm = $\frac{\text{Value of total shares - (I - E)}}{1 + CR}$

$$= \frac{29,39,992 - (6,00,000 - 3,00,000)}{1 + 1.1}$$

$$= \frac{26,39,992}{1.1}$$

= Rs.23,99,993 or Rs.24,00,000

Illustration:

Ram Company belongs to a risk class for which the appropriate capitalization rate is 12%. It currently has outstanding 30000 shares selling at Rs. 100 each. The firm is contemplating the declaration of dividend of Rs. 6 per share at the end of the current financial year. The company expects to have a net income of Rs. 3,00,000 and a proposal for making new investments of Rs. 6,00,000. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm. How many new shares issued and what is the market value at the end of the year?

Solution

$$P_0 = \frac{(D1 + P1)}{1 + ke}$$

P_0 = market price per share at 0 time

ke = capitalisation rate for firm in that risk class (assumed constant throughout)

D1 = dividend per share at time 1

P_1 = market price per share at time 1. In the given problem

Po = 100

D1 = r 6

P1 =?

ke = 12%

$$P_0 = \frac{(D1 + P1)}{1 + ke}$$

= 100(1.12) = 6 + P_1

OR

6 + P1 = 112

P1 = 112 – 6

P1 = ₹ 106

If Dividend is not declared

Ke = 12%, Po = 100, D1 = 0, P1 =?

100 = (0 + P1)

1+ 0.12

112 = P1

The following illustration shows the calculation of number of new shares to be issued/ Market Value of Firm when dividend is paid/not paid

	Dividends is Paid	***Dividends is not Paid***
Net Income (r)	3,00,000	3,00,000
Total Dividend (r)	1,80,000	Nil
Retained earning (r)	1,20,000	3,00,000
Investment required (r)	6,00,000	6,00,000
Amount to be raised from new shares (A) (r)	4,80,000	3,00,000
Relevant Market Price (B) (r)	106	112
No. of shares to be issued (A/B) (r)	4,528	2,679
Total number of shares at the end of the year	30,000	30,000
Total Number of shares	34,528	32,679
Market Price per share (r)	106	112
Market Value for shares (r)	36,60,000	36,60,000

There is no change in the total market value of shares whether dividends are distributed or not distributed.

Illustration:

Z Ltd. has 1,000 share at $100 per share. The company is contemplating a $10 per share dividend at the end of the year. It expects a net income of $25,000.

Required: Calculate the company's share price under the following conditions:

- Dividend declared
- Dividend not declared

Also, assuming that the company pays dividends and makes a new investment of $48,000 in the coming period, how many new shares will need to be issued to the Finance Investment Programme (as per the MM) approach with a 20% risk factor?

Solution:

The price of share can be expressed as follows:

$P_1 = P_0 (1 + k) - D_1$

When a dividend is not paid:

P_1 = \$100 (1 + 10) - 0

= 100 x 1.10

=\$110

When a dividend is paid:

P_1 = 100 (1 + .10) - 10

= \$100

New shares:

M x P_1 = i - (X - ND_1)

M x 100 = 48,000 - (25,000 - 10,000)

110M = 33,000

M = 33,000 / 100

M = 330 shares

Criticism of M-M Hypothesis

M-M hypothesis of dividend irrelevance is based on unrealistic assumptions, the most critical of which are as follows:

1. Perfect Capital Market:

Perfect capital market does not exist in reality. Information about the company is not available to all persons.

2. Tax Differential:

Taxes do exist and there are different rates of tax for capital gains and dividends. Capital gains are subject to lower tax rate compared to dividends. Hence, cost of internal financing will be cheaper than external financing. So, the shareholders would favor retention of earnings on account of tax differential.

3. Floatation Cost:

The firms have to incur floatation costs while raising funds from outside. Hence, external financing will be costlier than internal financing.

4. Transaction Costs:

The shareholders have to pay brokerage fee etc. on selling their shares. Moreover, it is inconvenient also to sell shares. Hence, shareholders would prefer to have dividend as compared to capital gains.

5. Uncertainty:

There is always uncertainty in the capital market. Hence, shareholders prefer present dividends to future dividends. Hence, the value of shares of that company would be higher than that of company which is following the policy of retention of earnings.

6. Rigid Investment Policy:

The firms do not follow a rigid investment policy.

All the above discussion proves that dividend decision is very relevant in affecting the value of firm and shares.

2. RELEVANCE CONCEPT OF DIVIDEND

WALTER'S APPROACH:

Prof. Walter's approach supports the doctrine that dividend decisions are relevant and affect the value of the firm. The relationship between the internal rate of return earned by the firm and its cost of capital is very significant in determining the dividend policy to sub serve the ultimate goal of maximizing the wealth of the shareholders.

Prof Walter's model is based on the relationship between the firms':

(i) Return on investment, i.e., r, and

(ii) The cost of capital or the required rate of return, i.e., k.

According to Prof Walter, *there are three types of firms as given below:*

1) Growth Firm **(When r > k):**

If the firm earns a higher rate of return in its investment than the required rate of return, the firm should retain the earnings. Such firms are termed as growth firms and the ***optimum pay-out would be zero*** in their case. This would maximize the value of shares.

2) Declining Firm (When r < k):

In case of declining firms which do not have profitable investments, the shareholders would stand to gain if the firm distributes its earnings. For such firms, the ***optimum pay-out would be 100%*** and the firms should distribute the entire earnings as dividends.

3) Normal Firm (When r = K):

In case of normal firm the dividend policy will not affect the market value of shares as the shareholders will get the same return from the firm as expected by them. For such firms, ***there is no optimum dividend payout*** and the value of the firm would not change with the change in dividend rate.

Walter's model is based on the following assumptions:

a) Internal financing:

The firm finances all investment through retained earnings; that is debt or new equity is not issued.

b) Constant return and cost of capital:

The firm's rate of return, r, and its cost of capital, k is constant.

c) 100 percent payout or retention:

All earnings are either distributed as dividends or reinvested internally immediately.

d) Constant EPS and DPS:

Beginning earnings and dividends never change. The value of the earnings per share, EPS, and the dividend per share, DPS, may be changed in the model to determine results, but any given values of EPS or DPS are assumed to remain constant forever in determining a given value.

e) Infinite time:

The firm has a very long or infinite life.

WALTER'S FORMULA FOR DETERMINING THE VALUE OF A SHARE

Prof. Walter has given the following formula to ascertain the market price of a share:

$$P = \frac{D + \left(\frac{R}{K_e}\right)(E - D)}{K_e}$$

Where, P = market price per share

D = dividend per share

r = internal rate of return

E = earnings per share

k_e = cost of equity capitalization rate.

Criticism of Walter's Model

Walter's model has been criticized on account of various assumptions made by Prof. Walter in formulating his hypothesis:

a) The basic assumption that investments are financed through retained earnings only is seldom true in real world. Firms do raise funds by external financing.

b) The internal rate of return, i.e., r, also does not remain constant. As a matter of fact, with increased investment the rate of return also changes.

c) The assumption that cost of capital (k) will remain constant also does not hold good. As a firm's risk pattern does not remain constant, it is not proper to assume that *k* will always remain constant.

d) The formula does not consider all the factors affecting dividend policy and share price. It ignores such factors as taxation, various legal obligations etc., Moreover, determination of market capitalization rate is difficult.

Illustration:

The earnings per share of a company are Rs.16. The market rate of discount (capitalization rate) to the company is 12.5%. Retained earnings can be employed to yield a return of 10%. The company is considering a payout of 25%, 50% and 75%. Which of these would maximize the wealth of shareholders?

Solution:

Wealth of shareholders will be maximized only when the market value of the share is maximized. For finding out the impact of the payout on market price per share, we have to use Walter's formula which is as follows:

$$V_e = \frac{D + \frac{R_a}{R_c}(E - D)}{R_c}$$

Where, $V_c = ?, \quad R_a = 10\% \ or \ .10, \quad R_c = 12.5\% \ or \ .125$

E = Rs.16 and

D = (i) 25% of Rs.16, i.e., Rs.4

(ii) 50% of Rs.16, i.e., Rs.8 and

(iii) 75% of Rs.16, i.e., Rs.12 per share.

Market value of share under different payout options:

(i) 25% payout:

$$V_e = \frac{4 + \frac{.10}{.125}(16-4)}{.125} = \frac{4+9.6}{.125} = \frac{13.6}{.125} = \text{ Rs.108.80 per share}$$

(ii) 50% Payout:

$$V_e = \frac{8 + \frac{.10}{.125}(16-8)}{.125} = \frac{8+6.4}{.125} = \frac{14.4}{.125} = \text{ Rs.115.20 per share}$$

(iii) 75% payout:

$$V_e = \frac{12 + \frac{.10}{.125}(16-12)}{.125} = \frac{12+3.2}{.125} = \frac{15.2}{.125} = \text{ Rs.121.60 per share}$$

The above computations show that the payout ratio of 75% would maximize the wealth of the shareholders.

Illustration:

The earnings per share of a company are Rs.8 and the rate of capitalization applicable to the company is 10%. The company has before it an option of adopting a payout ratio of 25% or 50% or 75%. Using Walter's formula of dividend payout, compute the market value of the company's share if the productivity of retained earnings is (A) 15%, (B) 10% and (C) 5%. Explain fully what inference can be drawn from the above exercise.

Solution:

Calculation of market value of the company's share under different payout options:

Walter's Formula:

$$V_e = \frac{D + \frac{R_a}{R_c}(E-D)}{R_c}$$

Here, $V_e = ?, \quad R_a = (a)\ 15\%\ or\ .15 \quad (b)\ 10\%\ or\ .10$

$(c)\ 5\%\ or\ 0.05, \quad R_c = 10\%\ or\ .10$

E = Rs.8 and D = (i) 25% of Rs.8, i.e., Rs.2

(ii) 50% of Rs.8, i.e., Rs.4 and

(iii) 75% of Rs.8, i.e., Rs.6 per share

(A) If productivity of retained earnings is 15%:

(i.e., Ra = 15% or .15)

i) If Payout Ratio is 25%:

$$V_e = \frac{2 + \frac{.15}{.10}(8-2)}{.10} = \frac{2 + 1.5 \times 6}{.10} = \frac{11}{.10} = \text{Rs.110 per share}$$

ii) If Payout Ratio is 50%:

$$V_e = \frac{4 + \frac{.15}{.10}(8-2)}{.10} = \frac{4 + 1.5 \times 4}{.10} = \frac{10}{.10} = \text{Rs.100 per share}$$

iii) If Payout Ratio is 75%:

$$V_e = \frac{6 + \frac{.15}{.10}(8-6)}{.10} = \frac{6 + 1.5 \times 2}{.10} = \frac{9}{.10} = \text{Rs.90 per share}$$

(B) If productivity of retained earnings is 10%: (i.e., Ra = 10% or .10)

i) If Payout Ratio is 25%:

$$V_e = \frac{2 + \frac{.10}{.10}(8-2)}{.10} = \frac{2 + 1 \times 6}{.10} = \frac{8}{.10} = \text{Rs.80 per share}$$

ii) If Payout Ratio is 50%:

$$V_e = \frac{4 + \frac{.10}{.10}(8-4)}{.10} = \frac{4 + 1 \times 4}{.10} = \frac{8}{.10} = \text{Rs.80 per share}$$

iii) If Payout Ratio is 75%:

$$V_e = \frac{6 + \frac{.10}{.10}(8-6)}{.10} = \frac{6 + 1 \times 2}{.10} = \frac{8}{.10} = \text{Rs.80 per share}$$

(C) If productivity of retained earnings is 5% (i.e.., Ra = 5% or .05)

i) If Payout Ratio is 25%:

$$V_e = \frac{2 + \frac{.05}{.10}(8-2)}{.10} = \frac{2 + .5 \times 6}{.10} = \frac{5}{.10} = \text{Rs.50 per share}$$

ii) If Payout Ratio is 50%:

$$V_e = \frac{4 + \frac{.05}{.10}(8-4)}{.10} = \frac{4 + .5 \times 4}{.10} = \frac{6}{.10} = \text{Rs.60 per share}$$

iii) If Payout Ratio is 75%:

$$V_e = \frac{6 + \frac{.05}{.10}(8-6)}{.10} = \frac{6 + .5 \times 2}{.10} = \frac{7}{.10} = \text{Rs.70 per share}$$

Illustration:

The Best Performers Ltd. which earns Rs. 10 per share, is capitalized 20% and has a return on investment of 25%. Determine the price per share, using Walter's model.

Solution:

P = D + r / K (E – D) / K

= 25% / 20% (Rs.10) / 20%

= Rs.12.50 / 20%

= Rs. 62.50

GORDON'S APPROACH

Myron Gordon has also been a proponent of relevance concept of dividends. He has developed a model explicitly for the valuation of equity shares based on the relationship of dividend policy and market value of the firm. His model is based on the following assumptions:

1) The firm is an all equity firm.
2) No external financing is available. Only retained earnings will be used to financing expansion.
3) The internal rate of return is constant.
4) The cost of capital (or discount rate) for the firm remains constant and it is greater than the grow rate, i.e., CR > br (or g).
5) The retention ratio, b, once decided upon, is constant.
6) The firm and its stream of earnings are perpetual. Thus, the growth rate, g = br, is constant for ever.
7) The corporate taxes do not exist.

According to Gordon, the market value of a share is equal to the present value of an infinite stream of dividends to be received by the shareholders on that share.

However, the dividend per share is expected to grow when earnings are retained and it is equal to payout ratio, (1 - b), times earnings, i.e., D = E (1 – b), where b is the retention ratio. The retained earnings are assumed to be reinvested within the all equity firm at a rate of return of r. This allows earnings to grow at the rate of g = br per period. When we incorporate growth in earnings and dividend, resulting from retained earnings, in the dividend-capitalization model, the present value of a share will be determined by the following formula:

$$V_e \quad \text{or} \quad P_0 = \frac{E(1-b)}{CR - br} \quad \text{or} \quad \frac{D}{CR - g}$$

Where, Ve = Price of equity share

E = Earnings per share

b = Retention Ratio or percentage of earnings retained

1 – b = D/P Ratio, i.e., percentage of earnings distributed as dividends

CR or Ke = Capitalization rate of the firm or Cost of equity capital

br = Growth rate in r = g, i.e., rate of return on investment on an all-equity firm

D = Dividend per share

The implications of Gordon's model are as follows:

1) In the case of a growth firm where r > CR, the price per share increases as the dividend payout ratio decreases. Thus, such firms should retain maximum earnings.

2) In the case of a declining form where r < CR, the price per share increases as the dividend payout ratio increases. Thus, the shareholders of such firm stand to gain if the firm distributes its earnings. For such firm, optimum payout would be 100%.

3) In the case of a normal firm, where r = CR, the price per share remains unchanged and is not affected by dividend policy. For such firm, dividend policy is irrelevant and hence there is no optimum dividend payout.

Illustration:

The following information is available in respect of the rate of return on investment, the cost of capital and earning per share of Arora Ltd.

Rate of return on investment (r) = (i) 15%; (ii) 12%; and (iii) 10%

Cost of Capital (CR) = 12%

Earning per share (E) = Rs.10

Determine the value of its shares using Gordon's Model assuming the following:

	D/p Ratio (1 – b)	**Retention Ratio (b)**
(a)	100	0
(b)	80	20
(c)	40	60

Solution:

Dividend Policy and the Value of Shares

(i) r = 15% (r > CR) (ii) r = 12% (r = CR) (iii) r = 10% (r < CR)

(a) When D/p ratio is 100% or b = 0

$$V_e = \frac{10\,(1-0)}{0.12-(0)\,(0.15)} \qquad V_e = \frac{10\,(1-0)}{0.12-(0)\,(0.12)} \qquad V_e = \frac{10\,(1-0)}{0.12-(0)\,(0.10)}$$

$$= \frac{10}{0.12} = \text{Rs.}83.33 \qquad = \frac{10}{0.12} = \text{Rs.}83.33 \qquad = \frac{10}{0.12} = \text{Rs.}83.33$$

(b) When D/p ratio is 80% or b = 0.20

$$V_e = \frac{10\,(1-0.20)}{0.12-(0.20)\,(0.15)} \qquad V_e = \frac{10\,(1-0.20)}{0.12-(0.20)\,(0.12)} \qquad V_e = \frac{10\,(1-0.20)}{0.12-(0.20)\,(0.10)}$$

$$= \frac{8}{0.09} = \text{Rs.}88.89 \qquad = \frac{8}{0.096} = \text{Rs.}83.33 \qquad = \frac{8}{0.1} = 80$$

(c) When D/p ratio is 40% or b = 0.60

$$V_e = \frac{10\,(1-0.60)}{0.12-(0.60)\,(0.15)} \qquad V_e = \frac{10\,(1-0.60)}{0.12-(0.60)\,(0.12)} \qquad V_e = \frac{10\,(1-0.60)}{0.12-(0.60)\,(0.10)}$$

$$= \frac{4}{0.03} = \text{Rs.}133.33 \qquad = \frac{4}{0.48} = \text{Rs.}83.33 \qquad = \frac{4}{0.06} = \text{Rs.}66.67$$

GORDON'S REVISED MODEL

Gordon revised his basic model to consider risk and uncertainty. He suggested that even when rate of return is equal to cost of capital, dividend policy affects the value of the shares on account of uncertainty of future, shareholders, discount distant dividends (capital gains) at a higher rate than they discount near dividends.

The crux of Gordon's arguments is a two-fold assumption:

(i) Investors are risk averse, and

(ii) They put a premium on a certain return and discount/penalize uncertain returns.

Hence, to avoid risk, the shareholders prefer near dividends than future ones. The logic underlying the dividend effect on the share value can be described as the bird-in-the hand argument as put forward by Gordon, thus contents that the dividend decision has a bearing on the market price of share. The market price of the share is favorably affected with more dividends.

Thus, in the context of uncertainty, the cost of capital (i.e., discount rate) can not be assumed to be constant. In fact, it increases with uncertainty. In other words, the appropriate discount rate would increase with the retention rate. The distant dividends would be discounted at a higher rate than near dividends. As the discount rate increases with length of time, a low dividend payment in the beginning will tend to lower the value of share in future. Hence, increasing the retention rate has the effect of raising the average discount rate, CR. and, therefore, the firm should set a high dividend payout ratio and offer a high dividend yield in order to minimize its cost of capital.

Thus, incorporating uncertainty into his model, Gordon concludes that dividends policy affects the value of the share. His revised model justifies the behavior of investors who

(i) are risk averters and

(ii) Value a rupee of dividend income more than a rupee of capital gains income.

However, all do not agree with his views. For finding dividend rate at future period, the following formula is used:

$$D1 = D0\ (1 + g)t$$

where, D1 = Dividend rate at given future time period

D0 = Dividend at period 0

g = Growth rate

t = Time period

For calculating market price of a share at some distant future, the following formula is applied:

$$P_1 = \frac{D_0\ (1 + g)}{CR - g} = \frac{D_1}{CR - g}$$

where, Pi = Market price per share (ex-dividend)

D0 = Current year dividend

g = Constant annual growth rate of dividends

CR (or Ke) = Cost of Equity Capital (or Expected Rate of Return)

D1 = Dividend at the end of year

For finding out cost of equity share, the following formula is applied:

$$K_e \text{ or } CR = \left(\frac{D_0\,(1+g)}{P_0} + g\right) \times 100 = \left(\frac{D_1}{P_0} + g\right) \times 100$$

Illustration:

The dividends of A & G Company Ltd. are expected to grow at a rate of 25% for 2 years, after which the growth rate is expected to fall to 5%. The dividend paid last year was Rs.2. The investor desires a 12% return. You are required to find the value of this stock.

PV Factor @ 12% is as under:

Year	1	2	3
Value	0.893	0.797	0.712

Solution:

Value of dividend at period Dt = D0 (1 + g)t

D0 = Dividend of last year (Rs.2 given)

D1 = Dividend of 1st year

D2 = Dividend of 2nd year

D3 = Dividend of 3rd year

g = Growth rate

CR = Expected Rate of Return

D1 = D0 (1 + g) = 2 (1 + 0.25) = Rs.2.50

D2 = D1 (1 + g) = 2.50 (1 + 0.25) = Rs.3.125

D3 = D2 (1 + g) = 3.125 (1 + 0.05) = Rs.3.281

Price of Stock at the end of second year = $\frac{D_3}{CR - g} = \frac{3.281}{0.12 - 0.05} = \frac{3.281}{0.07} = \text{Rs.}46.86$

Calculation of Present Value of Stock Price

Year	*Rs.*	*P.V.F. at 12%*	*P.V. (Rs.)*
1	2.50	0.893	2.23
2	3.125	0.797	2.49
3	46.86	0.797	37.34
	Present Value of Stock		42.06

LESSON ROUND-UP

- Dividend policy determines what portion of earnings will be paid out to stockholders and what portion will be retained in the business to finance long term growth.
- The amount of dividend payout fluctuates from period to period in keeping with fluctuations in the amount of acceptable investment opportunities available to the firm. if the opportunities abound, percentage of payout is likely to be zero; on the other hand, if the firm is unable to find out profitable investment opportunities, payout will be 100 per cent.
- Walter's model: prices reflect the present value of expected dividend in the long run. a firm is able to earn a higher return on earnings retained than the stockholder is able to earn on a like investment then it would appear beneficial to retain these earnings all other things being equal.
- Modigliani Miller Approach: According to MM, the discounted value per share before and after a dividend payment will be same as if earnings had been retained
- Dividend Policy is determined by the Board of Directors having taken into consideration a number of factors which include legal restrictions imported by the Government to safeguard the interest of various parties or the constituents of the company.
- An appropriate dividend policy must be evaluated in the light of the objectives of the firm.
- A stock split is a decision by a company's board of directors to increase the number of shares outstanding by issuing more shares to current shareholders.
- A stock buyback occurs when a company buys back its shares from the marketplace with its accumulated cash it also known as a share repurchase.

GLOSSARY

Cash Dividend: Cash dividends are the most common and popular form of dividend payouts. The company issues a dividend to all shareholders. The cash dividend amount is deposited into the bank account of the shareholder as per their shareholding.

Stock Dividend: Through stock dividend payouts, a company issues additional shares to its common shareholders without any consideration.

Scrip Dividend: In a scenario where the company does not have enough dividends, it may issue a promissory note. A promissory note that is indicating to pay dividends at a later date. Essentially, this creates note payables for the company.

Stable Dividend Policy: A stable dividend policy involves fixing a certain amount of dividend that the shareholders periodically receive. Even if the company incurs a loss, the amount of dividend does not change.

Regular Dividend Policy: In a regular dividend policy, the company fixes a certain percentage of dividend from the company's profits. When the profits are high, the dividend payment will automatically be high. While the profits are low, the dividend payment will remain low. Experts usually considers this to be the most appropriate policy for paying dividends and creating goodwill.

Interim Dividend: An interim dividend is a dividend payment during a fiscal year to the shareholders. In other words, it is the payment of dividends before the annual audit of financial statements.

TEST YOURSELF

OBJECTIVE TYPE QUESTIONS

1. If Ra < Rc, the optimum dividend policy requires.....payout ratio.
2. A firm having Ra > Rc can be termed as.....
3. According to M.M. Approach, the dividend decision is.....
4. A company's payout ratio is 10%, dividend policy is .....
5. According to .... Model, he dividend decision is irrelevant.
6. According to MM Approach, a company's dividend policy as irrelevant and does not affect the .....of the shareholders.

Answer-

1. 1oo%
2. Growth Firm
3. Irrelevant
4. Conservative
5. M.M.
6. Wealth

ESSAY TYPE QUESTIONS

1. What is Dividend Policy? Examine the various factors determining the sound dividend policy of a joint stock company.
2. Explain the factors determining the dividend policy of a company.
3. What considerations are kept in view while deciding the dividend policy of a company? Explain.
4. What is dividend policy? Critically examine the essentials of a sound dividend policy.
5. Explain the relevance concept of dividend policy. Describe Walter's formulas regarding dividend policy.
6. Discuss the significance of dividend policy in business decisions. How can dividend policy decision influence value of the firm?
7. How would you formulate a stable dividend policy? What are the factors which affect the dividend policy?
8. What steps as a corporate executive would you suggest to the management for following an appropriate dividend policy for your company that may be appreciated by the investors in general? Give reasons for your recommendations.
9. How would you justify elimination of dividend entirely as a policy of your company to your shareholders? Under what circumstances a company should follow such a dividend policy?

PRACTICAL TYPE QUESTIONS

Question 1. A Company belongs to a risk class for which the capitalization rate is 20%. Its total number of existing shares is 1,00,000 at a selling price of Rs.100 each. The company is thinking to declare dividend of Rs.5 per share at the end of the current year. Using the Modigliani and Miller Model and assuming no taxes, answer the price of equity share at the end of the year, when (i) dividend is declared and (ii) dividend is not declared. Explain that whether dividend is paid or not, the wealth of shareholders is equal.

Answer. (i) 115, (ii) 120

Question 2. A Ltd. has 25,000 equity shares outstanding and its shareholders' expected rate of return is 10%. The current market price of a share is Rs.100. It is expected that the firm would pay dividend of Rs.5 per share in the next year. The firm has project in hand requiring new investment of Rs.5,00,000. The expected net income of the firm is Rs.2,50,000. Calculate the market value of the firm under both the conditions, i.e., when dividends are paid and are not paid. Also calculate the number of equity shares to be issued to meet the financial requirement of the new investment policy.

Answer. When dividend are paid MP = 105, No. of additional shares 3571.42

When dividend are not paid MP = 110, No. of additional shares 2272.72

Question 3. A Ltd. had 50,000 equity shares of Rs.10 each outstanding on Jan. 1, 1999. The shares are currently quoted at par in the market. The company now intends to pay dividend of Rs.2 per share for the current year. It belongs to a risk class, whose capitalization rate is 15%.

Using MM Model and assuming no taxes, ascertain the price of the company's share at the end of the year (i) When dividend is declared and (ii) when no dividend is declared. Also find out the number of new equity shares that the company must issue to meet its investment needs of Rs.2 lakhs assuming net income of Rs.1.1 lakhs.

Show that the payment or non-payment of dividend does not affect the value of the firm as per MM approach.

Answer Value of the firm = 5,00,000

Question 4. The earnings per share of a company are Rs.20. The capitalization rate is 15% and retained earnings can be employed to yield a return of 18%. The company is considering a payout of 25%, 50% and 75%. Which of these would maximize the wealth of shareholders?

Answer 153.33, 146.67, 140

Question 5. The par value of equity shares of PG Ltd. is Rs.100 per share. The company's earning per share is Rs.15. The rate of capitalization in the market is 15%. The following are the alternatives before the management regarding dividends:

a) If payout ratio is zero per cent

b) If payout ratio is 20 per cent

c) If payout ratio is 40 percent and

d) If payout ratio is 60 percent

In the above circumstances which alternative do you consider the best if the productivity of retained earnings is (a) 20%, (b) 15% and (c) 10%.

Answer. Retained earning is 20%, (133.33, 126.67, 120, 123.33), By retained earning is 15% (100, 100, 100, 100), If retained earning is 10% (66.67, 73.33, 80, 86.67)

Question 6. AR Company earns Rs.5 per share. Its rate of capitalization is 10% and rate of return on investment is 18%. According to Walter's formula, what should be the price per share at 25% dividend payout ratio? Is this the optimum payout ratio according to Walter?

Question 7. Calculate the market price of a share of Gupta ltd. under

(i) Walter's formula and (ii) Dividend growth model from the following data:

Earning per share	Rs.5
Dividend per share	Rs.3
Cost of Capital	60%
Internal rate of return on investment	20%
Retention ratio	50%

Answer. 34.37, 41.67

CASE STUDY

Question 1: SK Company has 1,000 000 outstanding equity shares at the beginning of the accounting year. The price per share on the market right now is Rs. 150. At the end of the current fiscal year, the company's BOD is considering paying a dividend of Rs. 8 per share. The company's capitalization rate is 12%, which is adequate for the risk class it is in.

a) Determine the market price per share of the company using the Modigliani-Miller Approach when the anticipated dividend is (i) announced and (ii) not declared.

b) Assuming a net income of Rs. 2 Cr. for the year, how many new shares will the firm issue at the end of the accounting year? The investment budget is Rs. 4 Cr., of which (i) the aforementioned dividends were dispersed and (ii) they were not.

c) Demonstrate that whether or not dividends are distributed, the overall market value of the shares at the conclusion of the accounting year will stay the same. Additionally, ascertain the firm's current market value in both scenarios.

Answer:

a) i) 160, ii) 168

b) i) 1,75000 ii) 1,19050

c) 15,00,000

Question 2: Following are the details of three companies' i.e. A Ltd. B Ltd. and C Ltd. All the three companies are from steel sector and having same earning. The market capitalization rate is 10%. The internal rate of return is different for each company as mentioned in the below table:

	A Ltd.	*B Ltd.*	*C Ltd.*
R_a	15%	10%	8%
R_c	10%	10%	10%
EPS	Rs. 10	Rs. 10	Rs. 10

Calculates the effect of dividend payment on the value of shares of each company under the following situations by using the Walter model and interpret your findings.

a. When no dividend is paid

b. When dividend is paid at Rs. 8 per share.

c. When dividend is paid at Rs. 10 per share.

a) 150, 100, 80

b) 230, 180, 160

c) 250, 200, 180

LIST OF FURTHER READINGS

- Financial Management: Theory and Practice by Eugene F. Brigham
- Guide to Financial Management by John Tennent
- Financial Management: Theory and Practice, 10e by Prasanna Chandra
- Financial Intelligence: A Manager's Guide to Knowing What the Numbers Really Mean
- Financial Management by A. K. Arora
- Financial Management by I. M. Pandey

Working Capital Management

Lesson 17

KEY CONCEPTS

■ Meaning of working capital ■ Types of working capital ■ Cash Management ■ Inventory Management ■ Receivables Management

Learning Objectives

To understand:

- Concept of working capital
- Importance or advantages of working capital
- Factors determining the working capital
- Concept of negative working capital
- Management of working capital
- Estimation of working capital requirement
- Management of inventory
- Management of receivables
- Management cash
- Factoring
- Forfaiting

Lesson Outline

- Introduction
- Types of working capital
- Importance or advantages of working capital
- Factors determining the working capital
- Concept of negative working capital
- Management of working capital
- Estimation of working capital requirement
- Management of cash
- Management of inventory
- Management of receivables
- Working capital financing
- Bank norms and macro aspect
- Factoring
- Forfaiting
- Case Studies
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings
- Other References

INTRODUCTION

Capital required for a business can be classified under two main categories viz. Fixed Capital and Working Capital. Every business needs funds for two purposes – for its establishment and to carry out its day to day operations.

Long term funds are required to create production facilities through purchase of fixed assets such as plant, machine, land, building, furniture etc. Investment in these assets represents that part of the firm's capital which is blocked on a permanent or fixed basis and is called fixed capital. Funds are also needed for short-term purposes for the purchases of raw material, payment of wages, other day to day expenses etc. These funds are known as working capital.

In Simple Words: Working capital refers to that part of the firm's capital which is required for financing short-term or current assets such as- cash, marketable securities, debtors' and inventories funds. Thus investments in current assets keep revolving and are being constantly converted in to cash and this cash flow out again in exchange for other current assets. Hence, it is also known as revolving or circulating capital or short term capital.

In the words of Shubin: "Working Capital is the amount of funds necessary to cover the cost of operating the enterprise".

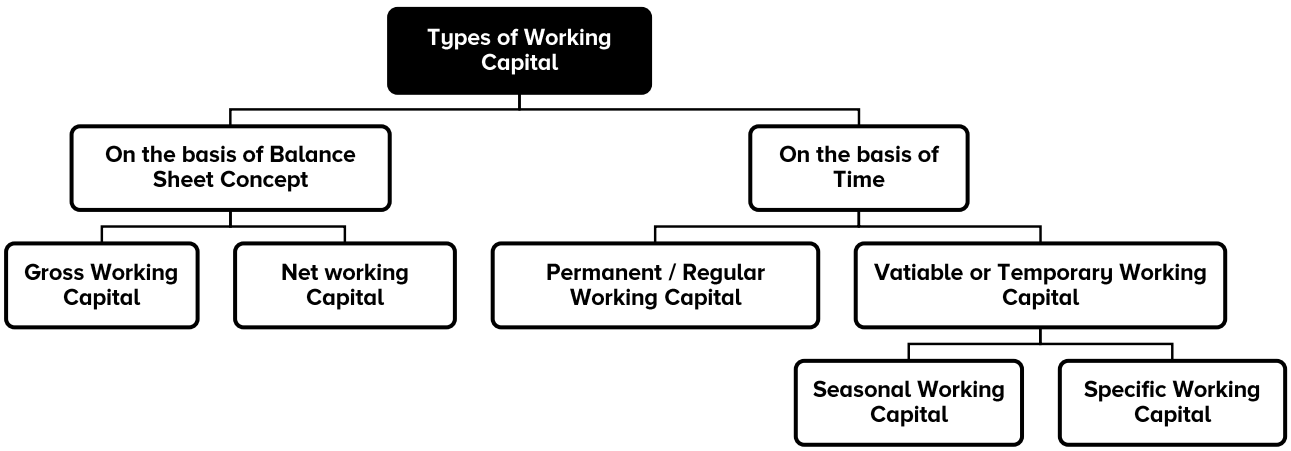
According to Genestenberg: "Circulating capital means current assets of a company that are changed in the ordinary course of business from one to another."

Working capital is needed for the following purposes —

1. For the purchase of raw materials, components and spares.
2. To pay wages and salaries
3. To incur day to day expenses and overhead costs such as fuel, power, office experiences etc.
4. To meet the selling cost as – Packing, Advertising etc.
5. To provide credit facilities to the customers
6. To maintain the inventories of raw material, work in progress, stores and spares and finished stock.

TYPES OF WORKING CAPITAL

Working capital can be classified either on the basis of Balance Sheet concept or on the basis of periodicity (Time) of its requirements.



1) On the Basis of Balance Sheet Concept:

On the basis of B/S concept, it may be either gross working capital or net working capital. Gross working capital is represented by the total current assets. The net working capital is the excess of current assets over current liabilities.

a) Gross Working Capital = Total Currents Assets (CA)

b) Net Working Capital = Current Assets – Current Liabilities

2) On the basis of Requirement:

According to Gerstenbergh, the working capital can be classified into two categories on the basis of time and requirement:

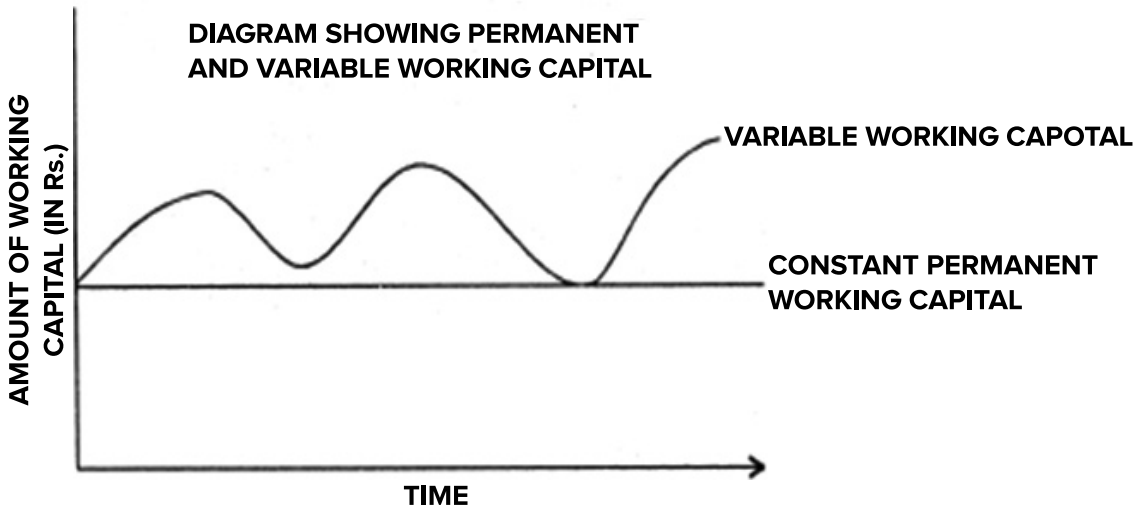
a) Permanent Working Capital:

It refers to the minimum amount of investment which should always be there in fixed or minimum current assets like inventory, accounts receivable, or cash balance etc., in order to carry out business smoothly. This investment is of a regular or permanent type and as the size of the firm expands, the requirement of permanent working capital also increases. Tondon Committee has referred to this type of working capital as “hard core working capital”.

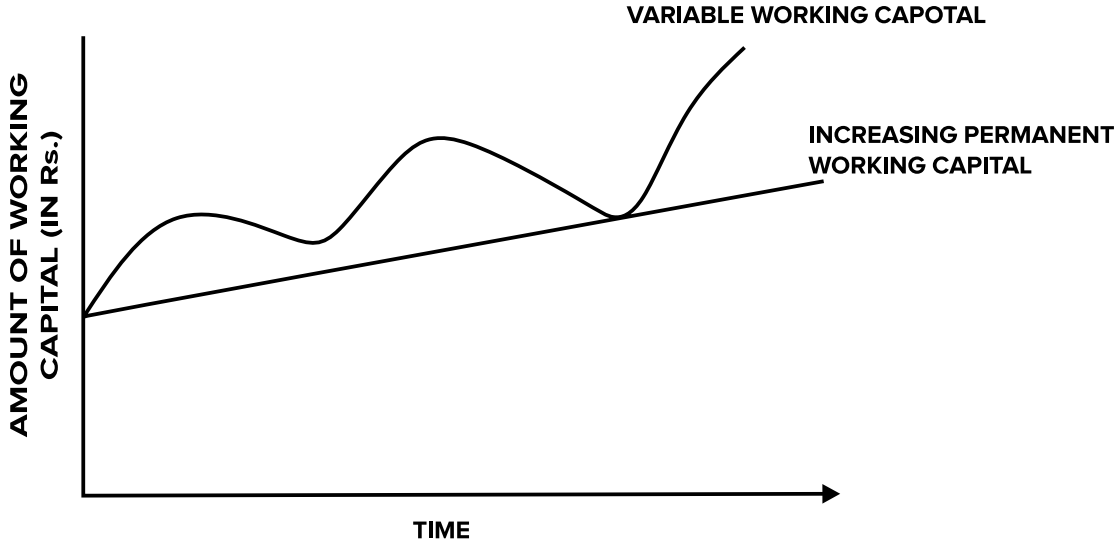
b) Variable Working Capital:

The excess of the amount of working capital over permanent working capital is known as variable working capital. The amount of such working capital keeps on fluctuating from time to time on variations in business activities. It may again be sub-divided into seasonal and special working capital. Seasonal working capital is required to meet the seasonal demands of busy periods occurring at stated intervals. On the other hand, special working capital is required to meet extraordinary needs for contingencies. Events like strike, fire, unexpected competition, rising price tendencies or initiating a big advertisement campaign require such capital.

The following diagram illustrates the difference between permanent and variable working capital:



The above is the case of a static company and in case of growing company permanent working capital requirement will be increasing as is shown in the figure given below:



IMPORTANCE OR ADVANTAGES OF WORKING CAPITAL

Working capital is the lifeblood and nerve center of a business. Just as circulation of blood is essential in the human body for maintaining life, working capital is very essential to maintain the smooth running of a business. No business can run successfully without an adequate amount of working capital. The main advantages of maintaining adequate amount of working capital are as follows:

1. ***Solvency of the Business:***

   Adequate working capital helps in maintaining solvency of the business by providing uninterrupted flow of production.

2. ***Goodwill:***

   Sufficient working capital enables a business concern to make prompt payments and hence helps in creating and maintaining goodwill.

3. ***Easy Loan:***

   A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and others on easy and favorable terms.

4. ***Cash Discounts:***

   Adequate working capital also enables a concern to avail cash discounts on the purchases and hence it reduces costs.

5. ***Regular Supply of Raw Material:***

   Sufficient working capital ensures regular supply of raw materials and continuous production.

6. ***Regular Payment of Salaries, Wages and Day to Day Commitments:***

   A company which has ample working capital can make regular payment of salaries, wages and other day-to-day commitments which raises the morale of its employees, increases their efficiency, reduces wastages and costs and enhances production and profits.

7. ***Exploitation of Favorable Market Conditions:***

   Only concerns with adequate working capital can exploit favorable market conditions such as purchasing its requirements in bulk when the prices are lower and by holding its inventories for higher prices.

8. ***Ability to Face Crisis:***

   Adequate working capital enables a concern to face business crisis in emergencies such as depression because during such periods, generally, there is much pressure on working capital.

9. ***Quick and Regular Return on Investments:***

   Every investor wants a quick and regular return on his investments. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors, as there may not be much pressure to plough back profits. This gains the confidence of its investors and creates a favorable market to raise additional funds in the future.

10. ***High Morale:***

    Adequacy of working capital creates an environment of security, confidence, high morale and creates overall efficiency in a business.

FACTORS DETERMINING THE WORKING CAPITAL

The working capital requirement may be calculated with following determinants:

1. ***Nature of Business:***

   The working capital requirements of a firm basically depend upon the nature of its business. Public utility undertakings like Electricity, Water Supply and Railways need very limited working capital because they offer cash sales only and supply services, not products, and as such no funds are tied up in inventories and receivables. On the other hand trading and financial firms require less investment in fixed assets but have to invest large amounts in current assets like inventories, receivables and cash; as such they need large amount of working capital.

2. ***Size of Business/Scale of Operations:***

   The working capital requirements of a concern are directly influenced by the size of its business which may be measured in terms of scale of operations. Greater the size of a business unit, generally larger will be the requirements of working capital.

3. ***Manufacturing Process/Length of Production Cycle:***

   In manufacturing business, the requirements of working capital increase in direct proportion to length of manufacturing process. Longer the process period of manufacturing, larger is the amount of working capital required.

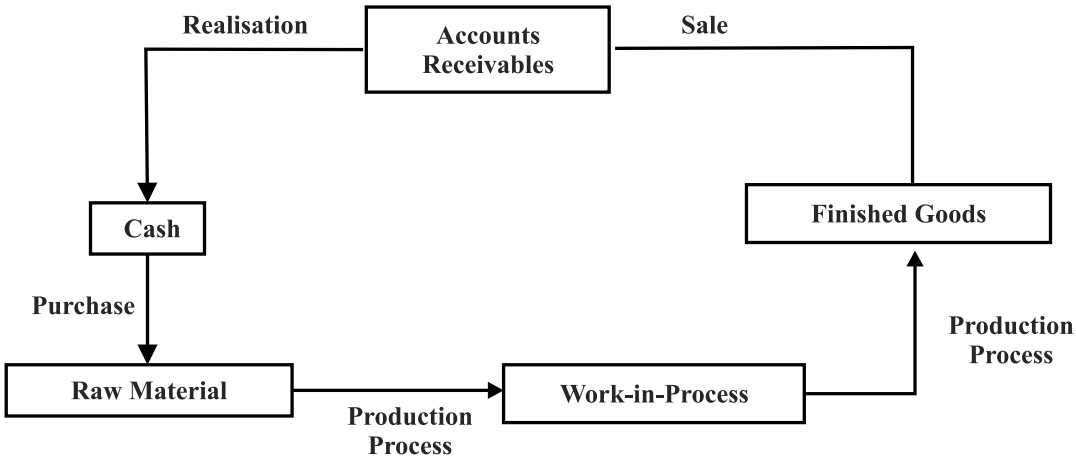
4. ***Seasonal Variations:***

   In certain industries raw material is not available throughout the year. They have to buy raw materials in bulk during the season to ensure an uninterrupted flow and process during the entire year.

5. ***Working Capital Cycle or Operating Cycle:***

   In a manufacturing concern, the working capital cycle starts with the purchase of raw material and ends with the realization of cash from the sale of finished products. This cycle involves purchase of raw materials and stores, its conversion into stocks of finished goods through work-in-progress with

progressive increment of labour and service costs, conversion of finished stock into sales, debtors and receivables and ultimately realization or cash and this cycle continues again from cash to purchase of raw material and so on.



The speed with which the working capital completes one cycle determines the requirement of working capital-longer the period of the cycle larger is the requirement of working capital.

6. ***Rate of Stock Turnover:***

There is a high degree of inverse co-relationship between the quantum of working capital and the velocity or speed with which the sales are effected. A firm having a high rate of stock turnover will need lower amount of working capital as compared to a firm having a low rate of turnover.

7. ***Firm's Credit Policy:***

The credit policy of a concern in its dealings with debtors and creditors influences considerably the requirements of working capital. A concern that purchases its requirements on credit and sells its products/services on cash requires lesser amount of working capital. On the other hand a concern buying its requirements for cash and allowing credit to its customers, shall need larger amount of working capital as very huge amounts of funds are bound to be blocked up in debtors or bills receivables.

8. ***Business Cycles:***

Business cycle refers to alternate expansion and contraction in general business activity. In a period of boom i.e., when the business is prosperous, there is a need for larger amount of working capital due to increase in sales, rise in prices, optimistic expansion of business, etc. On the contrary, in the times of depression i.e. when there is a downswing of the cycle, the business contracts sales decline, difficulties are faced in collections from debtors, and firms may have a large amount of working capital lying idle.

9. ***Rate of Growth of Business:***

The working capital requirements of a concern increase with the growth and expansion of its business activities. Although, it is difficult to determine the relationship between the growth in the volume of business and the growth in the working capital of a business, yet it may be concluded that for normal rate of expansion in the volume of business, we may have retained profits to provide for more working capital. But in fast growing concerns, we shall require larger amount of working capital.

10. ***Earning Capacity and Dividend Policy:***

Some firms have more earning capacity than others due to quality of their products, monopoly conditions, etc. Such firms with high earning capacity may generate cash profits from operations and

contribute to their working capital. The dividend policy of a concern also influences the requirements of its working capital.

11. ***Other Factors:***

In addition to the above considerations, there are a number of other factors which affect the requirements of working capital. Such as operating efficiency, management ability, irregularities to supply, import policy, asset structure, political stability, importance of labour banking facilities, etc., also influence the requirements of working capital.

THE CONCEPT OF NEGATIVE WORKING CAPITAL

Negative Working capital is a situation in which current liabilities of the company are higher than current assets. Generally negative working capital is a sign that the company may be facing bankruptcy or a serious financial trouble. Under the best circumstances, poor working capital leads to financial pressure on a company, increased borrowing, and late payments to creditor - all of which result in a lower credit rating. A lower credit rating means banks charge a higher interest rate, which can cost a corporation a lot of money over time. Companies with negative working capital may lack the funds necessary for growth.

Another situation is where companies can sell their inventory and generate cash so quickly that they actually have a negative working capital. These are companies which takes advance first against supply of goods or services.

McDonald's had a negative working capital of $698.5 million between 1999 and 2000). Amazon.com is another example. This happens because customers pay upfront and so rapidly that the business has no problems raising cash. In these companies, products are delivered and sold to the customer before the company even pays for them.

In order to understand how a company can have a negative working capital, let us take an example of Wal-Mart. Suppose Wal-Mart orders 500,000 copies of a DVD to Warner Brothers and they were supposed to pay within 30 days. What if by the sixth or seventh day, Wal-Mart had already put the DVDs on the shelves of its stores across the country? By the twentieth day, they may have sold all of the DVDs. Here, Wal-Mart received the DVDs, shipped them to its stores, and sold them to the customer (making a profit in the process), all before they had paid Warner Brothers! If Wal-Mart can continue to do this with all of its suppliers, it doesn't really need to have enough cash on hand to pay all of its accounts payable. As long as the transactions are timed right, they can pay each bill as it comes due, maximizing their efficiency.

The bottom line is that a negative working capital can also be a sign of managerial efficiency in a business with low inventory and accounts receivable (which means they operate on an almost strictly cash basis).

For detail analysis on negative working capital students can refer the case study:

"Negative working capital and its impact on profitability: A Case Study of HUL", *The Management Accountant,* March-2013, pp. 308-313 https://icmai.in/Knowledge-Bank/upload/case-study/2013/Negative-Working.pdf

MANAGEMENT OF WORKING CAPITAL

Working capital, in general practice, refers to the excess of current assets over current liabilities. Management of working capital, therefore, is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the inter-relationship that exists between them. In other words, it refers to all aspects of administration of both current assets and current liabilities.

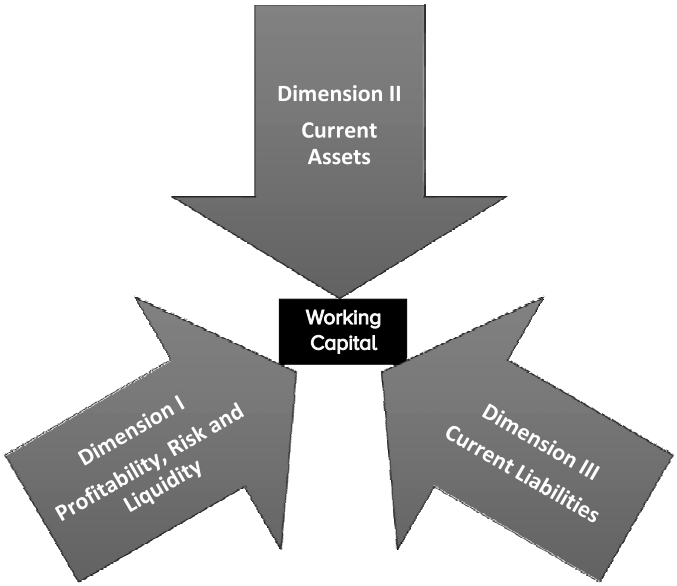
The basic goal of working capital management is to manage the current assets and current liabilities of a firm in such a way that a satisfactory level of working capital is maintained, i.e., it is neither inadequate nor excessive. This is so because inadequate as well as excessive working capital positions are bad for any business. Inadequacy of working capital may lead the firm to insolvency and excessive working capital implies idle funds which earn no profits for the business.

Working capital management policies of a firm have a great effect on its profitability, liquidity and structural health of the organization. In this context, *working capital management is three dimensional in nature:*

(i) Dimension I, is concerned with the formulation of policies with regard to profitability, risk and liquidity.

(ii) Dimension II is concerned with the decisions about the composition and level of current assets.

(iii) Dimension III is concerned with the decisions about the composition and level of current liabilities.



ESTIMATION OF WORKING CAPITAL REQUIREMENT

The most difficult problem that is faced by the finance manager is the determination of the amount of working capital required at a particular level of production. Following methods are used to estimate working capital requirement:

- Percentage (%) on Sales Method
- Regression Analysis Method
- Forecasting Net Current Assets Method
- Projected Balance Sheet Method
- Operating Cycle Method

Percentage (%) on Sales Method:

It is a traditional and simple method of determining the level of working capital and its components. Under this method, the relationship between sales and working capital is set over the years. As the sales of previous year is assumed base as 100% and all current assets and current liabilities of previous year are termed in proportion of sales percentage and on the basis of expected sales of future sales, the current assets and current liabilities will be calculated.

This method is simple, easy to understand and useful for projecting relatively short-term changes in working capital. However, this method cannot be recommended for universal application because the assumption of linear relationship between sales and working capital may not hold good in all cases.

Regression Analysis Method:

This is statistical method or technique which is applied to forecast working capital requirement. It is a useful statistical technique applied for forecasting working capital requirements. It helps in making working capital requirement projections after establishing the average relationship between sales and working capital and its various components in the past years. The method of least squares is used in this regard.

The relationship between sales and working capital is given by the equation:

Y = a + bx

Where,

x = Sales (independent variable)

y = Working capital level (dependent variable)

a = Intercept of the least square line with vertical axis

b = Slope of the line

The value of 'a' and 'b' are obtained by the solution of simultaneous linear equations given below:

$\Sigma y = na + b\Sigma x$

$\Sigma xy = a\Sigma x + b\Sigma x^2$

Illustration-1:

SK Ltd. provided the following information regarding to the sales and working capital for the 10 years from 2010 to 2019. You are requested to determine the working capital requirement for the year 2025 if the estimated sale is Rs. 300 crores.

(All figures in crores)

Sr. No.	*Year*	*Sales*	*Working Capital*	*Product of Sales & WC*	*Square of Sales (x)*
		(x)	*(y)*	*x*y*	*x2*
1	2011	100	55	5500	10000
2	2012	110	64	7040	12100
3	2013	121	80	9680	14641
4	2014	130	70	9100	16900
5	2015	150	90	13500	22500
6	2016	180	120	21600	32400
7	2017	181	100	18100	32761
8	2018	190	140	26600	36100
9	2019	230	150	34500	52900
10	2020	250	160	40000	62500
Gross	10	1642	1029	185620	292802
Total	Years				
Denotation	n	Σx	Σy	Σxy	Σx2

Solution:

Formula = Σy = na + bΣx	**Formula = Σxy = aΣx + bΣx2**
Will replace the formula with values we have	Will replace the formula with values we have
1029 = 10a + 1642b	185620 = 1642a + 292802b
Multiply by 1642	Multiply by 10
=> 1689618 = 16420a + 2696164 ———– Eq. (1)	=> 1856200 = 16420a + 2928020b ———– Eq. (2)

Subtract Eq. (1) from (2), we get,
166582 = 0 + 231856 b
b = 166582/231856 = 0.7185
Now, replace b = 0.7185 in our old eq. 1029 = 10a + 1642b
We get, **a = -15. 078**

Working Capital (x) = -15.078 + 0.7185 Sales (b)

Now, if the forecasted sales for the year 2025 are 300 crore, the working capital as per this method would be 200.472 crore. (Working Capital = -15.078 + 0.7185 * 300 = 200.472).

Forecasting Net Current Assets Method:

This is a very much popular method of computing working capital requirement. Under this method, all forecasted current assets and current liabilities are computed first then identify the net current assets (Total current assets – Total current liabilities). We may have few examples in form of illustrations for this method as follows:

Illustration-2:

A Performa cost sheet of a company provides the following particulars:

Element of Cost	*Amount per Unit (Rs.)*
Raw Material	80
Direct Labour	30
Overheads	60
Total	170
Profit	30
Selling Price	200

The following further particulars are available:

Raw materials are in stock on an average one month. Materials are in process, on an average half a month. Finished goods are in stock on average one month.

Credit allowed by suppliers is one month. Credit allowed to debtors is two months. Lag in payment of wages is 1½ weeks. Lag in payment of overhead expenses is one month.

One-fourth of the output is sold against cash. Cash on hand and at bank is expected to be Rs.25,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production.

You may assume that production is carried on evenly throughout the year, wages and overheads accrue similarly and a time period of four weeks is equivalent to a month.

Solution:

Statement of Working Capital Requirements Forecast

Current Assets:				***Rs.***
1.	Stock of Raw Materials (4 weeks)	(1,60,000 × 4)		6,40,000
2.	Stock of Finished Goods (4 weeks):		Rs.	
	Raw Material	1,60,000 × 4	6,40,000	
	Direct Labour	60,000 × 4	2,40,000	
	Overheads	1,20,000 × 4	4,80,000	13,60,000
3.	Work-in-Progress (2 weeks):			
	Raw Material	1,60,000 × 2	3,20,000	
	Direct Labour	60,000 × 1	60,000	
	Overheads	1,20,000 × 1	1,20,000	5,00,000
4.	Debtors (8 weeks):			
	Raw Material	1,20,000 × 8	9,60,000	
	Direct Labour	45,000 × 8	3,60,000	
	Overheads	90,000 × 8	7,20,000	20,40,000
5.	Cash Balance			25,000
				45,65,000
Less Current Liabilities:				
6.	Creditors for Raw Materials (4 weeks)	(1,60,000 × 4)	6,40,000	
7.	Lag in payment of wages (1½ weeks)	(60,000 × 1½)	90,000	
8.	Lag in payment of overheads (4 weeks)	(1,20,000 × 4)	4,80,000	12,10,000
9.	**Net Working Capital Required**			**33,55,000**

Illustration-3:

From the following information, prepare a statement showing the average amount of working capital required by Solvent Ltd., taking 360 days in a year.

Annual sales are estimated at 5,00,000 units at Rs.2 per unit. Production quantities coincide with sales and will be carried on evenly throughout the year and the production cost is:

Materials	Re. 1 per unit
Labour	Re. 0.40 per unit
Overheads	Re. 0.35 per unit

Customers are given 45 days' credit and 60 days' credit is taken from suppliers – 36 days' supply of raw materials and 15 days' supply of finished goods are kept.

Production cycle is 18 days and all material is issued at the commencement of each production cycle.

A cash balance equivalent to one-third of the average of other working capital requirement is kept for contingencies.

Solution:

Statement of Working Capital Requirements Forecast

Current Assets:			***Rs.***
1. Stock of Raw Materials	$\frac{18}{360}$ x 500000		50,000.00
2. Stock of Finished Goods	$\frac{15}{360}$ x 875000		36,458.33
3. Work-in-Progress:			
Material	$\frac{18}{360}$ x 500000	25,000	
Labour and Overheads	$\frac{18}{360}$ x 375000 x 50%	9,375	34,375.00
4. Debtors	$\frac{45}{360}$ x 875000		1,09,375.00
Total Current Assets excluding cash			2,30,208.33
Less Current Liabilities:			
Creditors of Raw Materials	$\frac{60}{360}$ x 500000		83,333.33
Other Working Capital Requirement			1,46,875.00
Add Cash for contingencies (1/3)			48,958.33
Working Capital Required			**1,95,833.33**

Note:

(i) Debtors have been taken at total cost of sales. Alternatively, they may be taken at selling price.

(ii) It has been assumed that labour and overheads are incurred evenly through out the production process.

Projected Balance Sheet Method:

Under this method, all estimated assets and liabilities are taken in consideration in form of Balance Sheet (excluding cash as it is to be calculated) with their forecasted figures. The balance of Liabilities over Assets will be the Cash, whereas the balance of assets over liabilities will be bank Overdraft.

We may understand the concept with the following illustration:

Illustration-4:

On 1st January, 2006, the board of directors of Littlemore & Co. desire to know the amount of working capital that will be required to meet the programme they have planned for the year. From the following information, prepare an estimate of working capital requirements and a forecast of Profit and Loss Account and Balance Sheet.

Issued Shared Capital	Rs. 2,00,000
8% Debentures	Rs. 50,000
Fixed Assets as on 1st Jan.	Rs. 1,25,000

Production during the previous year was 60,000 units and it proposed to maintain the same during 2006.

The expected ratios of cost to selling price are: raw materials 60%, direct wages 10%, and overheads 20%.

Following further information are available:

1) Raw materials are expected to remain in stores for an average of two months before issue to production.
2) Each unit of production is expected to be in process for one month.
3) Finished goods will stay in the warehouse awaiting dispatch to customers for approximately three months.
4) Credit allowed by creditors is two months from date of delivery of raw materials.
5) Credit given to debtors is three months from date of dispatch.
6) Selling price is Rs.5 per unit.
7) Sales and production follow a consistent pattern.

Solution:

Statement of Working Capital Requirement Forecast

Current Assets:			***Rs.***
Stock of Raw materials (2 months)	(60,000 × 3 × 2/12)		30,000
Stock of Finished Goods (3 months):			
Material	60,000 × 3 × 3/12	45,000	

Labour	60,000 × 0.5 × 3/12	7,500	
Overhead	60,000 × 1.0 × 3/12	15,000	67,500
Work-in-Progress (1 month):			
Material	60,000 × 3 × 1/12	15,000	
Labour	60,000 × 0.5 × 50% × 1/12	1,250	
Overhead	60,000 × 1 × 50% × 1/12	2,500	18,750
Debtors (3 months):			
Material	60,000 × 3 × 3/12	45,000	
Labour	60,000 × 0.5 × 3/12	7,500	
Overhead	60,000 × 1.0 × 3/12	15,000	67,500
			1,87,750
Less Current Liabilities:			
Creditors of Raw materials (2 months)	(60,000 × 3 × 2/12)		30,000
Net Working Capital Required			**1,53,750**

Forecast Profit & Loss Account

Particulars	***Rs.***	***Particulars***	***Rs.***
To Material	1,80,000	By Sales	3,00,000
To Direct Labour	30,000		
To Overheads	60,000		
To G.P. c/d	30,000		
	3,00,000		3,00,000
To Debenture Interest	4,000	By G.P. b/d	30,000
To Net Profit	26,000		
	30,000		**30,000**

Forecast Balance Sheet

Liabilities	*Amount Rs.*	*Assets*		*Amount Rs.*
Issued Capital	2,00,000	Fixed Assets		1,25,000
Profit Balance	26,000	Working Capital:		
5% Debentures	50,000	Current Assets:		
		Stocks:		
		Raw Materials	30,000	
		Work-in-Progress	18,750	
		Finished Goods	67,500	
			1,16,250	
		Debtors	75,000	
			1,91,250	
		Less Current Liabilities:		
		Creditors 30,000		
		Bank overdraft 10,250	40,250	1,51,000
	2,76,000			2,76,000

THE OPERATIONAL CYCLE METHOD CONCEPT AND APPLICATION OF QUANTITATIVE TECHNIQUES

This method of working capital forecast is based on the operational cycle concept of working capital. The operational cycle refers to the period that a business enterprise takes in converting cash back into cash. In the case of a manufacturing concern, the duration of time needed to complete the chain of events from cash to production and back to cash is termed as the "operating cycle". As an example, a manufacturing firm uses cash to acquire inventory of materials that is converted into semi-finished goods and then into finished goods. When finished goods are disposed of to customers, no credit accounts receivable are generated. When cash is collected from customers, we again have cash. At this stage one operating cycle is completed.

Thus, a circle from cash back to cash is called the 'Operating Cycle'. Each of the above operating cycle stage is expressed in terms of number of days of relevant activity and requires a level of investment to support it. The sum total of these stage-wise investments will be the total amount of working capital of the firm.

The following formula may be used to express the framework of the operating cycle:

$$t = (r - c) + w + f + b$$

where, t = stands for the total period of the operating cycle in number of days;

r stands for the number of days of raw material and stores consumption requirements held in raw materials and stores inventory

c stands for the number of days of purchases in trade creditors;

w stands for the number of days of cost of production held in work-in-progress;

f stands for the number of days of cost of sales held in finished goods inventory;

b stands for the number of days of sales in book debts.

The computations may be made as under:

$$r = \frac{\text{Average inventory of raw materials and stores}}{\text{Average per day consumption of raw materials and stores}}$$

$$c = \frac{\text{Average trade credutirs}}{\text{Average credit purchases per day}}$$

$$w = \frac{\text{Average work-in-progress}}{\text{Average cost of production per day}}$$

$$f = \frac{\text{Average inventory of finished goods}}{\text{Average cost of sales per day}}$$

$$b = \frac{\text{Average book debts}}{\text{Average sales per day}}$$

The average inventory, trade creditors, work-in-progress, finished goods and book debts can be computed by adding the opening and closing balances at the end of the year in the respective accounts and dividing the same by two. The average per day figures can be obtained by dividing the concerned annual figures by 365 or the number of days in the given period.

The operational cycle method of determining working capital requirements gives only an average figure. The fluctuations in the intervening period due to seasonal or other factors and their impact on the working capital requirements can not be judged in this method. To identify these impacts, continuous short-run detailed forecasting and budgeting exercises are necessary.

Illustration-5:

From the following information extracted from the books of a manufacturing company, compute the operational cycle in days:

Period Covered: 365 days

Average period of credit allowed by suppliers: 16 days

Average total of debtors outstanding	Rs. 4,80,000	
Raw material consumption	Rs. 44,00,000	
Total production cost	Rs. 1,00,00,000	
Total cost of sales	Rs. 1,05,00,000	
Sales for the year	Rs. 1,60,00,000	
Value of average stock maintained:		
Raw Material		3,20,000
Work-in-Progress		3,50,000
Finished Goods		2,60,000

Solution:

Computation of Operational Cycle

a) Materials Storage Period = $\frac{\text{Average Stock for the year}}{\text{Daily Average Consumption}}$

$= \frac{320}{4,400 \div 365} = \frac{320 \times 365}{4,400} =$ 27 days

Less Average Credit Period granted by suppliers = $\frac{16 \text{ days}}{11 \text{ days}}$

b) Production Process Period = $\frac{\text{Average W.I.P.}}{\text{Average Production Cost}}$

$= \frac{350}{10,000 \div 365} = \frac{350 \times 365}{10,000}$ = 13 days

c) Finished Goods Storage Period = $\frac{\text{Average Stock of Finished Goods}}{\text{Average Cost of Sales}}$

$= \frac{260}{10,500 \div 365} = \frac{260 \times 365}{10,500} =$ 9 days

d) Debtors Collection Period = $\frac{\textit{Average Debtors}}{\textit{Daily Average Sales}}$

$= \frac{480}{16,000 \div 365} = \frac{480 \times 365}{16,000}$ = 11 days

Operational Cycle Period = 44 days

Illustration-6:

The following information is available for SK Ltd.

Average stock of raw materials and stores	2,00,000
Average work-in-progress inventory	3,00,000
Average finished goods inventory	1,80,000
Average accounts receivable	3,00,000
Average accounts payable	1,80,000
Average raw materials and stores purchased on credit and consumed per day	10,000
Average work-in-progress value of raw materials committed per day	12,500
Average cost of goods sold per day	18,000
Average sales per day	20,000

Calculate the duration of operating cycle.

Solution

Calculation of operating cycle

Period of raw material stage	$\frac{2,00,000}{10,000}$	= 20 days
Period of work-in-progress stage	$\frac{3,00,000}{12,500}$	= 24 days
Period of finished goods stage	$\frac{1,80,000}{18,000}$	= 10 days
Period of Accounts receivable stage	$\frac{3,00,000}{20,000}$	= 15 days
Period of Accounts payable stage	$\frac{1,80,000}{10,000}$	= 18 days

Duration of operating cycle = (20 + 24 + 10 + 15) – 18 =51 days

MANAGEMENT OF CASH

Cash is one of the current assets of a business. It is needed at all times to keep the business going. A business concern should always keep sufficient cash for meeting its obligations. Any shortage of cash will hamper the operation of a concern and any excess of it will be unproductive. Cash is the most unproductive of all the assets. While fixed assets like machinery, plant, etc. and current assets such as inventory will help the business in increasing its earning capacity, cash in hand will not add anything to the concern.

Nature of Cash

For some persons, cash means only money in the form of currency (cash in hand). For other persons, cash means both cash in hand and cash at bank. Some even include near cash assets in it. They take marketable securities too as part of cash. These are the securities which can easily be converted into cash.

Cash itself does not produce goods or services. It is used as a medium to acquire other assets. It is the other assets which are used in manufacturing goods or providing services. The idle cash can be deposited in bank to earn interest.

Motives for holding Cash

1) **Transaction Motive**:

   A firm needs cash for making transactions in the day to day operations. The cash is needed to make purchases, pay expenses, taxes, dividends, etc. The need to hold cash would not arise if there were perfect synchronization between cash receipts and cash payment, i.e., enough cash is received when the payment has to be made.

2) **Precautionary Motive**:

   A firm is required to keep cash for meeting various contingencies. Though cash inflows and cash

outflows are anticipated, there may be variations in these estimates. For example, a debtor who was to pay after 7 days may inform of his inability to pay; on the other hand a supplier who used to give credit for 15 days may not have the stock to supply or he may not be in a position to give credit at present. In these situations cash receipts will be less than expected and cash payments will be more as purchases may have to be made for cash instead of credit. Such contingencies often arise in a business. A firm should keep some cash for such contingencies or it should be in position to raise finances at a short period. The cash maintained for contingency needs is not productive or it remains idle. However, such cash may be invested in short-period or low-risk marketable securities which may provide cash as and when necessary.

3) **Speculative Motive:**

The speculative motive relates to holding of cash for investing in profitable opportunities as and when they arise. Such opportunities do not come in a regular manner. These opportunities cannot be scientifically predicted but only conjectures can be made about their occurrence. For example, the prices of shares and securities may be low at a time with an expectation that these will go up shortly. The prices of raw materials may fall temporarily and a firm may like to make purchases at these prices. Such opportunities can be availed of if a firm has cash balance with it. These transactions are speculative because prices may not move in a direction; in which we suppose them to move. The primary motive of a firm is not to indulge in speculative transactions but such investment may be made at times.

FACTORS DETERMINING LEVEL OF CASH

Maintenance of optimum level of cash is the main problem around which the financial managers do the exercise of cash managements. Level of cash holding differs from industry to industry, organization to organization but the factors determining its level are common to all which can be summarized as follows:

1) **Credit Policy:**

Credit policy refers to the management policy in regard to allowing credit sales. It affects productivity and liquidity of the business considerably. If credit policy is liberal cash level will be higher and vice-versa.

2) **Nature of the Product:**

Nature of goods produced by the organization to a great extent exercises influence on cash reserves. If the produce comes in necessity class, the level of cash holding will differ in comparison to luxury necessity.

3) **Size and Area of Operation:**

Area of operation refers to the geographical area in which the organization is operating. If the organization is working on a large scale, it is quite possible that organization would have to keep higher cash balance. On the contrary, limited area of operations will require less cash balance.

4) **Duration of Production Cycle:**

It refers to the time period taken by the raw material to become finished product/marketable produce. In case of long production cycle, the level of cash holding is likely to be high and vice-versa.

5) **Policy followed by the Organization as to Disbursement of Salaries, Bonus, Dividend etc.:**

If salaries are being distributed after 15 days the organization would have to manage a high level of cash reserve, while the weekly payment of wages and salaries will require still more funds. On the contrary, monthly payments will reduce the need of funds.

6) **Relations with Banks and Credit Standing of the Firm:**

A firm managing proper relations with banks needs to carry less cash reserves to meet unpredicted cash outflow. Similarly, a firm whose credit standing is high can secure its supplies of materials on most suitable terms and finance a considerable part of its inventory through trade credit.

ADVANTAGES OF AMPLE CASH

The planning of cash is one of the primary responsibilities of financial management. In fact, cash is hub around which all financial matters cluster. A firm having sufficient cash balance can drive the following advantages from it:

1) **Maintenance of Goodwill:**

The goodwill and reputation of a business firm depends to a large extent on this fact that the firm retires all the obligations and meets the payments as and when they mature. It can be possible only when the firm maintains a good cash balance.

2) **Cash Discount can be Availed:**

If a firm has sufficient cash, it can avail cash discounts offered by the suppliers. It will lower down the raw material cost and finally the cost of production.

3) **Good Bank Relations:**

Commercial banks like to maintain good relations with such firms having high liquidity in funds. Such firms can avail credit facility from the banks at reasonable rate of interest.

4) **Exploitation of Business Opportunities:**

Firms having good cash position can exploit the business opportunities very well. They can take risk of entering into new ventures.

5) **Encouragement to New Investments:**

Firm having good cash position can maintain a sound cash dividend policy. This encourages the new investment in the shares of such firm because shareholders like cash dividend the most.

6) **Increase in Efficiency:**

Unless there is an adequate supply of cash, production can not be carried out smoothly. Uninterrupted production process increases labour efficiency.

CASH MANAGEMENT MODELS

One very important objective of cash management is to determine optimal cash balance, i.e., to ensure that cash does not remain idle unnecessarily and, at the same time, the firm is not confronted with a situation of cash shortage. The amount of cash balance will depend on the risk-return trade off. if the firm's cash balances are insufficient, its liquidity position will become weak but its profitability will improve as the released funds can be invested in marketable securities so that when the need arises, the firm can sell these to meet out its requirement. On the other hand, if the firm keeps high balances, its liquidity position will certainly improve but it will have to forego the potential profit on holding large cash balance. Hence, the firm should maintain optimum-cash balance, neither too much nor too little. The problem before a financial manager is to determine the optimum cash balance.

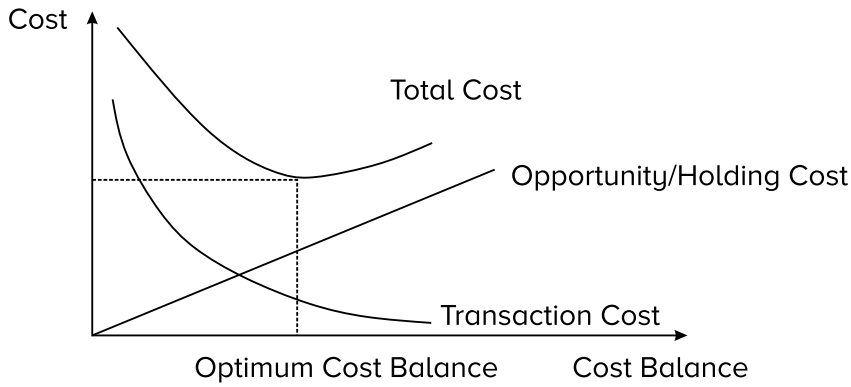
Various cash management models attempt to achieve the objective of cash management.

A brief description of these models is as follows:

(1) Optimum Cash Balance Under Certainty - Baumol's Mathematical Model:

Baumol's model provides a formal approach for determining a firm's optimum cash balance under certainty. It is based on the combination of inventory theory with monetary theory. This model is usually used in inventory management but has its application in determining the optimal cash balance also. In this model, cash is taken as an inventory item which flows out at a constant rate and is replenished instantaneously by borrowing or by selling securities. It is assumed that the size and timing of cash inflows are fully controllable to which transaction cost (fixed cost per order, i.e., cost of converting the securities into cash) and a variable carrying cost per rupee (in the form of opportunity cost of holding cash, i.e., the return on marketable securities) are attached. There is inverse relationship between the two costs as when one increases, the other decreases. Hence, the optimal cash balance is the trade off between opportunity cost and transaction cost and it is reached at a point where total cost is least.

The optimum cash balance is shown in figure given below:



Baumol's Model (Trade off between Holding Cost and Transaction Cost)

The following formula may be applied for calculating optimum cash balance:

$$C = \sqrt{\frac{2A \times F}{O}}$$

where, C = Optimum cash balance

A = Annual (or monthly) cash disbursements

F = Fixed cost per transaction

O = Opportunity cost of holding cash

Assumptions:

Baumol's model is based upon the following assumptions:

a) Cash needs of the firm are known with certainty.

b) Cash disbursements are uniform over a period of time and it is known with certainty.

c) The opportunity cost of holding cash and transaction cost of converting securities into cash are known and they remain constant.

However, inside the model is subject to unreal assumptions, it does not provide an applicable tool for cash management.

Illustration-7:

The annual cash requirement of XYZ Ltd. is Rs.10 lakh. The company has marketable securities in lot sizes of Rs.50,000, Rs.1,00,000, Rs.2,00,000 and Rs.2,50,000. Cost of conversion of marketable securities per lot is Rs.1,000. The company's opportunity cost of funds is 5% per annum.

You are required to prepare a table indicating which lot size will have to be sold by the company. Also determine economic lot size by Baumol Model.

Solution:

Table Indicating Lot Size

a)	Annual requirement of cash (Rs.)	10,00,000	10,00,000	10,00,000	10,00,000
b)	Lot size of securities (Rs.)	50,000	1,00,000	2,00,000	2,50,000
c)	No. of lot sizes (a ÷ b)	20	10	5	4
d)	Average holding of cash (b ÷ 2)	25,000	50,000	1,00,000	1,25,000
e)	Opportunity cost of funds (Rs.) (5% of d)	1,250	2,500	5,000	6,250
f)	Conversion cost per transaction (Rs.)	1,000	1,000	1,000	1,000
g)	Total conversion cost (Rs.) (c × f)	20,000	10,000	5,000	4,000
h)	Total cost (Rs.) (e ÷ g)	21,250	12,500	10,000	10,250

As total cost is minimum at lot size of Rs.2,00,000 and so it is economic lot size of selling securities. The company should make 10,00,000 ÷ 2,00,000 = 5 transactions regarding sale of marketable securities for conversion into cash during the yer.

Calculation of Economic Lot Size by Baumol Model:

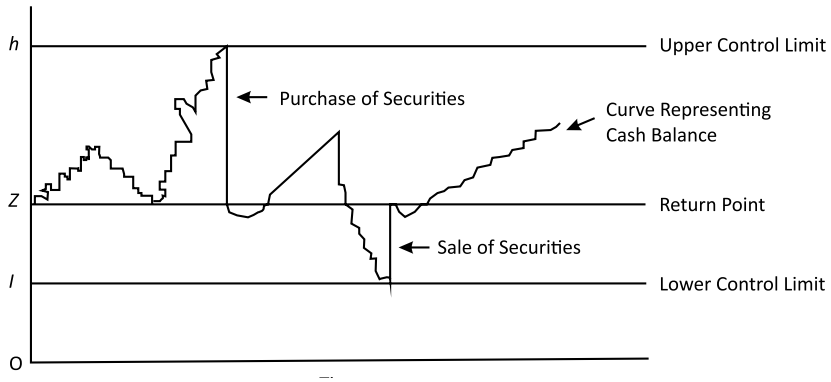
$$C = \sqrt{\frac{2A \times F}{O}} = \sqrt{\frac{2 \times 10,00,000 \times 1,000}{0.05}} = \text{Rs.}2,00,000$$

(2) Optimum Cash Balance Under Uncertainty or Stochastic Model – The Miller-Orr Model:

It helps to determine the optimal level of cash balance when the demand for cash is stochastic and not known in advance. In such a situation, Baumol's EOQ model is not applicable. When changes in cash balances occur randomly, the application of control theory serves a useful purpose. The Miller-Orr model is one of such control limit models. It deals with the cash management problem under the assumption of stochastic cash flows. Thus, this model is useful for firms with uncertain cash inflows and cash outflows. In this model, two control limits are set for cash balances. These limits may consists of as 'upper limit' 'h', 'z' as the return point and 'l' as the 'lower limit'. When cash balance reaches the upper limit, a transfer of cash equal to h-z is affected to marketable securities; when it touches the lower limit, a transfer from marketable securities to cash is made. During the period when cash balance stays between these high and low limits, no transaction between cash and marketable securities is made.

The high and low limits of cash balances are set on the basis of fixed costs associated with the securities transactions,

the opportunity cost of holding cash and the degree of likely fluctuation in cash balances. These limits satisfy the demand for cash at the lowest possible total cost. The model is illustrated in the following figure:



Miller-Orr Cash Management Model

We can see in the figure that when the balance reaches the upper limit, h-z amount of cash is invested in the marketable securities and then the new cash balance comes down to z rupees. When the balance touches l, l-z rupees of marketable securities are sold bringing the cash balance to z again. The minimum limit can be set at some amount higher than Zero also, and then h and z would move up in the figure. Setting up the lower limit at some positive amount would take care of delays in transfer from one account to another. The optimal value of z, the return point for security transactions can be determined as follows:

$$z = \sqrt[3]{\frac{3b\,\sigma^2}{4i}}$$

where, b = fixed cost associated with a security transaction

σ^2 = variance of daily net cash flows

i = interest rate per day on marketable securities.

The optimal value of h is simply 3z.

Upper Limit = Lower Limit + 3z

Return Point = Lower Limit + z

or = Upper Limit – 2z

Average Cash Balance = Lower Limit + z.

Illustration-8:

Amit Ltd. has a policy of maintaining a minimum cash balance of Rs.5,00,000. The standard deviation of the company's daily cash flows is Rs.2,00,000. The annual interest rate is 14%. The transaction cost of buying or selling securities is Rs.150 per transaction. Determine Amit's upper control limit and return point as per Miller-Orr Model.

Solution :

$$z = \sqrt[3]{\frac{3b\,\sigma^2}{4i}} = \sqrt[3]{\frac{3 \times 150 \times (2,00,000)^2}{4 \times 0.14/365}} = \sqrt[3]{\frac{450 \times 2,00,000^2}{4 \times 0.14/365}} = \text{Rs.}2,27,226$$

Upper Control Limit = Lower Limit + 3z

	=	5,00,000 + 3 × 2,27,226
	=	Rs.11,81,678
Return Point	=	Lopwer Limit + z
	=	5,00,000 + 2,27,226
	=	Rs.7,27,226
Average Cash Balance	=	Lower Limit + z
	=	5,00,000 + × 2,27,226
	=	Rs.9,02,968

MANAGING CASH FLOWS

After estimating the cash flows, efforts should be made to adhere to the estimates of receipts and payments of cash. Cash management will be successful only if cash collections are accelerated and cash disbursements, as far as possible, are delayed. The following methods of cash management help in managing cash:

(A) Methods of Accelerating Cash Inflows

1. ***Prompt Payment by Customers***:

   In order to accelerate cash inflows, the collections from customers should be prompt. This will be possible by prompt billing. The customers should be promptly informed about the amount payable and the time by which it should be paid. Another method for prompting customers to pay earlier is to allow them a cash discount.

2. ***Quick Conversion of Payment into Cash***:

   Cash inflows can be accelerated by improving the cash collecting process. Once the customer writes a cheque in favor of the concern the collection can be quickened by its early collection

3. ***Decentralized Collections***:

   A big firm operating over wide geographical area can accelerate collections by using the system of decentralized collections. A number of collecting centers are opened in different areas instead of collecting receipts at one place. Decentralized collection system saves mailing and processing time and, thus, reduces the financial requirements.

4. ***Lock Box System***:

   Lock box system is another technique of reducing mailing, processing and collecting time. Under this system, the firm selects some collecting centers at different places. The places are selected on the basis of number of consumers and the remittances to be received from a particular place. The firm hires a post box in a post office and the parties are asked to send the cheques on that post box number. A local bank is authorized to operate the post box.

(B) Methods of Slowing Cash Outflows

A company can keep cash by effectively controlling disbursements. The objective of controlling cash outflows is to slow down the payments as far as possible. Following methods can be used to delay disbursements:

1. ***Paying on Last Date***:

   The disbursements can be delayed on making payments on the last due date only. If the credit is for 10 days then payment should be made on 10th day only.

2. ***Payments through Drafts***:

   A company can delay payments by issuing drafts to the suppliers instead of giving cheques. When a cheque is issued then the company will have to keep a balance in its account so that the cheque is paid whenever it comes. On the other hand a draft is payable only on presentation to the issuer. The receiver will give the draft to its bank for presenting it to the buyer's bank. It takes a number of days before it is actually paid.

3. ***Adjusting Payroll Funds***:

   Some economy can be exercised on payroll funds also. It can be done by reducing the frequency of payments. It the payments are made weekly then this period can be extended to a month. Secondly, finance manager can plan the issuing of salary cheque and their disbursements.

4. ***Centralization of Payments***:

   The payments should be centralized and payments should be made through drafts or cheques. When cheques are issued from the main office then it will take time for the cheques to be cleared through post. The benefit of cheque collecting time is availed.

5. ***Inter-bank Transfer***:

   An efficient use of cash is also possible by inter-bank transfers. If the company has accounts with more than one bank then amounts can be transferred to the bank where disbursements are to be made. It will help in avoiding excess amount in one bank.

Illustration-9:

From the following budgeted figures, prepare a Cash Budget in respect of three months to June 30:

Months	*Sales Rs.*	*Materials Rs.*	*Wages Rs.*	*Overheads Rs.*
January	60,000	40,000	11,000	6,200
February	56,000	48,000	11,600	6,600
March	64,000	50,000	12,000	6,800
April	80,000	56,000	12,400	7,200
Mah	84,000	62,000	13,000	8,600
June	76,000	50,000	14,000	8,000

Expected Cash Balance on 1st April Rs.20,000. Other informations are as follows:

1) Materials and overheads are to be paid during the month following the month of supply.
2) Wages are to be paid during the month in which they are incurred.
3) Terms of Sales: The terms of credit sales are payment by the end of the month following the month of sales; ½ of the sales are paid when due, the other half to be paid during the next month.
4) 5% sales commission is to be paid within the month following actual sales.
5) Preference dividend for Rs.30,000 is to be paid on 1st May.
6) Share call money for Rs.25,000 is due on 1st April and 1st June.
7) Plant and Machinery worth Rs.10,000 is to be installed in the month of January and the payment is to be made in the month of June.

Solution:

Cash Budget

Period three months ending June

Details	April (Rs.)	May (Rs.)	June (Rs.)	
	Balance b/fd	20,000	32,600	- 5,600
Receipts:				
	Cash from debtors:			
	February Sales	28,000		
	March Sales	32,000	32,000	
	April Sales		40,000	40,000
	May Sales			42,000
	Share Call Money	25,000	–	25,000
	Total Cash Available (A)	1,05,000	1,04,600	1,01,400
Disbursements:				
	Materials	50,000	56,000	62,000
	Overheads	6,800	7,200	8,600
	Wages	12,400	13,000	14,000
	Sales Commission	3,200	4,000	4,200
	Preference Dividend		30,000	
	Payment for Plant and Machinery	–	–	10,000
	Total Disbursements (B)	72,400	1,10,200	98,800
	Closing Cash Balance (A – B)	**32,600**	**– 5,600**	**2,600**

Illustration-10

From the following forecasts of income and expenditure, prepare a cash budget for the half year ended on 30th June 2008:

Year	*Months*	*Sales (Credit) Rs.*	*Purchase (Credit) Rs.*	*Wages Rs.*	*Manufacturing Expenses Rs.*	*Administration Expenses Rs.*	*Selling Expenses Rs.*
2007	Nov.	25,000	10,000	2,500	1,100	1,000	600
	Dec.	30,000	15,000	2,800	1,200	975	650
2008	Jan.	20,000	10,000	2,000	1,250	1,060	550

Year	Months	Sales (Credit) Rs.	Purchase (Credit) Rs.	Wages Rs.	Manufacturing Expenses Rs.	Administration Expenses Rs.	Selling Expenses Rs.
	Feb.	25,000	15,000	2,200	1,150	1,040	650
	Mar.	30,000	17,500	2,400	1,300	1,105	750
	Apr.	35,000	20,000	2,600	1,350	1,120	800
	May	40,000	22,500	2,800	1,450	1,180	825
	June	45,000	25,000	3,000	1,500	1,185	875

1) A sales commission of 5% on sales and due two months after sales, is payable in addition to the above selling expenses.
2) Capital Expenditure – Plant purchased, 1st January for Rs.10,000, its payment being immediately due; Building purchased in January for RS.80,000, payable in two half-yearly installments, the first in February.
3) A dividend of Rs.5,000 (net) is payable in April.
4) Period of credit allowed by creditors and to customers is 2 months.
5) Lag in payment of wages – 1/8th month.
6) Lag in payment of other expenses – 1 month.
7) Cash Balance on January 1, 2008 was expected to be Rs.37,500.

Solution:

Cash Budget

Period half-year ending: 30th June 2005

	Months					
	Jan. Rs.	Feb. Rs.	Mar. Rs.	Apr. Rs.	May Rs.	June Rs.
Receipts:						
Balance b/d	37,500	36,325	4,790	8,575	6,595	11,550
Cash realized from debtors	25,000	30,000	20,000	25,000	30,000	35,000
Cash Available (A)	62,500	66,326	24,790	33,575	36,595	46,550
Payments:						
Accounts Payable (purchase)	10,000	15,000	10,000	15,000	17,500	20,000
Wages	2,100	2,175	2,375	2,575	2,775	2,975
Manufacturing Expenses	1,200	1,250	1,150	1,300	1,350	1,450
Administration Expenses	975	1,060	1,040	1,105	1,120	1,180

Selling Expenses	650	550	650	750	800	825
Sales Commission	1,250	1,500	1,000	1,250	1,500	1,750
Plant Purchased	10,000	–	–	–	–	–
Building Purchased	–	40,000	–	–	–	–
Dividend Paid	–	–	–	5,000	–	–
Cash Disbursements (B)	26,175	61,535	16,215	26,980	25,045	28,180
Closing Cash Balance (A – B)	**36,325**	**4,790**	**8,575**	**6,595**	**11,550**	**18,370**

Calculation of wages:

Delay in wages payment is 1/8 so the balance 7/8 will be realized in the same month.

Calculation for the month of Jan:

1/8 of the month of Dec. i.e. 1/8 (2800)	=	350
7/8 of the month of Jan. i.e. 7/8 (2000)	=	1750
Total	=	2100

The same procedure is used for other months

MANAGEMENT OF INVENTORY

The dictionary meaning of inventory is 'stock of goods'. The word 'Inventory' is understood differently by various authors. In accounting language it may mean stock of finished goods only. In a manufacturing concern, it may include raw materials; work in process, stores, etc. To understand the exact meaning of the word 'Inventory', we may study it from the usage side or from the side of point of entry in the operations. Inventory includes the following things:

a) Raw Material

b) Work-in-Progress

c) Consumables

d) Finished goods

e) Spares

Purpose/benefits of holding inventories

There are three main purposes of motives of holding inventories:

(i) **The Transaction Motive** which facilitates continuous production and timely execution of sales orders.

(ii) **The Precautionary Motive** which necessitates the holding of inventories for meeting the unpredictable changes in demand and supplies of materials.

(iii) **The Speculative Motive** which induces to keep inventories for taking advantage of price fluctuations, saving in re-ordering costs and quantity discounts, etc.

The investment in inventory is very high in most of the undertakings engaged in manufacturing, whole-sale and retail trade. The amount of investment is sometimes more in inventory than in other assets. About 90 per cent part of working capital is invested in inventories. It is necessary for every management to give proper

attention to inventory management. A proper planning of purchasing, handling, storing and accounting should form a part of inventory management. An efficient system of inventory management will determine (a) what to purchase (b) how much to purchase (c) from where to purchase (d) where to store, etc.

The purpose of inventory management is to keep the stocks in such a way that neither there is over-stocking nor under-stocking. The over-stocking will mean reduction of liquidity and starving of other production processes; under-stocking, on the other hand, will result in stoppage of work. The investments in inventory should keep in reasonable limits.

Objectives of inventory management

The main objectives of inventory management are operational and financial. The operational objectives mean that the materials and spares should be available in sufficient quantity so that work is not disrupted for want of inventory. The financial objective means that investments in inventories should not remain idle and minimum working capital should be locked in it. The following are the objectives of inventory management:

1) To ensure continuous supply of materials, spares and finished goods so that production should not suffer at any time and the customers demand should also be met.
2) To avoid both over-stocking and under-stocking of inventory.
3) To maintain investments in inventories at the optimum level as required by the operational and sales activities.
4) To keep material cost under control so that they contribute in reducing cost of production and overall costs.
5) To eliminate duplication in ordering or replenishing stocks. This is possible with the help of centralizing purchases.
6) To minimize losses through deterioration, pilferage, wastages and damages.
7) To design proper organization for inventory management. A clear cut accountability should be fixed at various levels of the organization.
8) To ensure perpetual inventory control so that materials shown in stock ledgers should be actually lying in the stores.
9) To ensure right quality goods at reasonable prices. Suitable quality standards will ensure proper quality of stocks. The price-analysis, the cost-analysis and value-analysis will ensure payment of proper prices.
10) To facilitate furnishing of data for short-term and long-term planning and control of inventory.

Risk associated with inventory

The risk in inventory management signifies the chance that inventories cannot be turned over into cash through normal sale without a loss. These risks are due to following three factors:

1. Price decline:

It may result from an increase in the market supply of products, introduction of a new competitive product and price reduction by competitors.

2. Product deterioration:

It may result due to holding a product too long or it may occur when inventories are held under improper conditions of light, heat, humidity and pressure.

3. Obsolescence:

It is sue to changes in customer taste, new production techniques, improvement in the product design, specifications etc.

Costs associated with inventory

The followings are the costs which are associated with inventory:

1. Material Cost
2. Ordering Cost
3. Inventory Carrying Costs
4. Stock-out or Shortage Costs

TOOLS AND TECHNIQUES OF INVENTORY MANAGEMENT

Effective inventory management requires an effective control system for inventories. A proper inventory control not only helps in solving the acute problem of liquidity but also increases profits and causes substantial reduction in the working capital of the concern.

The following are the important tools and techniques of inventory management and control:

1) Determination of Stock Levels
2) Determination of safety stocks
3) Selecting a proper System of Ordering for Inventory
4) Determination of Economic Order Quantity
5) A-B-C Analysis
6) VED Analysis
7) JIT Analysis
8) Inventory Turnover Ratio
9) Ageing Schedule of Inventories
10) Perpetual Inventory System

Determination of Stock Levels, Safety Stocks & EOQ

(1) Determination of Stock Levels:

Carrying of too much and too little of inventories is detrimental to the firm. If the inventory level is too little, the firm will face frequent stock-outs involving heavy ordering cost and if the inventory level is high it will be unnecessary tie-up of capital. Therefore, an efficient inventory management requires that a firm should maintain an optimum level of inventory where inventory costs are the minimum and at the same time there is no stock-out which may result in loss of sale or stoppage of production. Various stock levels are discussed as such.

(a) **Minimum Level:** This represents the quantity of stock that should be held at all time, stock level is normally not allowed falling below this level. This level of stock is a buffer stock for use during emergencies. Fall in stock level below minimum level will indicate potential danger to the business. Thus, extra efforts have to be taken to expedite the supply.

Minimum Stock Level = Re-order Level - (Normal Consumption x Normal re-order Period)

The following factors are to be considered in fixing the minimum level:

i) Nature of items of materials.

ii) Minimum time required for delivery.

iii) Rate of consumption of materials.

iv) Stock-out costs which include loss of contribution margin, loss of Goodwill etc.

(b) Re-ordering Level:

When the quantity of materials reaches a certain figure then fresh order is sent to get materials again. The order is sent before the materials reach minimum stock level. The rate of ordering level is fixed between minimum level and maximum level. The rate of consumption, number of days required replenishing the stocks, and maximum quantities of materials required on any day are taken into account while fixing re-ordering level. Re-ordering level is fixed with the following formula:

Re-ordering Level = Maximum Consumption x Maximum Re-order period

(c) Maximum Level:

It is the quantity of materials beyond which a firm should not exceed its stocks. If the quantity exceeds maximum level limit then it will be overstocking. A firm should avoid overstocking because it will result in high material costs. Overstocking will mean blocking of more working capital, more space for storing the materials, more wastage of materials and more chances of losses from obsolescence. Maximum stock level will depend upon the following factors:

1) The availability of capital for the purchase of materials:

2) The maximum requirements of materials at any point of time.

3) The availability of space for storing the materials.

4) The rate of consumption of materials during lead time.

5) The cost of maintaining the stores.

6) The possibility of fluctuations in prices.

7) The nature of materials: If the materials are perishable in nature, then they cannot be stored for long.

8) Availability of materials.

9) Restrictions imposed by the Government

10) The possibility of change in fashions will also affect the maximum level.

The following formula may be used for calculating maximum stock level:

Maximum stock level = Re-ordering Level + Re-ordering Quantity-(Minimum Consumption x Minimum Re-ordering period)

(d) Danger Level:

It is the level beyond which materials should not fall in any case. If danger level arises then immediate steps should be taken to replenish the stocks even if more cost is incurred in arranging the materials. If materials are not arranged immediately there is a possibility of stoppage of work. Danger level is determined with the following formula:

Danger Level = Average Consumption x Maximum re-ordering period for emergency purchases

(e) Average Stock Level:

The average stock level is calculated as such:

Average Stock Level = Minimum Stock Level + 1/2 of re-ordering quantity

OR

Average Stock Level = Minimum Stock Level + Maximum Stock Level

(f) Determination of Safety Stocks:

Safety stock is a buffer to meet some unanticipated increase in usage. The usage of inventory cannot be perfectly forecast. It fluctuates over a period of time. The demand for materials may fluctuate and delivery of inventory may also be delayed and in such a situation the firm can face a problem of stock-out. The stock out can prove costly by affecting the smooth working of the concern. In order to protect against the stock out arising out of usage fluctuations, firms usually maintain some margin of safety stocks. The basic problem is to determine the level of quantity of safety stocks. Two costs are involved in the determination of this stock i.e. opportunity cost of stock-outs and the carrying costs. The stock-outs of raw materials cause production disruption resulting in higher cost of production. Similarly, the stock-outs of finished goods result in the failure of the firm in competition as the firm cannot provide proper customer service. If a firm maintains low level of safety, frequent stock-outs will occur resulting in the larger opportunity costs. On the other hand, the larger quantities of safety stocks involve higher carrying costs.

ORDERING SYSTEMS OF INVENTORY:

The basic problem of inventory is to decide the re-order point. This point indicates when an order should be placed. The order point is determined with the help of these things:

(a) Average consumption rate,

(b) Duration of lead time,

(c) Economic order quantity,

When the inventory is depleted to lead time consumption, the order should be placed. There are three prevalent systems of ordering and a concern can choose any one these:

(a) Fixed order quantity system generally known as economic order quantity (EOQ) system;

(b) Fixed period order system or period re-ordering system or periodic review system;

(c) Single order and scheduled part delivery system.

Economic Order Quantity (EOQ):

EOQ is an important factor in controlling the inventory. It is a quantity of inventory which can reasonably be ordered economically at a time. It is also known as 'Standard Order Quantity', 'Economic Lot Size,' or 'Economical Ordering Quantity'. In determining this point ordering costs and carrying costs are taken into consideration. Ordering costs are basically the cost of getting an item of inventory and it includes cost of placing an order. Carrying cost includes costs of storage facilities, property insurance, loss of value through physical deterioration, cost of obsolescence. Either of these two costs affects the profits of the firm adversely and management tries

to balance these two costs. The balancing or reconciliation point is known as economic order quantity. The quantity may be calculated with the help of the following formula:

$$\text{EOQ} = \sqrt{\frac{2 \times R \times C_P}{C_H}}$$

Where R = Annual quantity used (in units)

CP = Cost of placing an order / ordering cost per order

CH = Cost of holding one unit/Inventory carrying cost of one unit / carrying cost of one unit per year

Assumptions of EOQ:

i) While calculating EOQ the following assumptions are made:

ii) The supply of goods is satisfactory. The goods are purchased whenever these are needed.

iii) The quantity to be purchased by the concern is certain.

iv) The prices of goods are stable. It helps to stabilize carrying costs.

Illustration-11:

Two components X and Y are used as follows:

Normal usage	300 units per week
Maximum usage	450 units per week
Minimum usage	150 units per week
Reorder Quantity	X – 2,000 units and Y – 4,000 units
Re-order Period	X – 4 to 6 weeks and Y – 2 to 4 weeks

Calculate for each component —

(1) Re-order Level, (2) Maximum Level, (3) Minimum Level (4) Average Inventory.

Solution:

	Component X	Component Y
1)	***Reorder Level = Maximum Usage × Maximum Reorder Period***	
	= 450 × 6	= 450 × 4
	= 2,700 units	= 1,800 units
2)	***Minimum Level = Reorder Level – (Normal Usage × Average Delivery Period)***	
	= 2,700 – (300 × 5)	= 1,800 – (300 × 3)
	= 2,700 – 1,500	= 1,800 – 900
	= 1,200 units	= 900 units
3)	***Maximum Level = Reorder Level + Reorder Quantity – (Minimum Usage × Minimum Delivery Period)***	
	= 2,700 + 2,000 – (150 × 4)	= 1,800 + 4,000 – (150 × 2)
	= 4,700 – 600	= 5,800 – 300
	= 4,100 units	= 5,500 units

4) ***Average Inventory = Minimum Level + ½ of Reorder Quantity***

= 1,200 + ½ of 2,000	= 900 + ½ of 4,000
= 1,200 + 1,000	= 900 + 2,000
= 2,200 units	= 2,900 units

or

$$\frac{Maximum\ Level + Minimum\ Level}{2}$$

= 2,650 units	= 3,200 units

(This formula is used when reorder quantity is not given)

Illustration-12:

Calculate the economic order quantity from the following information and also state the number of orders to be placed in a year.

Consumption of materials per annum	= 10,000 kgs.
Order Placing Cost Per Order	= Rs.25
Cost per kg. of raw material	= Rs.2
Storage Costs	= 4% on average inventory

Solution:

$$EOQ = \sqrt{\frac{2\ R\ C_p}{C_h}} = \sqrt{\frac{2 \times 10,000 \times 25}{\frac{4 \times 2}{100}}} = \sqrt{\frac{5,00,000}{\frac{2}{25}}} = \sqrt{\frac{5,00,000 \times 25}{2}}$$

$$= \sqrt{\frac{1,25,00,000}{2}} = \sqrt{62,50,000} = 2,500\ kgs.$$

Number of order to be placed in a year = $\frac{\text{Annual Requirements}}{\text{Economic Order Quantity}}$

= 10,000 / 2,500 kg. = 4 orders per year

Illustration-13:

A manufacturer requires 1,000 units of a raw material per month. The ordering cost is Rs.15 per order. The carrying cost in addition to Rs.2 per unit is estimated to be 15% of the average inventory per unit per year. The purchase price of the raw material is Rs.10 per unit. Find economic lot size and total cost. The manufacturer is offered a 5% discount in purchase price for orders of 2,000 units or more but less than 5,000 units. A further 2% discount is available for orders of 5,000 units or more. Which of these three alternative ways of purchase he should select?

Solution:

Annual Requirement	R = 1,000 × 12 = 12,000 units
Purchase Price Per Unit	P = Rs.10

Ordering Cost Cp = Rs.15 per order

Carrying Cost Ch = Rs.2 + P × 0.15 = Rs.2 + 10 × 0.15 = Rs.3.50

TIC at EOQ = Purchase Price + Ordering Costs + Carrying Costs

$$= (R \times P) + \left(\frac{R}{Q} \times C_p\right) + \left(\frac{Q}{2} \times C_h\right)$$

= 1,20,000 + 561 + 561 = Rs.1,21,122

Total Cost at EOQ of 2,000 units = $12{,}000 \times 9.50 + \frac{12{,}000}{2{,}000} \times 15 + \frac{2{,}000}{2} \times 3.425$

$= 1{,}14{,}000 + 90 + 3{,}425 = \text{Rs.}1{,}17{,}515$

Total Cost at EOQ of 5,000 units = $12{,}000 \times 9.30 + \frac{12{,}000}{5{,}000} \times 15 + \frac{5{,}000}{2} \times 3.395$

$= 1{,}11{,}600 + 36 + 8{,}487.50 = \text{Rs.}1{,}20{,}123.50$

The manufacturer should opt the alternative of 5% discount and order for 2,000 units at each time because at this option, the total inventory cost is the minimum.

Just-in-Time (JIT) System

Japanese firms popularized the just-in-time (JIT) system in the world. In a JIT system material or the manufactured components and parts arrive to the manufacturing sites or stores just few hours before they are put to use. JIT system eliminates the necessity of carrying large inventories and thus, saves carrying and other related costs to the manufacturer. The system requires perfect understanding and coordination between the manufacturer and suppliers in terms of the timing of delivery and quality of the material. The success of the system depends on how well a company manages its suppliers. The system puts tremendous pressure on suppliers.

ABC Inventory Control System

Large numbers of firms have to maintain several types of inventories. It is not desirable to keep the same degree of control on all the items. The firm should pay maximum attention to those items whose value is the highest. The firm should, therefore, classify inventories to identify which item should receive the most effort in controlling. This analytical approach is called the ABC analysis. The high value items are classified as 'A items' and would be under the highest control. "C items' represent relatively least value and would be under simple control. 'B items' fall in between these two categories and requires reasonable attention of management. The ABC analysis concentrates on important items and is also known as control by importance and exception (CIE). This approach is also known as proportionate value analysis (PVA).

Illustration-14

ABC Limited has 7 different items in its inventory. The average number of units in inventory together with their average cost per unit is presented below. Suggest a break-down of the items into ABC classification assuming that the Company wants to introduce ABC Inventory System.

Items (Nos.)	Average number of units in inventory	Average cost per unit (Rs.)
1	25,000	12
2	25,000	4
3	70,000	4
4	30,000	15
5	10,000	110
6	20,000	50
7	20,000	3

Solution:-

Item	Per Unit Cost (Rs)	Inventory				Total Value				
		Units	% of Total		Cumu-lative %	Total Cost Rs.	% of Total		Cumu-lative %	Cate-gory
5	110	10,000	5			11,00,000	33.4			
6	50	20,000	10	15%	15	10,00,000	30.4	63.8%	63.8	A
4	15	30,000	15	27.5%	42.5	4,50,000	13.7	22.8%	86.6	B
1	12	25,000	12.5	57.5%	100	3,00,000	9.1	13.4%	100	C
3	4	70,000	35			2,80,000	8.5			
2	4	25,000	12.5			1,00,000	3.1			
7	3	20,000	10			60,000	1.8			
Total		2,00,000		100%		32,90,000		100%		

VED Analysis

The VED analysis is used generally for spare parts. Spare parts are classified as vital (V), essential (E) and desirable (D). The vital spares are must for running the concern smoothly and these must be stored adequately. The E types of spares are also necessary but their stocks may be kept at low figures. The stocking of D type of spare may be avoided at times, if the lead time of these spares is less, then stocking of these spares can be avoided.

Inventory Turnover Ratio

It indicates whether inventories have been used efficiently or not. The purpose is to ensure the blocking of only required minimum funds in inventory. Inventory conversion period may also be calculated to find the average time taken for clearing the stocks.

Inventory Turnover = Cost of Goods Sold / Average Value of Inventory

Ageing of Inventories

According to this method, an inventory is to be classified according to the dates of their purchase or manufacture. Thus, schedule of inventories can be prepared on the basis of the age of different items of inventories. Efforts should be made to clear off the old inventories at the earliest.

Perpetual Inventory System

Perpetual inventory system implies maintenance of up-to-date stock records and. According to Weldon, it may be defined as "a method of recording stores balances after every receipt and issue to facilitate regular checking and to obviate closing down for stock-taking". The basic object of this system is to make available details about the quantity and value of stock of each item at all time.

MANAGEMENT OF RECEIVABLES

Receivables management is the process of making decisions relating to investment in trade debtors. Certain investment in receivables is necessary to increase the sales and the profits of a firm. But at the same time investment in this asset involves cost considerations also. Further, there is always a risk of bad debts too. Thus, the objective of receivable management is to take sound decision as regards investment in debtors. *In the words of Bolton, S.E.,* the objective of receivables management is "to promote sales and profits until that point is reached where the return on investment in further funding of receivables is less than the cost of funds raised to finance that additional credit".

Costs of maintaining receivables:

A firm incurs the following costs on maintaining receivables:

1) **Cost of Financing Receivables:**

   'Selling goods or services on credit' means allowing the customers to use concern's funds. The concern incurs some cost for collecting funds which finance receivables.

2) **Administrative Costs:**

   This relates to costs for maintaining accounts of debtors and cost of conducting investigation regarding potential credit customers to determine their credit worthiness.

3) **Cost of Collection:**

   This includes cost of reminders to the customers, cost of persons sent for collection and cost of legal recourse to recover money from the defaulting customers.

4) **Defaulting Costs or Bad Debts:**

   The amount which the firm is unable to realize from the customers is known as bad debts.

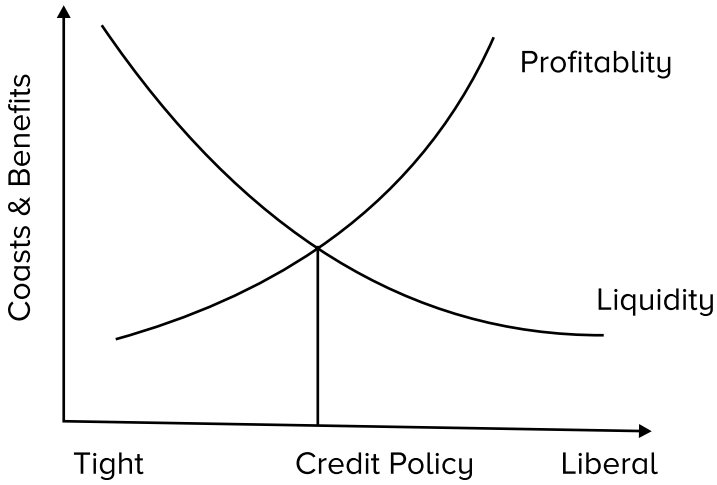
Scope of receivables management

The scope of receivable management is very wide. It includes the following aspects:

1) **Determining Credit Policy:**

   The term 'credit policy' refers to those decision variables that influence the amount of trade credit, i.e., the investment in receivables. The credit policy may be lenient (loose or expensive) or tight (or restrictive). In developing an optimum credit policy, the financial executives will have to compare the benefits of credit extension with the costs of credit. The major considerations in costs are liquidity and opportunity costs. On the other hand, in benefits of a liberal credit policy, the profitability is the

major criterion. The optimum credit policy will be determined by the trade off between liquidity and profitability as shown in the following figure:



2) Determining Credit Terms:

The second aspect of receivables management is concerned with determining credit terms. The 'credit terms' include the decisions like credit period, the quantum of cash discount, period of cash discount and fixing the credit standards. The extent to which credit standards can be liberalized should depend upon the matching between the profits arising due to increased sales and the costs to be incurred on the increased sales.

3) Evaluating the Credit Applicants:

The third important aspect of receivables management is to lay down clear-cut guidelines and procedures for granting credit to individual customers. A firm can not follow the policy of treating all customers equal for the purpose of extending credit. Each case is to be decided on its own merits. Hence, this function will include the following steps: Collection of credit information about the customers, investigation in the credit capacity of these customers, credit analysis, fixing credit limits for each of them and lastly, deciding collection procedures. In taking a decision about individuals, five 'C's are important: character, capacity, capitals, collateral and conditions.

4) Determining Collection Policies and Methods:

Next aspect is collection policy and setting collection methods. A well-conceived collection policy is needed because all customers do not pay the firm's bills in time. There are certain customers who are slow payers and some are non-payers. Therefore, the collection policy should aim at accelerating collections from slow prayers and reducing bad debt losses.

FACTORS AFFECTING THE SIZE OF RECEIVABLES

The level of investment in accounts receivable depends upon two types of factors- general and specific. General factors are external factors while specific factors are internal factors.

1) General Factors:

These are those factors which are common to all firms and all types of assets. They include the type and nature of business, anticipated volume of sales operations, price-level variations, availability of funds, interest rate, pace of technological development, industry norms, etc.

2) Specific Factors:

The main determinants of the level of investment in receivables are as follows:

a) The Volume of Credit Sales:

The most important variable affecting the level of the receivables is the volume of credit sales. As sales increases, receivables expand. As sales fall down, the receivables also decline.

b) Terms of Sale:

If the firm sells goods only for cash on delivery in order to avoid tying its funds in receivables and risking bad debts losses this item will altogether not appear in the balance sheet of the firm. But credit is the soul of business. Hence, if the firm sells on credit and credit period allowed is more, then receivables will also be more.

c) Stability of Sales:

If the business is of seasonal character, its credit sale in the season will be large, simultaneously; a large volume of receivables will be there. If a firm supplies goods on installment basis its investment in receivables will be high.

d) Credit and Collection Policy:

If a firm has a lenient or relatively liberal credit policy, it will experience a high level of receivables as compared to a firm with a more rigid or stringent credit policy.

e) Bills Discounting or Endorsement:

If bills are got discounted with banks or endorsed to third parties the level of investment in this asset will be automatically low.

f) Credit Period Allowed:

Longer the period of credit allowed, higher will be the volume of receivables.

Illustration-15:

ABC Ltd. has present annual sales of 10,000 units at Rs.300 per unit. The variable cost is Rs.200 per unit and fixed costs amount to Rs.3,00,000 per annum. The present credit period allowed by the company is 1 month. The company is considering a proposal to increase the credit period to 2 months and 3 months and has made the following estimates:

	Existing	***Proposed***	
Credit Policy	1 month	2 months	3 months
Increase in sales	–	15%	30%
% of Bad Debts	1%	3%	5%

There will be increase in fixed cost by Rs.50,000 on account of increase of sales beyond 25% of present level.

The company plans on a return of 20% on investment in receivables.

You are required to calculate existing and proposed net profit and also calculate most paying credit policy for the company.

Solution:

Evaluation of Credit Policy of ABC Ltd.

Particulars	*Existing Policy*	*Proposed Policy*	
	1 month	*2 months*	*3 months*
(A) Sales (Units)	10,000	11,500	13,000
(B) Sale Proceeds	30,00,000	34,50,000	39,00,000
Variables cost @ Rs.200 p.u.	20,00,000	23,00,000	26,00,000
Contribution	10,00,000	11,50,000	13,00,000
Fixed Cost	3,00,000	3,00,000	3,50,000
(C) Net Margin	7,00,000	8,50,000	9,50,000
(D) Investment	1,91,667	4,33,333	7,37,500
(E) Expected Return on Receivables at 20%	38,333	86,667	1,47,500
(F) Bad Debts	30,000	1,03,500	1,95,000
(G) Net Profit (C – E – F)	6,31,667	6,59,833	6,07,500
(H) Increase in Profits		28,167	– 52,333

As, 2 months credit policy yields higher return, it should be adopted.

Working Notes:

Investment in receivables = $\frac{\text{Variable Cost + Fixed Cost}}{12} \times \text{No. of months credit}$

1 month: 23,00,000 × $\frac{1}{12}$ = Rs.1,91,667

2 months: 26,00,000 × $\frac{2}{12}$ = Rs.4,33,333

3 months: 29,50,000 × $\frac{3}{12}$ = Rs.7,37,500

Illustration-16:

A trade whose current sales are Rs.6 lacs per annum and an average collection period of 30 days wants to pursue a more liberal credit policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	*Increase in collection period*	*Increase in Sales*	*Bad debt loss anticipated*
A	10 days	Rs.30,000	1.5%
B	20 days	Rs.48,000	2.0%
C	30 days	Rs.75,000	3.0%
D	45 days	Rs.90,000	4.0%

The selling price per unit is Rs.3, average cost per unit is Rs.2.25 and variable cost per unit is Rs.2. The current bad debt loss is 1%. Required return on average investment is 20%. Assume 360 days in a year. Which of the above policies would you recommend for adoption?

Solution:

Evaluation of Credit Policy

Part I	***Existing***				***Credit Policy***
		A	***B***	***C***	***D***
Credit Period (Days)	30	40	50	60	75
Expected Additional Sales (Rs.)		30,000	48,000	75,000	90,000
Contribution on additional sales					
(One-third of selling price)		10,000	16,000	25,000	30,000
Bad Debts (Expected Sales × Default %)	6,000	9,450,	12,960	20,250	27,600
Additional bad debts	–	3,450	6,960	14,250	21,600
Contribution on additional sales less					
Additional bad debts (a)	–	6,550	9,040	10,750	8,400
Part II					
Expected Sales (Rs.)	6,00,000	6,30,000	6,48,000	6,75,000	6,90,000
Cost of Sales (Rs.)	4,50,000	4,70,000	4,82,000	5,00,000	5,10,000
Receivables turnover ratio	12	9	7.2	6	4.8
Average investment in receivable					
$= \frac{\text{Cost of Sales}}{\text{Receivables turnover}}$	37,500	52,222	66,944	83,333	1,06,250
Additional investment in receivables	–	14,722	29,444	45,833	68,750
Required return on average investment at 20% (b)	–	2,944	5,889	9,167	13,750
Net Benefit (a – b)	**–**	**3,606**	**3,151**	**1,583**	**(5,350)**

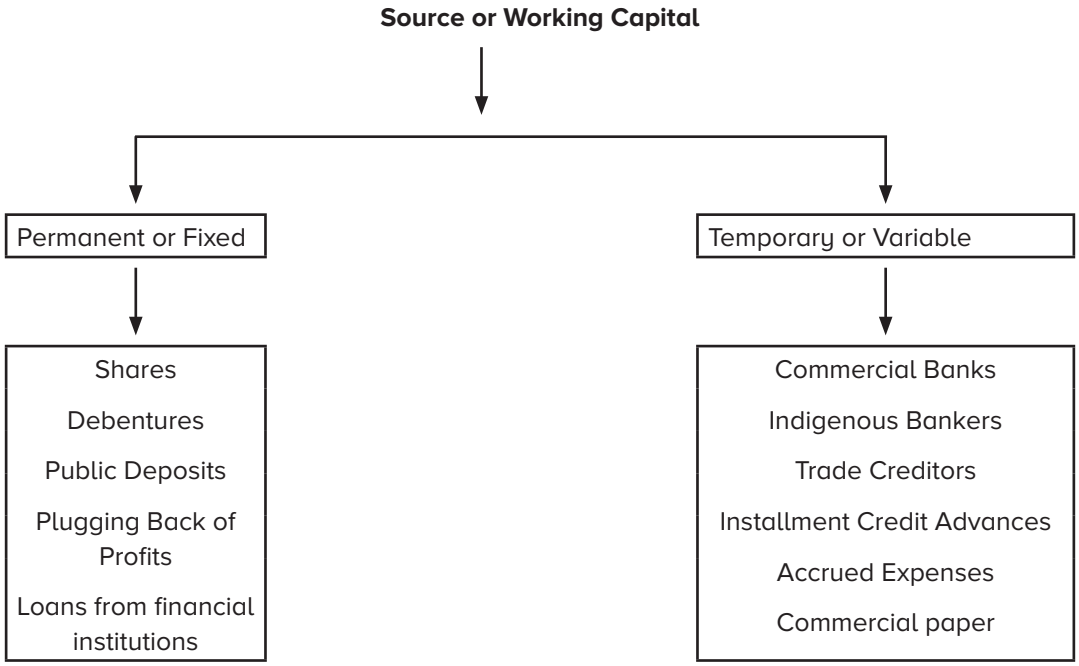
The net benefit (additional contribution over required return on additional investment in receivables) is maximum under credit Policy A. Hence, Policy A is recommended for adoption followed by B and C. Policy D cannot be adopted because it would result in the reduction of the existing profits.

WORKING CAPITAL FINANCING

The working capital requirement of a concern can be classified as—

(a) Permanent or fixed working capital requirement.

(b) Temporary or variable working capital requirement sources of working capital.



Financing of Permanent/Fixed or Long-Term Working Capital

Permanent working capital should be financed in such a manner that the enterprise may have its uninterrupted use for a sufficiently long period. There are five important sources of permanent or long-term working capital.

1. **Shares:**

   Issue of shares is the most important source for raising the permanent or long-term capital. A Company can issue various types of shares as equity shares, preference shares and deferred shares. According to the Companies Act, 1956, however, a public company cannot issue deferred shares. Preference shares carry preferential rights in respect of dividend at a fixed rate and in regard to the repayment of capital at the time of winding up the company. Equity shares do not have any fixed commitment charge and the dividend on these shares is to be paid subject to the availability of sufficient profits. As far as possible, a company should raise the maximum amount of permanent capital by the issue of shares.

2. **Debentures:**

   A debenture is an instrument issued by the company acknowledging its debt to its holder. It is also an important method of raising long-term or permanent working capital. The debenture-holders are the creditor of the company; fixed rate of interest is paid on debentures. The interest on debentures is a charge against profit and loss account. The debentures are generally given floating charge on the assets of the company.

3. **Public Deposits:**

Public deposits are the fixed deposits accepted by a business enterprise directly from the public. This source of raising short term and medium-term finance was very popular in the absence of banking facilities. In the past, generally, public deposits were accepted by textile industries in Ahmadabad and Bombay for periods of 6 months to 1 year. But now-a-days even long-term deposits for 5 to 7 years are accepted by the business houses.

4. **Plugging Back of Profits:**

It means the reinvestments by concern of its surplus earnings in its business. It is an internal source of finance and is most suitable for an established firm for its expansion, modernization, replacement etc. This method of finance has a number of advantages as it is the cheapest rather cost-free source of finance; there is no need to keep securities, there is no dilution of control, it ensures stable dividend policy and gains confidence of the public. But excessive resort to plugging back of profits may lead to monopolies, misuse of funds, overcapitalization, and speculation etc.

5. **Loans from Financial Institutions:**

Financial institutions such as Commercial Banks, Life Insurance Corporation, Industrial Finance Corporation of India, State Financial Corporation, State Industrial Development Corporations, Industrial Development Bank of India, etc. also provide short-term, medium term and long-term loans. This source of finance is more suitable to meet the medium-term demands of working capital. Interest is charged on such loans at a fixed rate and the amount of the loan is to be repaid by way of installments in a number of years.

Financing of Temporary, Variable or Short-term Working Capital

1. **Indigenous Bankers:**

Private money-lenders and other country bankers used to be the only source of finance prior to the establishment of commercial banks. They used charge very high rates of interest and exploited the customers to the largest extent possible. Now-a-days with the development of commercial banks they have lost their monopoly. But even today some business houses have to depend upon indigenous bankers for obtaining loans to meet their working capital requirements.

2. **Trade Credit:**

Trade credit refers to the credit extended by the suppliers of goods in the normal course of business. As present day commerce is built upon credit, the trade credit arrangement of a firm with its suppliers is an important source of short-term finance. The credit-worthiness of a firm and the confidence of its suppliers are the main basis of securing trade credit. It is mostly granted on an open account basis whereby supplier sends goods to the buyer for the payment to be received in future as per terms of the sales invoice. It may also take the form of bills payable whereby the buyer signs a bill of exchanges payable on a specified future date.

The main advantages of trade credit as a source of short-term finance include:

i) It is an easy and convenient method of finance.

ii) It is flexible as the credit increases with the growth of the firm.

iii) It is informal and spontaneous source of finance.

However, the biggest disadvantage of this method of finance is charging of higher prices by the suppliers and loss of cash discount.

1. **Installment Credit:**

   This is another method by which the assets are purchased and the possession of goods is taken immediately but the payment is made in installments over a pre-determined period of time. Generally, interest is charged on the unpaid price or it may be adjusted in the price. But, in any case, it provides funds for some time and is used as a source of short-term working capital by many business houses which have difficult fund position.

2. **Advances:**

   Some business houses get advances from their customers and agents against orders, and this source is a short-term source of finance to them. It is a cheap source of finance and in order to minimize their investment in working capital, some firms having long production cycle, specially the firms manufacturing industrial products prefer to take advances from their customers.

3. **Factoring or Accounts Receivable Credit:**

   Another method of raising short-term finance is through accounts receivable credit offered by commercial banks and factors. A commercial bank may provide finance by discounting the bills or invoices of its customers. Thus, a firm gets immediate payment for sales made on credit. A factor is a financial institution which offers services relating to management and financing of debts arising out of credit sales. Factoring is becoming popular all over the world on account of various services offered by the institutions engaged in it.

4. **Accrued Expenses:**

   Accrued expenses are the expenses which have been incurred but not yet due and hence not yet paid also. These simply represent a liability that a firm has to pay for the services already received by it. The most important items of accruals are wages and salaries, interest, and taxes. Wages and salaries are usually paid on monthly, fortnightly or weekly basis for the services already rendered by employees. The longer the payment-period, the greater is the amount of liability towards employees or the funds provided by them. In the same manner, accrued interest and taxes also constitute a short-term source of finance. Taxes are paid after collection and in the intervening period serve as a good source of finance. Even income-tax is paid periodically much after the profits have been earned. Like taxes, interest is also paid periodically while the funds are used continuously by a firm. Thus, all accrued expense can be used as a source of finance.

5. **Deferred Incomes:**

   Deferred incomes are incomes received in advance before supplying goods or services. They represent funds received by a firm for which it has to supply goods or services in future. These funds increase the liquidity of a firm and constitute an important source of short-term finance.

6. **Commercial Paper:**

   Commercial paper represents unsecured promissory notes issued by firms to raise short-term funds. It is an important money market instrument in advanced countries like U.S.A. In India, the Reserve Bank of India introduced commercial paper in the Indian money market on the recommendation of the Vaghul Committee. But only large companies enjoying high credit rating and sound financial health can issue commercial paper to raise short-term funds. The Reserve Bank of India has laid down a number of conditions to determine eligibility of a company for the issue of commercial paper. Only a company which is listed on the stock exchange, has a net worth of at least Rs.10 crore and a maximum permissible bank finance of not less than Rs.25 crore, can issue commercial paper. The maturity period of commercial paper runs between 91 and 180 days.

7. **Working Capital Finance by Commercial Banks:**

   Commercial banks are the most important source of short-term capital. The major portion of working

capital loans are provided by commercial banks. They provide a wide variety of loans tailored to meet the specific requirements of a concern. The different forms in which the banks normally provide loans and advances are as follows:

(i) Loans:

When a bank makes an advance in lump-sum against some security it is called a loan. In case of a loan, a specified amount is sanctioned by the bank to the customer. The entire loan amount is paid to the borrower either in cash or by credit to his account. The borrower is required to pay interest on the entire amount of the loan from the date of the sanction. A loan may be repayable in lump sum or installments.

(ii) Cash Credit:

A cash credit is an arrangement by which a bank allows his customer to borrow money up to a certain limit against some tangible securities or guarantees. The customer can withdraw from his cash credit limit according to his needs and he can also deposit any surplus amount with him. The interest in case of cash credit is charged on the daily balance and not on the entire amount of the account. For these reasons, it is the most favorite mode of borrowing by industrial and commercial concerns.

(iii) Overdrafts:

Overdraft means an agreement with a bank by which a current account-holder is allowed to withdraw more than the balance to his credit up to a certain limit. There are no restrictions for operation of overdraft limits. The interest is charged on daily overdrawn balances. The main difference between cash credit and overdraft is that overdraft is allowed for a short period and is a temporary accommodation whereas the cash credit is allowed for a longer period.

(iv) Purchasing and Discounting of Bills:

Purchasing and discounting of bills is the most important form in which a bank lends without any collateral security. The seller draws a bill of exchange on the buyer of goods on credit. The bank purchases the bills payable on demand and credits the customer's account with the amount of bill less discount. At the maturity of the bills, bank presents the bill to its accepter for payment. In case the bill discounted is dishonored by non-payment, the bank recovers the full amount of the bill from the customer along with expenses in that connection.

POLICIES FOR FINANCING CURRENT ASSETS

A firm can adopt different financing policies vis-a-vis current assets. A company may be referred to as:

- Matching Approach
- Conservative Approach
- Aggressive Approach

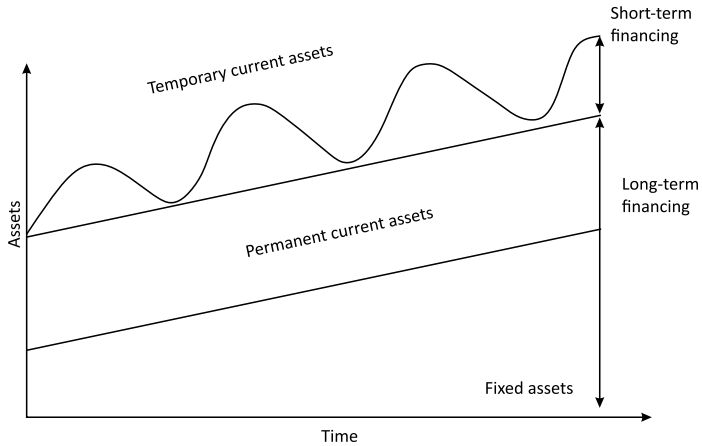
Matching Approach

The firm can adopt a financial plan which matches the expected life of assets with the expected life of the source of funds raised to finance assets. Thus, a ten-year loan may be raised to finance a plant with an expected life of ten years; stock of goods to be sold in thirty days may be financed with a thirty day commercial paper or a bank loan.

Using long-term financing for short-term assets is expensive as funds will not be utilized for the full period. Similarly, financing long-term assets with short-term financing is costly as well as inconvenient as arrangement for the new short-term financing will have to be made on a continuing basis.

When the firm follows matching approach (also known as holding approach), long-term financing will be used to finance fixed assets and permanent current assets and short-term financing to finance temporary or variable current assets. However, it should be realized that exact matching is not possible because of the uncertainty about the expected lives of assets.

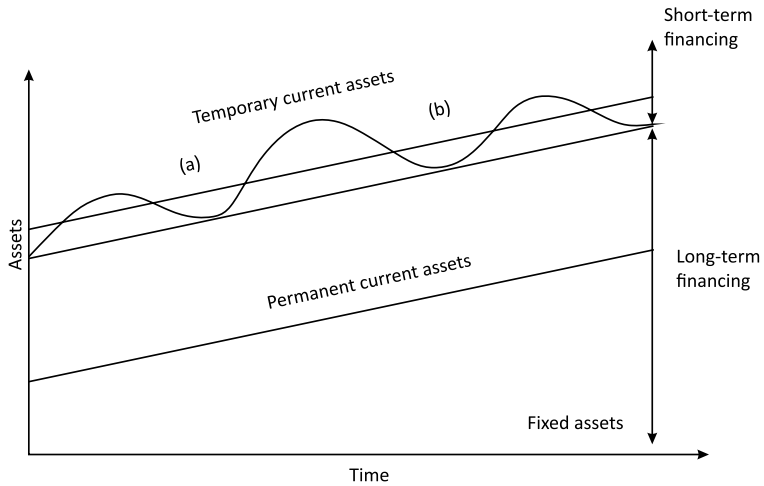
The following figure is used to illustrate the matching plan overtime. The firm's fixed assets and permanent current assets are financed with long-term funds and as the level of these assets increases, the long-term financing level also increases. The temporary or variable current assets are financed with short-term funds and as their level increases, the level of short-term financing also increases. Under matching plan, no short-term financing will be used if the firm has a fixed current assets need only.



Financing under matching plan

Conservative Approach

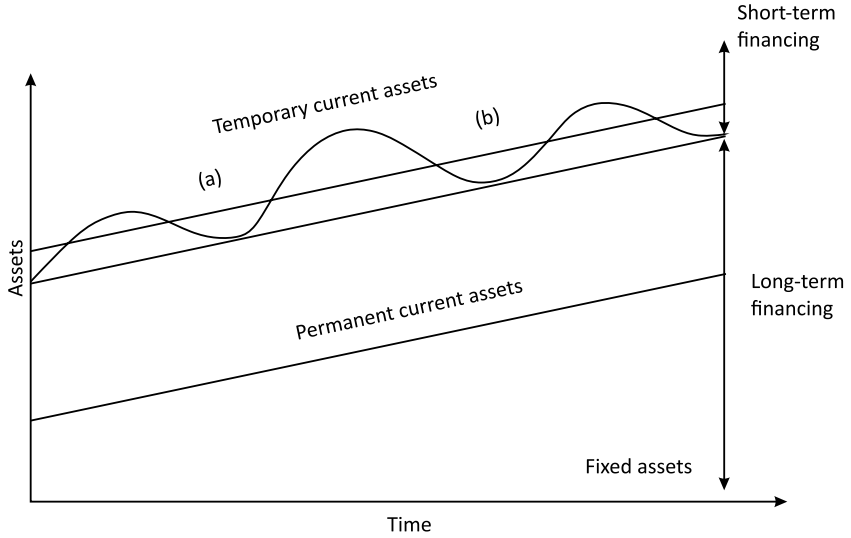
A firm in practice may adopt a conservative approach in financing its current and fixed assets. The financing policy of the firm is said to be conservative when it depends more on long-term funds for financing needs. Under a conservative plan, the firm finances its permanent assets and also a part of temporary current assets with long-term financing. In the periods when the firm has no need for temporary current assets, the idle long-term funds can be invested in the tradable securities to conserve liquidity. The conservative plan relies heavily on long-term financing and, therefore, the firm has less risk of facing the problem of shortage of funds. The conservative financing policy is shown in following figure:



Conservative financing

Aggressive Approach

A firm may be aggressive in financing its assets. An aggressive policy is said to be followed by the firm when it uses more short-term financing than warranted by the matching plan. Under an aggressive policy, the firm finances a part of its permanent current assets with short-term financing. Some extremely aggressive firms may even finance a part of their fixed assets with short-term financing. The relatively more use of short-term financing makes the firm more risky. The aggressive financing is illustrated in figure as below:



Aggressive financing

BANKING NORMS AND MACRO ASPECT

Banks normally provide working capital finance to hold an acceptable level of current assets viz. raw materials and stores, stocks in progress, finished goods and sundry debtors for achieving a pre-determined level of production and sales. The assessment of funds required to be blocked in each of these items of the working capital required by an industry is discussed as under:

1. ***Raw Material:*** Raw material, of any kind is necessarily required by an industrial unit to continue the production process. Different raw material could be procured from different sources may be indigenous or overseas and accordingly different treatment of procurement time is bound to be given. Mode of payment for the raw material may also be different. Thus, affecting the credit requirements of the client, the funds blocked up in procurement and stocking of material will have to be taken into consideration. Total materials including those in transit and for which advance payment is made can normally be expressed in terms of number of months consumption and requirements of funds can be assessed by multiplying the figure by the amount of monthly consumption.

2. ***Work in Process:*** The time taken by the raw material to be converted into finished product is the period of material processing and all the expenses of the process are involved in it. Therefore, the assessment of funds blocked in the process is made by taking into account the raw material consumption during the processing period and the expenses incurred during such period i.e. the cost of production for the period of processing.

3. ***Finished goods in the next stage:*** The funds blocked in finished goods inventories are assessed by estimating the manufacturing cost of product.

4. ***Sundry Debtors:*** When goods sold is not realised in cash, sundry debtors are generated. The credit period followed by a particular industrial unit in practice is generally the result of industry practices.

Investment in accounts receivable remains blocked from the time of sale till the time amount is realised from debtors. The assessment of funds blocked should be on the basis of cost of production of the materials against which bank extends working capital credit.

5. ***Expenses:*** One month's total expenses, direct or indirect, are provided by way of cushion in assessing the requirement of funds which may include rent, salaries, etc. depending upon the length of operating cycle.

6. ***Trade Credit*** received on purchases reduces working capital funds requirements and has to be taken into account for correct assessment of funds.

7. ***Advances*** received along with purchase orders for the products also reduce the funds requirements for working capital.

Taking into consideration the above parameters of operating cycle, the working capital for a unit can be assessed as under:

S. No.	***Component of Working Capital***	***Basis of Calculation***	***r***
1.	Raw material	Month's consumption	100
2.	Stock in process	Week's (cost of production for period of processing)	100
3.	Finished goods	Month's cost of production required to be stocked	100
4.	Sundry debtors	Month's cost of production	100
5.	Expenses	One month's	100
		Total	**500**
Less: Trade credit on month's purchases		r 100	
Less: Advance payment on Orders received		r100	200
Working Capital required			300

Banks do not provide the entire amount of r 300 towards working capital. At every stage bank would insist upon the borrower's stake in the form of margin which depends on various factors like saleable quality of product, durability, price fluctuations, market conditions and business environment, etc. Thus, the bank at every stage would allow the margin at the pre-determined rate as noted below:

		Permissible Limit (r)
Raw material	100	
Less: Margin 10%	10	90
Stock in process	100	
Less: Margin 40%	40	60
Finished goods	100	
Less: Margin 25%	25	75
Sundry Debtors (at sale value)	100	
Less: Margin 10%	10	90

Expenses for one month	100	
100% Margin	100	–
Total permissible limit		**315**
Working capital requirement of the unit Permissible limits (Bank loan)		500
Gap (contribution to be provided by Borrower)		315
		185

Before sanctioning the working capital of r 315, the bank would ensure that borrower is in a position to bring in margin money of r 185 by way of excess current assets over current liabilities based on projected balance sheet.

Factoring

As the accounts receivable amount to the blocking of the firm's funds, the need for an outlet to impart these liquidity is obvious. Other than the lag between the date of sale and the date of receipt of dues, collection of receivables involves a cost of inconvenience associated with tapping every individual debtor. Thus, if the firm could contract out the collection of accounts receivable it would be saved from many things such as administration of sales ledger, collection of debt and the management of associated risk of bad-debts etc.

Factoring is a type of financial service which involves an outright sale of the receivables of a firm to a financial institution called the factor which specialises in the management of trade credit. Under a typical factoring arrangement, a factor collects the accounts on the due dates, effects payments to the firm on these dates (irrespective of whether the customers have paid or not) and also assumes the credit risks associated with the collection of the accounts. As such factoring is nothing but a substitute for in-house management of receivables. A factor not only enables a firm to get rid of the work involved in handling the credit and collection of receivables, but also in placing its sales in effect on cash basis.

Definition and functions

Factoring is a financial service in which the business entity sells its Trade receivables/debtors to a third party at a discount in order to raise funds. The Bank/Financial institution purchasing the receivable is known as factor. Factoring may be with or without recourse. 'With a recourse' means that in the event of bad debts factor (Bank) can approach the 'supplier'.

Though the purchase of book debts is fundamental to the functioning of factoring, there are a number of functions associated with this unique financial services. A proper appreciation of these functions would enable one to distinguish it from the other sources of finance against receivables. They are:

– assumption of credit and collection function;

- credit protection;
- encashing of receivables;
- collateral functions such as:
  - (a) loans on inventory,
  - (b) loans on fixed assets, other security and on open credit,
  - (c) advisory services to clients.

Factoring vs. Accounts Receivable Loans

Accounts receivable loan is simply a loan secured by a firm's accounts receivable by way of hypothecation or assignment of such receivables with the power to collect the debts under a power of attorney. In case of factoring however, there is an outright sale of receivables. Thus, in case of the former, the bank may debit client's account for 'handling charges' if the debt turns out to be bad as against non-recourse factoring.

Factoring vs. Bill Discounting

Under a bill discounting arrangement, the drawer undertakes the responsibility of collecting the bills and remitting the proceeds to the financing agency, whereas under factoring agreement, the factor collects client's bills. Moreover, bill discounting is always with recourse whereas factoring can be either with recourse or without recourse. The finance house discounting bills does not offer any non-financial services unlike a factor which finances and manages the receivables of a client.

Mechanics of Factoring

Factoring offers a very flexible mode of cash generation against receivables. Once a line of credit is established, availability of cash is directly geared to sales so that as sales increase so does the availability of finance. The dynamics of factoring comprises of the sequence of events outlined in figure.

(1) Seller (client) negotiates with the factor for establishing factoring relationship.

(2) Seller requests credit check on buyer (client).

(3) Factor checks credit credentials and approves buyer. For each approved buyer a credit limit and period of credit are fixed.

(4) Seller sells goods to buyer.

(5) Seller sends invoice to factor. The invoice is accounted in the buyers account in the factor's sales ledger.

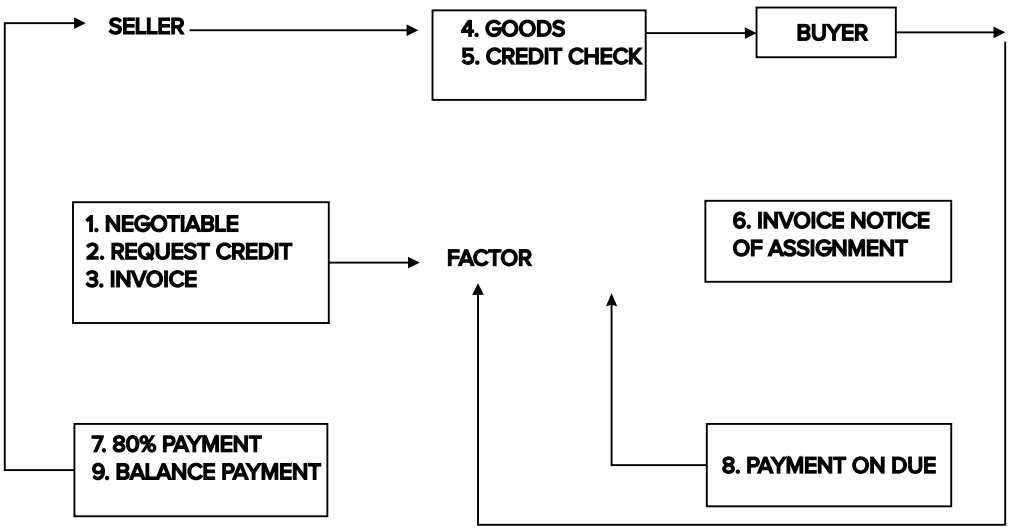


Figure: Mechanics of Factoring

Source: Ranjani Chari, 1991, Factoring in India, M.Phil, Dissertation, Delhi University

(1) Factor sends copy of the invoice to buyer.

(2) Factor advices the amount to which seller is entitled after retaining a margin, say 20%, the residual amount paid later.

(3) On expiry of the agreed credit period, buyer makes payment of invoice to the factor.

(4) Factor pays the residual amount to seller.

Types of Factoring: Factoring services may be rendered to cover domestic as well as international sales. The various services offered by factors for domestic sales are of six types whose essential characteristics are outlined in Table 1.

Table: Types of Factoring Services

Type of Factoring	***Type of Functions***					
	Availability of Finance bad debts	***Protection* against***	***Credit Advice***	***Sales Ledger Administration***	***Collection***	***Disclosure Customers***
Full Source (Non-Recourse)	Yes	Yes	Yes	Yes	Yes	Yes
Recourse Factoring	Yes	¾	Yes	Yes	Yes	Yes
Agency Factoring	Yes	Possible	¾	No	No	Yes
Bulk Factoring	Yes	Possible	¾	No	No	Yes
Invoice** Discounting	Yes	Possible	No	No	No	No
Undisclosed Factoring	Yes	Possible	No	No	No	No

* Any form which includes this element may be referred to as 'non-recourse factoring'

** Also referred to as confidential or non-notification factoring.

Source: Ranjani Chari-opcit. P. 28.

Forfaiting

Forfaiting is a form of financing of receivables pertaining to international trade. It denotes the purchase of trade bills/ promissory notes by a bank/financial institution without recourse to the seller. The purchase is in the form of discounting the documents covering entire risk of non-payment in collection. All risks and collection problems are fully the responsibility of the purchaser (forfeiter) who pays cash to seller after discounting the bills/notes. The salient features of forfaiting as a form of export relating financing are as under:

(i) The exporter sells and delivers goods to the importer on deferred payment basis.

(ii) The importer draws a series of promissory notes in favour of the exporter for payment including interest charge. Alternatively the exporter draws a series of bill which are accepted by the importer.

(iii) The bills/notes are sent to the exporter. The promissory notes/bills are guaranteed by a bank which may not necessarily be the importer's bank. The guarantee by the bank is referred to as an Avail, defined as an endorsement by a bank guaranteeing payment by the importer.

(iv) The exporter enters into a forfaiting agreement with a forfeiter which is usually a reputed bank. The exporter sells the avalled notes/bills to the bank at a discount without recours and receives the payment.

(v) The forfeiter may hold these notes/bills till maturity for payment by the importers bank.

Forfaiting vs. Export Factoring

Forfaiting is similar to cross border factoring to the extent both have common features of non recourse and advance payment. But they differ in several important respects:

(a) A forfeiter discounts the entire value of the note/bill but the factor finances between 75-85% and retains a factor reserve which is paid after maturity.

(b) The avalling bank which provides an unconditional and irrevocable guarantee is a critical element in the forfaiting arrangement wheras in a facoring deal, particularly non-recourse type, the export factor bases his credit decision on the credit standards of the exporter.

(c) Forfaiting is a pure financing arrangement while factoring also includes ledger administration, collection and so on.

(d) Factoring is essentially a short term financing deal. Forfaiting finances notes/bills arising out of deferred credit transaction spread over three to five years.

(e) A factor does not guard against exchange rate fluctuations; a forfeiter charges a premium for such risk.

CASE STUDIES

Question 1- ABC& XYZ Ltd. Plans to sell 30,000 units next year . The expected cost of goods sold is as follows:

	Rs. (per unit)
Raw Material	100
Manufacturing Expenses	30
Selling, Administration and Finance Expenses	20
Selling Price	200
The duration of various stages of the operating cycle is expected to be as follows:	
Raw Material stage	2 months
Work-in-progress stage	1 month
Finished Goods stage	1/2 month
Debtors stage	1 month

Assuming the monthly sales level of 2500 units; estimate the gross working capital requirements if the desired cash balance is 5% of the gross working capital requirements.

Solution:

Statement of Gross Working Capital requirements

Current Assets		**Rs.**	**Rs.**
(i)	Raw Material (2 months)		**5,00,000**
	(Rs. 2,500 X 100 X 2)		
(ii)	Work-in-progress (1 month)		
	Raw Material (Rs. 2,500 X 100 X 1)	**2,50,000**	
	Mfg. Expenses (Rs. 2,500 X 30 X 1)	**75,500**	**3,25,000**
(iii)	Finished Goods (1/2 month)		
	Raw Material (2500 X 100 X ½)	**1,25,000**	
	Mfg. Expenses (2500 X 30 X ½)	**37,500**	**1,62,500**
(iv)	Debtors (1 month)		
	(2500 X 150 X 1)		
(v)	Cash		**3,75,000**
	(5 % of gross working capital i.e. 13,62,500 X 5/95)		**13,62,500**
	Gross Working Capital Required		
			71,711
			14,34,211

Working Notes:-

1. Selling, administration and finance expenses are not included in the value of closing stock of finished goods but added in the cost of sales for valuing debtors.
2. It is assumed that degree of completion of work-in-progress is 100% as regards material, labour and overhead and as such material and manufacturing expenses for the full period are included in the cost of work-in-progress.
3. It is assumed that all sales are credit sales.
4. Profit has not been treated as source of working capital, hence fully ignored.

Question 2:- From the following particulars, calculating working capital adding 10% per annum for contingencies.

		Rs.
(a)	Average amount backed up for stocks:	
	Stock of finished products	1000
	Stock of materials and stores	1600
(b)	Average credit given:	
	Home market 6 weeks credit	62,400
	Foreign market 1.5 week's credit	15,600

(c) Payment in Advance:

Sales promotion expenses (paid quarterly in advance)	1, 600

(d) Lag in payment of wages and other expenses:

Wages	1.5 weeks	52,000
Materials and Stores	1.5 months	9,600
Office Salaries	0.5 month	12,480
Rent	6 months	2,000
Other expenses	1.5 months	9,600

Solution:

Computation of Working Capital Requirements

	Rs.	Rs.
(A) Current Assets		
(i) Stock of Material and Stores		1,600
(ii) Stock of Finished Goods		1,000
(iii) Book Debts:		
(a) Home (62,400 X 6/52)	7,200	7,650
(b) Foreign (15,600 X 1.5/52)	450	400
(iv) Advance Payment (1,600 X 3/12)		**10,650**
(B) Current Liabilities		
(i) Creditors for Stores and Materials (9,600 X 1.5/12)		1,200
(ii) Outstanding Expense:		
Wages (52,000 X 1.52/52)	1,500	
Office Salaries (12,480 X 0.5/12)	520	
Rent (2,000 X 6/12)	1,000	4,220
Other Expenses (9,600 X 1.5/12)	1,200	**5,420**
(C) Net Working Capital (A - B)		5,230
Add:- 10% Contingency Allowance		523
Average amount of working capital required		**5,753**

Working Notes:-

i) For calculation purpose, 52 weeks or 12 months in a year are assumed.

ii) In absence of cash cost of current assets, the actual working capital will differ from that of amount computed above.

Question 3:- From the following projections of M/s XYZ Limited for the year 2006-07 workout the amount of Working Capital Required:

Estimates for 2006-07	***Rs.***
Annual Sales	14, 40,000
Cost of Production (including depreciation of Rs. 1, 20,000)	12,00,000
Raw Material purchases	7, 05,000
Monthly expenditure	25,000
Anticipated opening stock of raw materials	1, 40,000
Anticipated closing stock of raw materials	1, 25,000

Inventory norms:

Raw Material	2 months	Work-in-progress	15 days
Finished Goods	1 month		

The Company enjoys a credit of 15 days on its purchase and allows one month credit to its debtors. On sales orders the company has received an advance of Rs. 15000.

You may assume that production is carried out evenly throughout the year and minimum cash balance desired to be maintained is Rs. 10,000.

Solution:-

Statement Showing Working Capital Requirements

		Rs.
(A) Current Assets		
i)	Cash Balance	10,000
ii)	Stock of Raw Materials (2 months)	
	(Rs. 7,20,000 x 2/12)	1,20,000
iii)	Stock of Work-in-progress(15 days)	
	(Rs. 10,80,000 X 0.5/12)	45,000
iv)	Stock of Finished Goods (1 month)	
	(Rs. 10,80,000 X 1/12)	90,000
v)	Debtors (1 month)	
	(Rs. 10,80,000 X 1/12)	90,000
vi)	Monthly Expenses	25,000
(B) Current Liabilities		3,80,000
i)	Creditors (15 days)	44,375
	(Rs. 7,05,000 X 0.5/12) 29,375	
ii)	Advance received from Debtors	3,35,625
	15,000	
Net Working Capital Required (A) – (B)		

Working Notes:

i) Calculation of Annual Consumption of Raw Material

	Rs.
Opening Stock of Raw Material	1, 40,000
Add: Purchase	7, 05,000
	8, 45,000
Less: Closing Stock of Raw Material	1, 25,000
Annual Consumption	7, 20,000

ii) Cash Cost of Annual Production

Cost of production as given	12, 00,000
Less:- Depreciation	1, 20,000
10, 80,000	

iii) It is assumed that there is neither opening stock nor closing stock of finished goods. Hence, cost of sales after deducting depreciation is taken at Rs. 10,80,000.

Question 4- A Performa cost sheet of ABC Company provide the following particulars:

Element of Cost Amount per unit	Rs
Raw materials	80
Direct Labour	30
Overheads	60
Total Cost	170
Profit	30
Selling Price	200

The following further particulars are available:

Ram materials are in stock for one month on an average. Materials are in process of half month on an average. Finished goods are in stock for one month on an average. Credit allowed by suppliers is one month. Credit allowed to debtors is two months. Lag in payment of wages is 2 weeks. Lag in payment of overhead expenses is one month. 25% of output is sold for cash. Cash in hand and at bank is expected to be Rs. 30,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production. You may assume that production is carried on evenly throughout the year. Wages and overhead accrue similarly and a time period of 4 weeks and 52 weeks is equivalent to a month and a year respectively.

Solution:-

Computation of Working Capital Requirements

(A) Current Assets	
i) Stock of Materials(1 month) (1,04,000 X 80 X 2/52)	6,40,000
ii) Work-in-progress(1/2 month)	
Material Cost(1,04,000 X 80 X 2/52)	3,20,000
Labour Cost(1,04,000 X 30 X 1/52)	60,000
Overheads (1,04,000 X 60 X 1/52)	1,20,000
iii) Finished Goods(1 month)	
Material Cost(1,04,000 X 80 X 4/52)	6,40,000
Labour Cost (1,04,000 X 30 X 4/52)	2,40,000
Overheads (1,04,000 X 60 X 4/52)	4,80,000
iv) Debtors (2 months) (78,000 X 170 X 8/52)	20,40,000
v) Cash Balance	30,000
(B) Current Liabilities	45,70,000
i) Creditors for Material (1 month) (1,04,000 X 80 4/52)	
ii) Outstanding Expenses	6,40,000
a) Overheads (1 month) (1,04,000 X 60 X 4/52)	4,80,000
b) Wages (2 weeks) (1,04,000 X 30 X 2/52)	1,20,000
(C) Estimated Requirements of Working Capital (A-B)	12,40,000
	33,30,000

Working Notes:-

i) 25% of production i.e. 26,000 units are sold for cash. Hence, credit sales are 78,000 units. The cash cost of debtors is calculated on these units.

ii) It is assumed that full material is issued in the beginning and labour and overhead accrue evenly.

iii) Profit on cash as well as credit sales may or may not be the source of working capital. Income tax and dividend paid are to be adjusted from these profits. Hence, profits are ignored.

iv) All the overheads are assumed to be variable. Working capital will be reduced by the amount of depreciation. In absence of these data, estimates cannot be accurate.

v) It is assumed that stock of raw material and finished goods is maintained on the basis of goods produced.

Question 5 - ABC & XYZ Food Products Ltd. is considering the revision of its credit policy with a view to increasing its sales and profits. Currently all its sales are on credit and the customers are given one month's time to settle the dues. It has a contribution of 40% on sales and it can raise additional funds at a cost of 20% per annum. The marketing director of the company has given the following options with draft estimates for consideration:

Particulars		*Current Position*	*Option I*	*Option II*
Sales	Rs. In lakhs	200	220	250
Credit Period	Months	1	2	3
Bad Debts	% of Sales	2	3	5
Cost of Credit Administration	Rs. In lakhs	1.20	1.50	3.00

Advise the company to take the right decision. (Working should for part of the answer).

Solution:-

Evaluation of Different Options in Credit Policy of Asmit Food Products Ltd.

Particulars *Credit Period(months)*	*Current Position* *1*	*Option I* *2*	*Option II* *3*
Sales	200	220	250
Less: Variable Cost (60 %)	120	132	150
Contribution (40%)	80	88	100
Investment in Debtors (Sales x Credit period/12 months)	16.67	36.37	62.50
Cost of funds invested in debtors balances @ 20%	3.33	7.33	12.50
Sales	200	220	250
Bad Debts (% of sales)	2%	3%	5%
Bad Debts	4	6.6	12.5
(A)	80.00	88.00	100.00
Contribution			
Less: Costs:			
Cost of funds invested in debtors balances	3.33	7.33	12.50
Bad Debts	4.00	6.60	12.50
Cost of credit administration	1.20	1.50	3.00
(B)	8.53	15.43	28.00
Net Contribution (A-B)	71.47	72.57	72.00

Decision:- Since the net contribution is highest in option I, it is suggested to extend 2 months credit period to the customers.

Question 6 - SK Limited specializes in the manufacture of a computer component. The component is currently sold for Rs. 1000 and its variable cost is Rs. 800. For the year ended 31st March, 2006 the company sold on an average 400 components per month.

At present the company grants one month credit to its customers. The company is thinking of extending avail the extended credit period of two months.

Increase in sales	25%
Increase in stock	Rs. 2, 00,000
Increase in creditors	Rs. 1, 00,000

You are required to advise the company on whether or not to extend the credit terms if all customers avail the extended credit period of two months.

Solution:

Evaluation of Extension of Credit Period

Particulars	*Rs.*
Profit on Additional Sales	
Existing Sales (400 x 12 x Rs. 1000)	48,00,000
Add: 25% increase	12,00,000
Revised Sales	60,00,000
P/V ration (1,000 – 800)/1,000 x 100	20 %
Contribution on additional sales (12,00,000 x 20/100) (A)	2,40,000
Cost of carrying debtors and stock	10,00,000
Total debtors after increase (60,00,000 x 2/12)	4,00,000
Less: Existing debtors (48,00 ,0000 x 1/12)	6,00,000
Net increase in debtors	4,80,000
	2,00,000
Investments in additional debtors (Variable cost i.e. 80% of Rs 6,00,000)	6,80,000
	1,00,000
Add:- Increase in stock (12,00,000 X 2/12)	5,80,000
Less: Increase in creditors	2,32,000
Net additional investments in working capital	
Minimum return @ 40% on additional investments Rs. 5,80,000 in Working Capital (B)	8,000
Increase in profit over cost of carrying additional working capital (A) – (B)	

Decision:- With the above analysis it is advised to company not to extend the credit terms if all customers avail the extended credit period of two months.

Question 7- Good Luck Ltd. which sells on credit basis has ranked its customers in categories 1 to 5 order of credit risk:

Category	*Percentage of Bad Debts*	*Average Collection Period*
1	0.0	30 days
2	1.0	45 days
3	2.0	60 days
4	5.0	90 days
5	10.0	120 days

The Company's current credit policy is to allow unlimited credit to firms in categories 1 to 3; limited credit to firms in category 4 and no additional credit to firms in category 5.

As a result, orders amounting to Rs. 25,00,000 from category 4 and Rs. 75,00,000 from category 5 are rejected every year. If the Good Luck Ltd. makes a 10% gross profit on sales and has an opportunity cost on investment in receivables of 12%, what would be the effect on profits of allowing full credit to all categories of customers? Should credit be extended to all categories of customers?

Solution :

Incremental Analysis

(Extension of credit to categories 4 and 5)

	Category 4 *Rs.*	*Category 5* *Rs.*
Incremental Sales(revenue) (A)	25,00,000	75,00,000
Incremental Costs:		
Cost of goods sold (90% of Sales)	22,50,000	67,50,000
Bad Debts (5% and 10% of Sales)	1,25,000	7,50,000
Opportunity Cost	67,000	2,70,000
Total Incremental Costs(B)	24,42,500	77,70,000
Incremental Profit/Loss (A) – (B)	57,500	(-)2,70,000

Decision: Only category 4 customers should given the credit facility not to category 5.

Note:- Calculation of opportunity cost is being calculated on cost of goods sold @ 12% for 90 days and 120 for category 4 and 5 respectively.

Question 8- Consider the following data for a certain item purchased by ABC Ltd.

Annual Usage	10,000 units
Fixed Cost per order	Rs. 750
Purchase Price	Rs. 200 per unit
Carrying cost	20 % of inventory value.

a) What is the economic order quantity?

b) On the assumption that a 25 trade discount is offered if the minimum order size is 1,000 units, should the company go in for the trade discount.

Solution:

i) EOQ = $\sqrt{\frac{2RO}{C}}$

EOQ = $\sqrt{\frac{2 \ x \ 10{,}000 \ x \ Rs.750}{20\% \ of \ Rs.200}}$ = $\sqrt{3{,}75{,}000}$ = 612.37 units

ii) Total Cost without Discount:

Purchase Cost = 10,000 x 200 = 20, 00,000.00

Ordering Cost = ($\frac{R}{EOQ}$ x O) = ($\frac{10{,}000}{612.37}$ x 750) = 12,247.50

Carrying Cost = ($\frac{EOQ}{2}$ x C) = ($\frac{612.37}{2}$ x 40) = 12,247.40

20, 24,494.90

iii) Total Cost with discount:

Purchase price per unit= Rs. 200 – 4(2% of Rs. 200) = Rs.196

Carrying Cost = 20% of Rs. 196 = Rs. 39.20

Total Cost:

Purchase Cost = 10,000 x 196 = 19, 60,000

Ordering Cost = ($\frac{R}{EOQ}$ x O) = ($\frac{10{,}000}{1{,}000}$ x 750) = 7,500

Carrying Cost = ($\frac{EOQ}{2}$ x C) = ($\frac{1{,}000}{2}$ x 39.20) = 19,600

19, 87,100

Total Savings = Rs. 20, 24,494.90 – Rs 19, 87,100 = Rs. 37, 394.90

The Company should go in for trade discount.

Question 9- XYZ Limited, manufactures of a special product, follows the policy of EOQ (economic order quantity) for one of its components. The components details are as follows:

Purchase price per component	Rs. 200
Cost of an order	Rs. 100
Annual cost of carrying one unit in inventory	10% of purchase price

The company has been offered a discount of 2% on the price of the component provided the lot size is 2,000 components at a time.

You are required to : (a) compute the EOQ, (b) Advise whether the quantity discount offer can be accepted. (Assume that the inventory carrying cost does not vary according to discount policy.) (c) Would your advice differ if the company is offered 5% discount on a single order?

Solution:-

a) EOQ = $\sqrt{\frac{2RO}{C}}$

EOQ = $\sqrt{\frac{2 \text{ x } 4{,}000 \text{ x Rs. } 100}{10\% \text{ of Rs. } 200}} = \sqrt{40{,}000} = 200 \text{ units}$

b) Whether to accept quantity discount if the lost size is 2,000 components at a time with 2% discount on price

	Rs.
Ordering Cost = Rs. 100 x 2 =	200
Carrying Cost = (1/2 x 2,000 units x Rs. 20)	20,200
Total Cost	20,200
Less: Cost of inventory	4,000
Extra Cost(A)	16,200
Quantity Discount (4,000 units x Rs.200 x 2/100) (B)	16,000
Additional Expenditure if Quantity discount accepted (A) – (B)	200

Advice: Hence, quantity discount offer cannot be accepted.

c) Whether to accept 5% discount on single order when the order size is 4,000 units.

	Rs.
Ordering Cost = Rs. 100 x 1 =	100
Carrying Cost = (1/2 x 4,000 units x Rs. 20)	40,000
Total Cost	40,100
Less: Cost of inventory	4,000
Extra Cost(A)	36,100
Quantity Discount (4,000 units x Rs.200 x 5/100) (B)	40,000
Net benefit of accepting the quantity discount (B) – (A)	3,900

Advice:- Hence, the quantity discount can be accepted.

Question 10- XYZ Pipes Limited uses about 75,000 valves per year and the usage is fairly constant at 6,250 per month. The valves cost Rs. 1.50 per unit when bought in quantities and the carrying cost is estimated to be 20 % of average inventory investment on the annual basis. The cost to place an order and process the delivery is Rs. 18. It takes 45 days to receive delivery from the date of an order and a safety stock of 3,200 valves is desired.

You are required to determine: (i) The most economical order quantity and frequency of orders; (ii) The order

point; and (iii) The most economical order quantity if the valves cost Rs. 4.50 each instead of Rs. 1.50 each.

Solution:-

i) Economic Order Quantity & Frequency of Orders

$$EOQ = \sqrt{\frac{2RO}{C}}$$

$$EOQ = \sqrt{\frac{2 \times 75{,}000 \times Rs.\ 18}{1.50 \times 20\%}} = \sqrt{90{,}00{,}000} = 3{,}000 \text{ units}$$

$$\text{Number of Orders} = \frac{\text{Annual Usage}}{EOQ}$$

$$= \frac{75{,}000}{3{,}000} = 25 \text{ orders}$$

ii) Re-order Point

ROP = (Lead Time x Usages Rate) + Safety Stock

Or = (L x UR) + S

= (45 x 6,250/30) + 3,200

= 9,375 + 3,200 = 12,575 units

iii) E.O.Q. when cost per value is Rs. 4.50

$$EOQ = \sqrt{\frac{2RO}{C}}$$

$$EOQ = \sqrt{\frac{2 \times 75{,}000 \times .18}{4.50 \times 20\%}} = \sqrt{30{,}00{,}000} = 1.733 \text{ units}$$

Question 11- Super Equipment Company estimates its carrying cost at 15% and its ordering cost at Rs.9 per order. The estimated annual requirement is 48,000 units at a price of Rs.4 per unit.

Compute:

a) What is the most economical number of units to order?

b) How many orders should be placed in a year?

c) How often should an order be placed?

Solution:

a) What is the most economical number of units to order?

Annual requirement = 48,000 units

Ordering cost = Rs.9 per order

Carrying cost = 15% of per-unit cost

Per unit cost = Rs.4 per unit

EOQ = √ 2 x AR x OC /CC

= √ 2 x 48,000 x 9 / 4 x 15%

= √1,440,000

= 1,200 units

b) How many orders should be placed in a year?

= Annual requirement / EOQ

= 48,000 units / 1,200 units

= 40 orders

c) How often should an order be placed?

Frequency of orders = No. of days in one year / No. of orders

= 360 days / 40 orders

= 9 days

Question 12- A manufacturing company places a semi-annual order of 24,000 units at a price of Rs.20 per unit. Its carrying cost is 15% and the order cost is Rs.12 per order.

Compute-

i) What is the most economical order quantity?

ii) How many orders need to be placed?

Solution:

i) EOQ = √ 2 x AR x OC / CC

= √ 2 x 48,000 x 12 / 20 x 15%

= √384,000

= 620 units approximately

ii) No. of orders per year = Annual Requirement / EOQ

= 48,000 units / 620 units

= 77 orders approximately

To compute the annual requirement:

24,000 units are ordered semi-annually, therefore:

Annual requirement = 24,000 units x 2 = 48,000 units

Question 13- Magnificent company is making sale of Rs.16,00,000 and it extends a credit of 90 days to its customers. However, in order to overcome the financial difficulties, it is considering to change the credit policy. The proposed terms of credit and expected sales are as follows:

Policy	Term	Sale (Rs.)
I	75 days	15,00,000
II	60 days	14,50,000
III	45 days	14,25,000

IV	30 days	13,50,000
V	15 days	13,00,000

The firm has a variable cost of 80% and a fixed cost of Rs.1,00,000, the cost of capital is 15%. Evaluate different proposed policies and suggest which policy should be accepted (Year: 360 days).

Solution:

Particulars	**Credit Policies**					
	90 days	75 days	60 days	45 days	30 days	15 days
(A) Sale	16,00,000	15,00,000	14,50,000	14,25,000	13,50,000	13,00,000
Cost:						
Variable Cost (80%)	12,80,000	12,00,000	11,60,000	11,40,000	10,80,000	10,40,000
Fixed Cost	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
(B) Total Cost	13,80,000	13,00,000	12,60,000	12,40,000	11,80,000	11,40,000
(C) Profit (A – B)	**2,20,000**	**2,00,000**	**1,90,000**	**1,85,000**	**1,70,000**	**1,60,000**
(D) Debtor at Cost Total Cost / 360 x Days	3,45,000	2,70,833	2,10,000	1,55,000	98,333	47,500
(E) Cost of Funding Debtors 15% of (D)	51,750	40,625	31,500	23,250	14,750	7,125
Net Profit (C – E)	**1,68,250**	1,59,375	1,58,500	**1,61,750**	1,55,250	1,52,875
Policy Recommendation	**First**			**Second**		

The existing policy of 90 days is still the best as it gives the highest net profit of Rs. 1,68,250. The firm may choose the 2nd best profit earning period which is 45 days credit policy. But if we compare correctly, if we choose this policy, the credit period is being drastically reduced by 45 days and yet profit is reduced marginally. This may be a very good option.

LESSON ROUND-UP

- Gross Working Capital is the total of all current assets. Networking capital is the difference between current assets and current liabilities.
- Permanent Working Capital is that amount of funds which is required to produce goods and services necessary to satisfy demand at its lowest point.
- Various factors such as nature of firm's activities, industrial health of the country, availability of material, ease or tightness of money markets affect the working capital.
- Factors which influence cash balance include credit position of the company, status of receivables and inventory accounts, nature of business enterprise and management's attitude towards risk.
- The amount of time needed for inventories to travel through the various process directly affect the amount of investment. The investment in inventories is guided by minimization of costs and management's ability to predict the forces that may cause disruption in the follow of inventories like strikes or shifts in demand for the product.

- Factors influencing investment in receivables are mainly the cost and time values of funds.
- The operating cycle is the length of time between the company's outlay on raw materials, wages and other expenditures and the inflow of cash from the sale of the goods.
- In deciding company's working capital policy, an important consideration is trade-off between profitability and risk.
- Cash management means management of cash in currency form, bank balance and reality marketable securities.
- Inventory management has at its core the objective of holding the optimum level of inventory at the lowest cost.
- There are various technical tools used in inventory management such as ABC analysis, Economic Order Quantity (EOQ) and VED analysis.
- Factoring is a type of financial service which involves an outright sale of the receivables of a firm to a financial institution called the factor which specializes in the management of trade credit.
- Forfaiting is a form of financing of receivables pertaining to international trade. It denotes the purchase of trade bills/ promissory notes by a bank/financial institution without recourse to the seller.

GLOSSARY

Current Assets: Include cash, accounts receivable, and inventories.

Current Liabilities: Include accounts payable, short-term borrowings, and accrued liabilities.

Endogenous factors: Include a company's size, structure, and strategy.

Exogenous factors: Include the access and availability of banking services, level of interest rates, type of industry and products or services sold, macroeconomic conditions, and the size, number, and strategy of the company's competitors.

Liquidity Event: A liquidity event is a process by which an investor liquidates their investment position in a private company and exchanges it for cash. The main purpose of a liquidity event is the transfer of an illiquid asset (an investment in a private company) into the most liquid asset – cash.

TEST YOURSELF

OBJECTIVE TYPE QUESTIONS

Fill in the blanks

1. A decision to decrease the wage rates will.....working capital requirements.
2. Total of current assets is called as .....
3. Cash budget is a ..... Term budget.
4. Motives for holding cash are ....., ..., ...
5. Total inventory cost = ...+.....+.....

6. EOQ is the quantity where ordering cost and .....cost are equal.

7. Inventory is one of the components of .....assets.

8. Minimum stock level + half of the reorder quantity is equal to .....

9. The time required to process and executive an order is called .....time.

ANS –

1. Decrease
2. Gross Working Capital
3. Short
4. Transaction, Precautionary, Speculative
5. Material Cost, Ordering Cost, Holding Cost
6. Holding Cost
7. Current
8. Average Stock Level
9. Lead

MULTIPLE CHOICE QUESTIONS

1) Cash budget is based on

A) Past performance B) Present performance

C) Future estimates D) None of these

ANS- C

2) Cash budget is prepared because it :

A) Is legally compulsory B) Helps in cash management

C) Helps In preparing balance sheet D) None of these

ANS- B

3) The term receivable implies

A) Trade debtor and B/R B) Trade debtor only

C) B/R only D) None of these

ANS- A

4) At EOQ level :

A) Total cost are minimum B) Total cost are maximum

C) Total cost are equal to holding cost D) None of these

ANS- A

ESSAY TYPE QUESTIONS

1. What do you mean by working capital? What are factors which may affect the quantum of working capital?
2. Explain the kinds of working capital.
3. What are the different sources of working capital finance?
4. What is cash management? Explain the function and importance of cash management.
5. Explain the motives of holding cash.
6. Define the inventory. Why should inventory be held?
7. What do you mean by inventory management? Also explain its objectives.
8. What do you mean by Receivables? Also discuss the costs of maintaining Receivables.
9. Discuss the kinds of working capital.
10. What is the importance of working capital?
11. What is operating cycle method of estimating working capital?
12. What are the advantages of adequate working capital?
13. What is the need of cash in business? Discuss and explain the various facts of Cash Management.
14. Discuss the management problems involved in the planning and control of cash. Explain the main tools of cash planning and control.
15. What do you understand by Management of Receivables? Explain the factors affecting the investment in receivables.
16. What is Credit Policy? How can it be formulated and evaluated?

PRACTICAL TYPE QUESTIONS

Question 1. From the following information, you are required to estimate the net working capital:

	Cost per Unit (Rs.)
Raw Material	800
Direct Labour	300
Overheads (excluding Depreciation)	600
Total Cost	1700
Output 52,000 units per annum at an even pace	
Raw Material in stock	Average 4 weeks
Work-in-Progress (whole of material and 50% completion	
Stage for labour and overhead)	Average 2 weeks
Finished goods in stock	Average 4 weeks
Credit allowed to debtors	Average 8 weeks
Credit allowed by suppliers	Average 4 weeks

All sales are on credit basis and materials are introduced at the commencement of the process.

Ans.: Rs.2,29,00,000. Note: Investment in debtors has been valued on cost basis.

Question 2. The cost sheet of PQR Ltd. provides the following data:

Cost per Ton	**(Rs.)**
Raw Material	50
Direct Labour	20
Overheads (including depreciation of Rs.10)	40
Total Cost	110
Profits	20
Selling price	130

Average raw material in stock is for one month.

Average material in work-in-progress is for half month. Credit allowed by suppliers: one month; credit allowed to debtors: one month. Average time lag in payment of wages: 10 days; average time lag in payment of overheads 30 days, 25% of the sales are on cash basis. Cash balance expected to be Rs.1,00,000. Finished goods lie in the warehouse for one month.

You are required to prepare a statement of the working capital needed to finance level of the activity of 54,000 units of output. Production is carried on evenly throughout the year and wages and overheads accrue similarly.

Ans. 8,91,250

Assumption: (1) Depreciation, being non-cash item, has been excluded. (2) As wages and overheads accrue evenly throughout the year, only 50% of the expenses have been taken in work-in-progress.

Question 3. From the following details, prepare an estimate of the requirement of working capital:

Production	60,000 Units
Selling Price per Unit	Rs.5
Raw materials	60% of Selling Price
Direct Wages	10% of Selling Price
Overheads	20% of Selling Price
Materials in Hand	2 months' requirements
Production Time	1 month
Finished Goods in Stores	3 months
Credit for Material	3 months
Credit allowed to Customers	3 months
Average Cash Balance	Rs.20,000

Wages and overheads are paid at the beginning of the month following. In production all the required materials are charged in the initial stage and wages and overheads accrue evenly.

Ans.: (a) Estimating Debtors at cost Rs.67,500, Working Capital Requirements Rs.1,66,250

Question 4. From the following details prepare a Cash Budget for October, November and December 2008:

Month	*Sales (Rs.)*	*Purchases (Rs.)*	*Wages (Rs.)*	*Expenses (Rs.)*
July (Actual)	50,000	25,000	10,000	4,000
August (Actual)	70,000	38,000	12,000	6,000
September (Actual)	80,000	41,000	13,000	7,000
October (Estimated)	80,000	42,000	14,000	6,000
November, (Estimated)	90,000	46,000	16,000	6,500
December (Estimated)	1,00,000	52,000	15,000	8,000

Additional Information:

1) 20% of purchases and 10% of sales are for cash.
2) The average collection period of the business is ½ month.
3) Credit purchases are regularly paid after one month.
4) Wages are paid half monthly and the Rent of Rs.1,000 (included in Expenses) is paid monthly.
5) Cash balance on October 1, 2008 is Rs.10,000.

Ans. Oct. 29300, Nov. 50500, Dec. 75300

Question 5. Prepare a Cash Budget for the quarter ending 30-6-2008 month-wise in a tabular form from the following information:

	Actual			Budgeted		
Particulars	**Jan.**	**Feb.**	**Mar.**	**April.**	**May**	**June**
	Rs.	**Rs.**	**Rs.**	**Rs.**	**Rs.**	**Rs.**
Sales	80,000	80,000	75,000	90,000	85,000	80,000
Purchases	45,000	40,000	42,000	50,000	45,000	35,000
Wages	20,000	18,000	22,000	24,000	20,000	18,000
Expenses	5,000	6,000	6,000	7,000	6,000	5,000

(1) 10% of sales and purchases are for cash.
(2) Credit purchases are paid for after one month and the credit sales are collected after two months.
(3) Wages are paid on the last day of the month and expenses after one month.
(4) Rent Rs.300 per month is not included in expenses.
(5) Income-tax payable in May is estimated to be Rs.4,000.
(6) Cash Balance on March 31, 2008 was Rs.13,000.

Ans. Cash Balance on June 30, 2008 = Rs.36,800

Question 6. Summarized below are the income and expenditure forecasts for the month of March to August 2008:

Month	*Sales (all credit)*	*Purchases (all credit)*	*Wages Rs.*	*Mfg. Exps.*	*Office Exps.*	*Selling Exps.*
	Rs.	*Rs.*		*Rs.*	*Rs.*	*Rs.*
March	60,000	36,000	9,000	4,000	2,000	4,000
April	62,000	38,000	8,000	3,000	1,500	5,000
May	64,000	33,000	10,000	4,500	2,500	4,500
June	58,000	35,000	8,500	3,500	2,000	3,500
July	56,000	39,000	9,500	4,000	1,000	4,500
August	60,000	34,000	8,000	3,000	1,500	4,500

You are given the following further information:

1) Plant costing Rs.16,000 is due for delivery in July payable 10 percent on delivery and the balance after three months.
2) Advance tax of Rs.8,000 each is payable in March and June.
3) Period of credit allowed by suppliers 2 months and to customers 1 month.
4) Lag in payment of manufacturing expenses one-half month.
5) Lag in payment of all other expenses one month.

You are required to prepare a cash budget for three months starting on 1st May 2008 when there was a cash balance of Rs.8,000.

Ans. Cash Balance on 31st July 2008 = Rs.18,400

Question 7. Two components, X and Y, are used as follows:

Normal usage	600 units per week each
Maximum usage	900 units per week each
Minimum usage	300 units per week each
Re-order quantity	X, 4,800 units, Y 7,200 units
Re-order period	X 4 to 6 weeks, Y 2 to 4 weeks

Calculate for cash component

a) Reorder Level
b) Minimum Level
c) Maximum Level
d) Average Stock Level

Ans.

	X	Y
a)	5,400 units	3,600 units
b)	2,400 units	1,800 units
c)	9,000 units	10,200 units
d)	4,800 units	5,400 units

Question 8. A manufacturer requires 1,000 units of a raw material per month. The ordering cost is Rs.15 per order. The carrying cost in addition to Rs.2 per unit is estimated to be 15% of the average inventory per unit per year. The purchase price of the raw material is Rs.10 per unit. Find economic lot size and total cost.

Ans. E.O.Q. = 320.71 or 321 units; TIC = Rs.1,21,122

Question 9. XYZ Electrical Company uses annually 50,000 units of an item each costing Rs.1.20. Each order costs Rs.45 and inventory carrying cost is 15% of the annual average inventory value.

a) Find the Economic Order Quantity

b) If the company operates 250 days a year and the procurement time is 10 days and safety stock is 500 units, find the reorder point, maximum, minimum and average inventory.

Ans. (a) 5,000 units, (b) 2,500 units, 5,500 units, 500 units, 3,000 units

Question 10. From the following data of ARPG Co., compute the duration of the operating cycle for each of the two years:

		Year 1	*Year 2*
Stocks:		***Rs.***	***Rs.***
	Raw Materials	20,000	27,000
	Work-in-Progress	14,000	18,000
	Finished Goods	21,000	24,000
Purchases		96,000	1,35,000
	Cost of Goods Sold	1,40,000	1,80,000
	Sales	1,60,000	2,00,000
	Debtors	32,000	50,000
	Creditors	16,000	18,000

Assume 360 days per year for computational purposes.

Ans: Operating Cycle 177 days, 198 days Operating cycle can be reduced by:

LIST OF FURTHER READINGS

- Financial Management: Theory and Practice by Eugene F. Brigham
- Guide to Financial Management by John Tennent
- Financial Management: Theory and Practice, 10e by Prasanna Chandra

- Financial Intelligence: A Manager's Guide to Knowing What the Numbers Really Mean
- Financial Management by I. M. Pandey
- Financial Management by A.K. Arora
- Working Capital Management: Applications and Case Studies by James Sagner
- Working Capital Management by V. K. Bhalla

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- Working Capital Management-Concepts and Strategies, Edited By: H Kent Baker (American University, USA), Greg Filbeck (Penn State Behrend, USA) and Tom Barkley (Syracuse University, USA)
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Security Analysis

Lesson 18

KEY CONCEPTS

■ Investment ■ Speculation ■ Security Analysis ■ Technical Analysis ■ Risk and its types

Learning Objectives

To understand:

- Concept of investment a security analysis
- Risk and its types
- Approaches to valuation security
- Fundamental analysis
- Technical analysis
- Efficient-Market Theory

Lesson Outline

- Investment Analysis
- Differences between Investment, Speculation and Gambling
- Fundamental Analysis
- Technical Approach and Efficient Capital Market Theory
- Measuring of Systematic and Unsystematic Risks
- Return of the Security
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings
- Other References

INTRODUCTION

"An Investment is the current commitment of money or other resources in the expectation of reaping future benefits." (Zvi Bodie, 2016). Investment means to forego present consumption for the increased consumption resource available in the future. It can be in any form, assets of all type and kind be it jewellery, commodity, real estate etc. An investor can buy a share of a company in anticipation of getting good returns in future. In this section of the book, we are interested in the Financial Assets or securities like equity shares, bonds and debentures etc. At this point, reader should understand that the financial assets are different from real assets. While financial assets are the paper claim representing an indirect claim to real assets in form of debt or equity commitments, the real assets are land and building, machines, etc., which are used to produce goods and services. Therefore, a security is understood to be a debt or equity instrument issued by a firm in lieu of the funds raised by it to meet its long term and short term requirements. Among the many properties that distinguish real from financial assets are liquidity and marketability. These features make the financial assets more attractive for investors as they are able to liquidate their investments easily in ready and active markets.

The decision of the investor is confronted with many issues, like- in which asset class to invest; shares, bonds, bullion etc. The investor must decide the time horizon for which he/she needs to invest and balance the combination of his/her expected return to the risk they are ready to face. These are some of the issues which any investor will face. In this chapter we shall describe the term securities generally and discuss the prevalent options available in the Indian Securities market.

WHAT ARE SECURITIES

Securities may be defined as instruments issued by seekers of funds in the investment market to the providers of funds in lieu of funds.

These instruments *prima facie* provide evidence of ownership to the holder of the instrument. The owner is entitled to receive all the benefits due on the instrument and to retrieve his investment at the time of redemption. Securities can broadly be divided into two categories – Debt Securities and Equity Securities. However, Section 2(h) of Securities Contract (Regulation) Act, 1956, defines securities as under:

Securities include –

(i) shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate.

(ia) derivative.

(ib) units or any other instrument issued by any collective investment scheme to the Investors in such schemes.

(ic) security receipt as defined in clause (zg) of Section 2 of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002.

(id) units or any other such instrument issued to the investors under any mutual fund scheme.

(ii) Government securities.

(iia) such other instruments as may be declared by the Central Government to be securities and,

(iii) rights or interests in securities.

INVESTMENT

Investment is the employment of funds on assets with the aim of earning income or capital appreciation. Investment has two attributes namely time and risk. Present consumption is sacrificed to get a return in the

future. The sacrifice that has to be borne is certain but the return in the future may be uncertain. This attribute of investment indicates the risk factor. The risk is undertaken with a view to reap some return from the investment.

The investor makes a comparison of the returns available from each avenue of investment, the element of risk involved in it and then makes the investment decision that he perceives to be the best having regard to the time frame of the investment and his own risk profile.

Any investment decision will be influenced by three objectives – security, liquidity and yield. A best investment decision will be one, which has the best possible compromise between these three objectives.

- Security
- Liquidity
- Yield

A best investment decision will be one, which has the best possible compromise between these three objectives. When selecting where to invest our funds, we have to analyze and manage following three objectives.

(i) **Security:** Central to any investment objective is the certainty in recovery of the principal. One can afford to lose the returns at any given point of time, but s/he can ill afford to lose the very principal itself. By identifying the importance of security, we will be able to identify and select the instrument that meets this criterion. For example, when compared with corporate bonds, we can vouch the safety of return of investment in treasury bonds as we have more faith in governments than in corporations. Hence, treasury bonds are highly secured instruments. The safest investments are usually found in the money market and include such securities as Treasury bills (T-bills), certificates of deposit (CD), commercial paper or bankers' acceptance slips; or in the fixed income (bond) market in the form of municipal and other government bonds, and in corporate bonds.

(ii) **Liquidity :** Because we may have to convert our investment back to cash or funds to meet our unexpected demands and needs, our investment should be highly liquid. They should be en cashable at short notice, without loss and without any difficulty. If they cannot come to our rescue, we may have to borrow or raise funds externally at high cost and at unfavorable terms and conditions. Such liquidity can be possible only in the case of investment, which has always-ready market and willing buyers and sellers. Such instruments of investment are called highly liquid investment. Common stock is often considered the most liquid of investments, since it can usually be sold within a day or two of the decision to sell. Bonds can also be fairly marketable, but some bonds are highly illiquid, or nontradable, possessing a fixed term. Similarly, money market instruments may only be redeemable at the precise date at which the fixed term ends. If an investor seeks liquidity, money market assets and non-tradable bonds aren't likely to be held in his or her portfolio.

(iii) **Yield:** Yield is best described as the net return out of any investment. Hence given the level or kind of security and liquidity of the investment, the appropriate yield should encourage the investor to go for the investment. If the yield is low compared to the expectation of the investor, s/he may prefer to avoid such investment and keep the funds in the bank account or in worst case, in cash form in lockers. Hence yield is the attraction for any investment and normally deciding the right yield is the key to any investment.

INVESTMENT VS. SPECULATION

According to Benjamin Graham "An investment operation is one which, upon thorough analysis, promises safety of principal and an adequate return. Operations not meeting these requirements are speculative."

Thus investment differs from speculation. Speculation also involves deployment of funds but it is not backed

by a conscious analysis of pros and cons. Mostly it is a spur of the moment activity that is promoted and supported by half-baked information and rumours. Speculative deployment of funds is generally prevalent in the secondary equity market. What attracts people to speculation is a rate of return that is abnormally higher than the prevailing market rates. The balancing of risk and return nevertheless operates in speculative activity also and as such the risk element in speculation is very high. Very broadly, the characteristics of an investor differ from the speculator as follows:

BASIS FOR COMPARISON	***INVESTMENT***	***SPECULATION***
Meaning	The purchase of an asset with the hope of getting returns is calledinvestment.	Speculation is an act of conducting a risky financial transaction, in the hopeof substantial profit.
Basis for decision	Fundamental factors, i.e. performanceof the company.	Hearsay, technical charts and marketpsychology.
Time horizon	Long term	Short term
Risk involved	Moderate risk	High risk
Intent to profit	Changes in value	Changes in prices
Expected rate of return	Modest rate of return	High rate of return
Funds	An investor uses his own funds.	A speculator uses borrowed funds.
Income	Stable	Uncertain and Erratic
Behavior of participants	Conservative and Cautious	Daring and Careless

INVESTMENT VS. GAMBLING

Investment differs from gambling and betting also. Both gambling and betting are games of chance in which return is dependent upon a particular event happening. Here also, there is no place for research-based activity. The returns in gambling are high and known to the parties in advance. Gambling is different from Investment in the following respects:

BASIC FOR COMPARISON	***INVESTMENT***	***GAMBLING***
Planning Horizon	Longer Planning Horizon	Short Planning Horizon
Basis for Decisions	Scientific Analysis of Intrinsic worthof the security	Based on tips and rumors
Nature	Planned activity	Unplanned activity
Risk	Commercial Risk	Artificial Risk
Return Expectation	Risk-return trade-off determines return	Negative returns are expected
Motive	Safety of principal and stability of returns	Entertainment while earning

To say that investors like return and dislike risk is, however, simplistic. To facilitate our job of analyzing securities and portfolios within a risk return context, we must begin with a clear understanding of what risk and return are, what creates them and how they should be measured.

SECURITY ANALYSIS

Security analysis is the first part of investment decision process involving the valuation and analysis of individual securities. Security Analysis is primarily concerned with the analysis of a security with a view to determine the value of the security, so that appropriate decisions may be made based on such valuation as compared with the value placed on the security in the market.

Two basic approaches of security analysis are fundamental analysis and technical analysis.

Fundamental Analysis can be segregated into economic analysis, industry analysis and company analysis

Fundamental analysis is a three level systematic process that analyse the overall external and internal environment of the company before placing a value on its shares. The three levels at which the analysis is carried out are the following:

(a) Analysis of the economy

(b) Industry Level Analysis

(c) Company Analysis

We shall describe the analytical process at all these levels in details hereunder:

Analysis of the economy

Performance of a company is intimately related to the overall economic environment of the country because demand for products and services of the company would under normal circumstances be directly related to growth of the country's economy. If the country has an improving GDP growth rate, controlled inflation and increasing investment activity then chances are that the valuation of securities shall be liberal. The capital market is said to be in a bullish phase with share values shooting up across the board. As the economy is growing, the analyst expects almost every industry to do well.

On the other hand, if the GDP growth rate slackens, inflation is out of control and investment activity is stagnant or declining, the investor or the analyst will expect the performance of industries to slow down. Under such circumstances, valuation of securities tends to be conservative. The capital market enters a bearish phase and share values decline across to board.

While undertaking the analysis of the economy, the following macro-economic factors are commonly used.

i) **Gross Domestic Product:** Gross Domestic Product (GDP) indicates the rate of growth of the economy. GDP represents the aggregate value of the goods and services produced in the economy. GDP consists of personal consumption expenditure, gross private domestic investment and government expenditure on goods and services and net export of goods and services. As mentioned above, whenever the GDP grows, it indicates economic growth and higher return for investors.

ii) **Savings and Investment:** It is obvious that growth demands investment which in turn needs substantial amount of domestic savings. Stock market is a channel through which the savings of the investors are made available to corporate houses. Savings are distributed over different assets such as equity shares, deposits, mutual fund units, real estate and bullion.

iii) **Inflation :** Along with the growth rate of GDP, if the inflation rate also increases, then the real rate of

growth of would be very less. The demand in the consumer product industry is significantly affected. The industries which come under the government price control policy may lose the market. It is to be noted that mild level of inflation is good for the stock market and high rate of inflation is detrimental to the stock market.

iii) **Interest rates:** The interest rate affects the cost of financing to the firms. A decrease in interest rate implies lower cost of finance for firms and more profitability. More money is available at a lower interest rate for the brokers who are doing business with borrowed money. Availability of funds at low interest rates fosters speculation and rise in the price of shares.

iv) **Budget:** The Union Budget provides a detailed account of the government revenues and expenditures. A deficit budget may lead to high rate of inflation and adversely impact the cost of production. Surplus budgets may result in deflation. Hence, balance budget is highly favourable to the stock market.

v) **Tax structure:** Tax concessions and incentives given to certain industries encourages investment in that particular industry. Tax reliefs provided to savings encourage savings.

vi) **Other factors:** Other factors include the balance of payment, monsoon and agriculture, infrastructure facilities and demographic factors.

Industry Level Analysis

Industry level analysis focuses on a particular industry rather than on the broader economy. In this analysis, the analyst has to look for the composition of the industry, its criticality vis-à-vis the national economy, its position along the industrial life cycle, entry and exit barriers. All these factors have a bearing upon the performance of the company.

Industry is a combination or group of units whose end products and services are similar. Having a common market, the participants in the industry group face similar problems and opportunities. To the extent that an industry loses or gains from certain happenings, the performance of the participants is sure to be similarly impacted. These happenings may be technological changes, shifts in consumer preferences, availability of substitutes etc. These changes also drive the life cycle of the industry.

The industry life cycle or the industry growth cycle can be divided into three major stages-pioneering stage, expansion stage and stagnation stage. The pioneering stage is related to sunrise status of the industry. It is the stage when technological development takes places. The products have been newly introduced in the market and they gain ready acceptance. The pioneering units in the industry make extraordinary profits and thus attract competition. As competition increases profitability in the industry comes under strain and less efficient firms are forced out of the market. At the end of the pioneering stage, selected leading companies remain in the industry.

In the expansion stage of the growth cycle the demand for the products increases but at a lower rate. There is less volatility in prices and production. Capital is easily available in plenty for these units. Due to retention of profits, internal accruals increase.

At the stagnation stage, the growth rate initially slows down, then stagnates and ultimately turns negative. There is no product innovation. External capital is hard to come by. Even the internal capital takes flight. This stage of the industry is most valuable during times of slow down in national economy.

Company Analysis

Armed with the economic and industry forecasts, the analyst looks at the company specific information. Company information is generated internally and externally. The principle source of internal information about a company is its financial statements. Quarterly and annual reports including the income statement, the

balance sheet and cash flows must be screened to assure that the statements are correct, complete, consistent, and comparable. Many popular and widely circulated sources of information about the companies emanate from outside, or external sources. These sources provide supplements to company-generated information by overcoming some of its bias, such as public pronouncements by its officers. External information sources also provide certain kinds of information not found in the materials made available by companies themselves. There are traditional and modern techniques of company analysis.

Among the traditional techniques are forecasting expected dividends and earnings using price-earning ratios which help us to determine whether a stock is fairly valued at a point in time. Such approaches allow us to evaluate an equity share for a short term horizon. Moreover, an approach combining the dividend discount model (with variable growth rates) and the concept of systematic risk can also be helpful in evaluating a stock for a longer term holding period. Among the modern methods are regression analysis, and the related tools of trend and correlation analysis, decision tree analysis and simulation. Modern methods have strengths of the traditional methods while attempting to overcoming their shortcomings.

Fundamental Analysis Tools: Although the raw data of the Financial Statement has some useful information, much more can be understood about the value of a stock by applying a variety of tools to the financial data.

1. Earnings per Share – EPS
2. Price to Earnings Ratio – P/E
3. Projected Earnings Growth – PEG
4. Price to Sales – P/S
5. Price to Book – P/B
6. Dividend Yield
7. Dividend Payout Ratio
8. Book value per share
9. Return on Equity

At this juncture, it is imperative to understand various Ratios, Comparative Financial Statements, Trend Analysis, Common Size Statements, Fund Flow Analysis and Cash Flow Analysis

A. Ratio Analysis

Ratio is a relationship between two figures expressed mathematically. Financial ratio provides numerical relationship between two relevant financial data. Financial ratios are calculated from the balance sheet and profit and loss account.

Financial ratios may be divided into six groups

- Liquidity Ratios
- Turnover Ratios
- Leverage Ratios
- Profit Margin Ratios
- Coverage Ratios
- Valuation Ratios

a) *Liquidity Ratios*: Liquidity means the ability of the firm to meet its short term obligations. Current ratio and

acid test ratio are the most popular ratios used to analyse the liquidity. The liquidity ratio indicates the liquidity in a rough fashion and the adequacy of the working capital.

1. **Current Ratio:** The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year.

   = Current Assets / Current Liabilities

2. **Acid Test Ratio:** The acid-test ratio (ATR), also commonly known as the quick ratio, measures the liquidity of a company by calculating how well current assets can cover current liabilities. The quick ratio uses only the most liquid current assets that can be converted to cash within 90 days or less.

   = Current Assets – Inventories / Current Liabilities

b) *Turnover Ratios*: The turnover ratios show how well the assets are used and the extent of excess inventory, if any. These ratios are also known as activity ratios or asset management ratios. Commonly calculated ratios are sales to current assets, sales to fixed assets, sales to inventory, receivable to sales and total assets to turnover. Sales to current assets ratio shows the utilisation of current assets. Various turnover ratios are as under:

1. **Inventory Turnover Ratio:** Inventory turnover is the rate that inventory stock is sold, or used, and replaced. The inventory turnover ratio is calculated by dividing the cost of goods by average inventory for the same period. A higher ratio tends to point to strong sales and a lower one to weak sales.

   = Net Sales / Inventory or

   Cost of Goods Sold / Average Inventory.

2. **Receivables Turnover Ratio:** The receivables turnover ratio measures the efficiency with which a company is able to collect on its receivables or the credit it extends to customers. The ratio also measures how many times a company's receivables are converted to cash in a certain period of time.

   = Net Credit Sales / Average Accounts Receivable

3. **Capital Employed Turnover Ratio:** The capital employed turnover ratio indicates the efficiency with which a company utilizes its capital employed with reference to sales.

   = Net Sales / Average Capital Employed

4. **Working Capital Turnover Ratio:** Working capital turnover ratio is the ratio between the net revenue or turnover of a business and its working capital.

   = Net Sales / Working Capital

5. **Asset Turnover Ratio:** Asset turnover ratio is the ratio between the value of a company's sales or revenues and the value of its assets. It is an indicator of the efficiency with which a company is deploying its assets to produce the revenue. Thus, asset turnover ratio can be a determinant of a company's performance.

   = Net Sales / Average Total Assets

c) *Leverage Ratios*: The investors are generally interested to find out the debt portion of the capital. The debt affects the dividend payment because of the outflow of profit in the form of interest. High leverage indicates significance reliance on external debt financing sources. Low leverage signifies operations are mostly funded with internally generated cash (retained earnings).

The financial leverage affects the risk and return aspects of holding the shares. In general, increased amounts of leverage in the capital structure equates to more financial risk, since the company incurs greater interest

expense and mandatory debt amortization as well as principal repayments coming up in the future. Various leverage ratios are as under:

1. **Debt-to-Assets Ratio:** The debt-to-assets ratio compares a company's total debt to its assets, with a higher value meaning that the company has purchased the majority of its assets using debt.

   Debt-to-Assets Ratio = Total Debt / Total Assets

2. **Debt-to-Equity Ratio (D/E):** The debt-to-equity ratio compares a company's debt to the shareholders' equity, with a high ratio suggesting the company's operations have been financed with more debt.

   Debt-to-Equity Ratio (D/E) = Total Debt / Total Equity

3. **Debt-to-Total Capitalization:** The debt-to-capital ratio compares the total debt to the sum of all capital sources, with the purpose of measuring the percentage of the total capital structure attributable to debt.

   Debt-to-Total Capitalization = Total Debt / (Debt + Equity + Minority Interest + Preferred Stock)

4. **Net Debt-to-Total Capitalization:** The inherent assumption in the net debt-to-capital ratio is that the cash on the B/S can be used to help pay down existing debt – thus the total debt amount is adjusted to account for the available cash balance.

   Net Debt-to-Capital = (Total Debt – Cash) / (Debt + Equity + Minority Interest + Preferred Stock – Cash)

5. **Operating Leverage Ratio:** The degree of operating leverage (DOL) is a financial ratio that measures the sensitivity of a company's operating income to its sales. This financial metric shows how a change in the company's sales will affect its operating income.

   DOL = (Sales – Variable Costs) / Profit

   Where Profit can be calculated using the following formula,

   Profit= Sales – Variable Costs – Fixed Costs

6. **Financial Leverage Ratio:** Just as operating leverage results from the existence of operating expenses in the enterprise's income stream, financial leverage results from the presence of fixed financial charges in the firm's income stream. Financial leverage is the use of debt to buy more assets. Leverage is employed to increase the return on equity. However, an excessive amount of financial leverage increases the risk of failure, since it becomes more difficult to repay debt.

   The degree of financial leverage (DFL) is a leverage ratio that measures the sensitivity of a company's earnings per share to fluctuations in its operating income, as a result of changes in its capital structure. This ratio indicates that the higher the degree of financial leverage, the more volatile earnings will be.

   DFL = (EBIT) / (EBT)

d) *Profitability Ratios*: Profitability ratios are a class of financial metrics that are used to assess a business's ability to generate earnings relative to its revenue, operating costs, balance sheet assets, or shareholders' equity over time, using data from a specific point in time.

Profitability ratios can be compared with efficiency ratios, which consider how well a company uses its assets internally to generate income (as opposed to after-cost profits). Profitability ratios assess a company's ability to earn profits from its sales or operations, balance sheet assets, or shareholders' equity.

Profitability ratios indicate how efficiently a company generates profit and value for shareholders. Higher ratio results are often more favourable, but these ratios provide much more information when compared to results of similar companies, the company's own historical performance, or the industry average.

The following are covered under the profitability ratios:

1. **Gross Profit Margin**: The Gross Margin Ratio, also known as the gross profit margin ratio, is a profitability ratio that compares the gross margin of a company to its revenue. It shows how much profit a company makes after paying off its Cost of Goods Sold (COGS).

   Gross Profit Margin = Gross Profit / Net Sales * 100

   Where,

   Gross Profit = Net Sales – Cost of Goods Sold

   Net Sales = Total Sales – Discounts – Allowances – Sales Returns

2. **Operating Profit Margin:** Operating Profit Margin helps measure the company's ability to maintain operating expenses to generate profit before interest expense and tax deduction. In other words, the revenue that remains after costs is deducted from net sales.

   A higher ratio indicates that the company is well equipped to pay its fixed costs, interest obligations, handle economic slowdowns and also offer lower prices than its competitors at lower margins. Moreover, the company management most frequently uses this to improve profitability by managing its costs.

   Operating Profit Margin Ratio = Operating Profit / Net Sales * 100

   Where,

   Operating Profit = Gross Profit – Operating Expenses – Depreciation and Amortisation

   Net Sales = Total Sales – Discounts – Allowances – Sales Returns

3. **Net Profit Margin:** The net profit margin, or simply net margin, measures how much net income or profit is generated as a percentage of revenue. It is the ratio of net profits to revenues for a company or business segment. Net profit margin is typically expressed as a percentage but can also be represented in decimal form. The net profit margin illustrates how much of each dollar /rupee in revenue collected by a company translates into profit.

   Net Profit Margin Ratio = Net Income / Net Sales * 100

   Where,

   Net Income = Gross Profit – All Expenses – Interest – Taxes

   Net Sales = Total Sales – Discounts – Allowances – Sales Returns

4. **Return on Equity (ROE):** ROE measures how well a company can use its shareholders' money to generate profits. Also, it indicates the returns on the sum of money the investors have invested in the company.

   Furthermore, ROE is usually watched by investors and analysts. Moreover, a higher ROE ratio can be one of the reasons to buy a company's stock. Companies with a high return on equity can generate cash internally, and thus they will be less dependent on debt financing.

   Return on Equity = Net Profit after Taxes / Shareholder's Equity x 100

   Where,

   Shareholder's Equity = Equity Share Capital

5. **Return on Assets (ROA):** Return on Assets (ROA) measures how well a company uses its assets to generate profits. In other words, it focuses on how much profit it generates on every rupee invested.

Also, it measures the asset intensity of the company. Thus, a lower ROA indicates a more asset-intensive company.

On the contrary, a higher ROA indicates more profitability against the company's number of assets to operate. Moreover, companies with higher asset intensity must invest a significant amount in machinery and equipment to generate income. For example – telecommunication, car manufacturers, railroads, etc.

Return on Assets = Net Profit after Taxes / Total Assets x 100

Where,

Total assets = All the assets on the balance sheet

6. **Return on Capital Employed (ROCE):** Return on Capital Employed (ROCE) measures the company's overall return against the overall investment of both shareholders and bondholders. This ratio is very similar to ROE, but it is more comprehensive as it includes the returns generated from bondholders capital investments.

   Return on Capital Employed (ROCE) = EBIT / Capital Employed

   Where,

   EBIT (Earnings Before Interest & Taxes) = Net Profit Before Interest and Taxes

   Capital Employed = Total Assets – Current Liabilities

e) *Coverage Ratios*: A coverage ratio, broadly, is a metric intended to measure a company's ability to service its debt and meet its financial obligations, such as interest payments or dividends. The higher the coverage ratio, the easier it should be to make interest payments on its debt or pay dividends.

The most common coverage ratios are:

1. **Interest coverage ratio:** The ability of a company to pay the interest expense (only) on its debt.

   = Operating Income / Interest Expense.

2. **Debt service coverage ratio**: The ability of a company to pay all debt obligations, including repayment of principal and interest.

   = Operating Income / Total Debt Service

3. **Cash coverage ratio:** The ability of a company to pay interest expense with its cash balance.

   = Total Cash / Interest Expense

4. **Asset coverage ratio:** The ability of a company to repay its debt obligations with its assets.

   = (Total Assets – Intangible Assets) – (Current Liabilities- Short-term Debts) / Interest Expense

f) *Valuation Ratios or Market Value Ratios*: Valuation ratios, or market value ratios, are measurements of how appropriately shares in a company are valued and what type of return an investor may get. By calculating the market value, a potential investor can see if the shares are overvalued, undervalued, or at a fair price.

1. **Price- to -Earnings Ratio:** Price-to-earnings ratio (P/E) looks at the relationship between a company's stock price and its earnings. The P/E ratio gives investors an idea of what the market is willing to pay for the company's earnings. The ratio is determined by dividing a company's current share price by its earnings per share.

   Companies with a high Price Earnings Ratio are often considered to be growth stocks. This indicates a

positive future performance, and investors have higher expectations for future earnings growth and are willing to pay more for them.

Companies with a low Price Earnings Ratio are often considered to be value stocks. It means they are undervalued because their stock prices trade lower relative to their fundamentals. This mispricing will be a great bargain and will prompt investors to buy the stock before the market corrects it.

P/E = Stock Price Per Share / Earnings Per Share

or

P/E = Market Capitalization / Total Net Earnings

or

Justified P/E = Dividend Payout Ratio / R – G

where;

R = Required Rate of Return

G = Sustainable Growth Rate

2. **Price-to-Book Value Ratio:** Price-to-book value (P/B) is a measurement that looks at the value the market places on the book value of the company. It is calculated by taking the current price per share and dividing by the book value per share. The book value of a company is the difference between the balance sheet assets and balance sheet liabilities. A ratio over 1 generally implies that the market is willing to pay more than the equity per share, while a ratio under 1 implies that the market is willing to pay less.

   The P/B ratio reflects the value that market participants attach to a company's equity relative to the book value of its equity. A stock's market value is a forward-looking metric that reflects a company's future cash flows. The book value of equity is an accounting measure based on the historic cost principle and reflects past issuances of equity, augmented by any profits or losses, and reduced by dividends and share buybacks.

   $$\text{P/B Ratio} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

3. **Price-to-Sales Ratio**: The price-to-sales ratio (P/S) shows how much the market values every dollar of the company's sales. To calculate it, take the company's market capitalization and divide it by the company's total sales over the past 12 months. A company's market cap is the number of shares issued multiplied by the share price. The P/S ratio can be used in place of the P/E ratio in situations where the company has a net loss.

   One of the advantages of using the P/S ratio is that sales are much harder to manipulate than earnings. Since a company's sales are generally more stable than its earnings level, any large changes in the P/S ratio are often more likely to indicate a departure from the intrinsic value of the company (either up or down).

   $$\text{P/S Ratio} = \frac{\text{MVS}}{\text{SPS}}$$

   Where:

   MVS = Market Value per Share

   SPS = Sales per Share

4. **Price-to-Cash Flow Ratio**: Price-to-cash flow ratio (P/CF) evaluates the price of a company's stock relative to how much cash flow the company generates. It is calculated by dividing the company's market cap by its operating cash flow in the most recent 12 months. It can also be calculated by dividing the per-share stock price by the per-share operating cash flow. P/CF ratio is an alternative method to P/E ratio.

   Many investors prefer to use a P/CF metric because it is considered harder to manipulate cash tallies than it would be to massage earnings reports under generally accepted accounting principles, which could make the cash-based benchmark a more reliable indicator.

$$\text{Price-to-Cash Flow Ratio} = \frac{\text{Share Price}}{\text{Operating Cash Flow per Share}}$$

5. **Price/earnings-to-growth (PEG):** Price/earnings-to-growth ratio is the relationship between the P/E ratio and the projected earnings growth of a company. It is calculated by dividing the P/E ratio by the earnings-per-share growth. For example, if a company's P/E ratio is 16.5 and its earnings-per-share growth over the next 3 years is expected to be 10.8%, its PEG ratio would be 1.5.

   A PEG of 1 or less is typically taken to indicate that the company is undervalued. A PEG of more than 1 is typically taken to indicate that the company is overvalued. To get a clearer picture of value, the PEG of the company should also be compared with the PEG of the market and with the industry that the company competes in.

$$\text{PEG Ratio} = \frac{\text{Price / EPS}}{\text{EPS Growth}}$$

   Where:

   EPS = The earnings per share.

(Note: For more details on ratio analysis, please refer to Lesson 8- Financial Statement Analysis covered under the Corporate Accounting portion).

B. Comparative Financial Statements

In the comparative financial statements balance sheet figures are provided for more than one year. The comparative financial statement provides time perspective to the balance sheet figures. The annual data are compared with similar data of previous years, either in absolute terms or in percentages.

Example:

From the following Balance Sheet, prepare Comparative Balance Sheet of Beta Ltd.:

Particulars	*Note No.*	*31st March, 2022 (₹)*	*31st March, 2021 (1)*
I. EQUITY AND LIABILITIES **1. Shareholder's Funds**			
(a) Share Capital		3,50,000	3,00,000
2. Non-Current Liabilities			
Long-term Borrowings		1,00,000	2,00,000

3. Current Liabilities :			
Trade Payables		1,50,000	1,00,000
Total		6,00,000	6,00,000
II. ASSETS			
1. Non-Current Assets			
Fixed Assets (Tangible)		4,00,000	3,00,000
2. Current Assets			
Trade Receivables		2,00,000	3,00,000
Total		6,00,000	6,00,000

Solution:

In the books of Sun Ltd.

Comparative Balance Sheet
as at March 31, 2018 and 2019

Particulars	***2021 (₹)***	***2022 (₹)***	***Absolute Change (₹)***	***Percentage Change (%)***
I. Equity and Liabilities				
1. **Shareholders' Funds**				
a. Share Capital	3,00,000	3,50,000	50,000	16.67
Shareholders' Fund	3,00,000	3,50,000	50,000	16.67
2. **Non-Current Liabilities**				
a. Long-term Borrowings	2,00,000	1,00,000	(1,00,000)	(50.00)
3. **Current Liabilities**				
a. Trade Payables	1,00,000	1,50,000	50,000	50.00
Total	6,00,000	6,00,000	–	–
II. Assets				
1. **Non-Current Assets**				
a. Fixed Assets (Tangible)	3,00,000	4,00,000	1,00,000	33.33
2. **Current Assets**				
a. Trade Receivables	3,00,000	2,00,000	(1,00,000)	(33.33)
Total	**6,00,000**	**6,00,000**	**–**	**–**

C. Trend Analysis

In trend analysis percentages are calculated with a base year. This would provide insight into the growth or decline of the sale or profit over the years. Sometimes sales may be increasing continuously, and the inventories may also be rising. This would indicate the loss of market share of the particular company's product. Likewise sales may have an increasing trend but profits may remain the same. Here the investor has to look into the cost and management efficiency of the company.

D. Common size statement

A common size financial statement displays line items as a percentage of one selected or common figure. Creating common size financial statements makes it easier to analyze a company over time and compare it with its peers. Using common size financial statements helps you spot trends that a raw financial statement may not uncover.

All three of the primary financial statements can be put into a common size format. Financial statements in dollar amounts can easily be converted to common size statements using a spreadsheet. Below is an overview of each financial statement and a more detailed summary of the benefits and drawbacks that such an analysis can provide to you.

Balance Sheet Analysis

The common figure for a common size balance sheet analysis is total assets. Based on the accounting equation, this also equals total liabilities and shareholders' equity, making either term interchangeable in the analysis. It is also possible to use total liabilities to indicate where a company's obligations lie and whether it is being conservative or risky in managing its debts.

The common size strategy from a balance sheet perspective lends insight into a firm's capital structure and how it compares to its rivals. You can also look to determine an optimal capital structure for a given industry and compare it to the firm being analysed. Then, you can conclude whether the debt level is too high, excess cash is being retained on the balance sheet, or inventories are growing too high. The goodwill level on a balance sheet also helps indicate the extent to which a company has relied on acquisitions for growth.

Analysing the Income Statement

The common figure for an income statement is total top-line sales. This is actually the same analysis as calculating a company's margins. For instance, a net profit margin is simply net income divided by sales, which also happens to be a common size analysis.

The same goes for calculating gross and operating margins. The common size method is appealing for research-intensive companies, for example, because they tend to focus on research and development (R&D) and what it represents as a percent of total sales.

Taking the example of Apple Inc. to understand the concept and see the trend in the financials of the last three years.

All Amount in Millions

Period	***2018***	***2017***	***2016***	***2018***	***2017***	***2016***
Total Revenue	$2,65,595	$2,29,234	$2,15,639	100.00%	100.00%	100.00%
Cost of Revenue	$1,63,756	$1,41,048	$1,31,376	61.70%	61.50%	60.90%
Gross Profit	**$1,01,839**	**$88,186**	**$84,263**	**38.30%**	**38.50%**	**39.10%**
Operating Expenses						

Period	*2018*	*2017*	*2016*	*2018*	*2017*	*2016*
Research & Development	$14,236	$11,581	$10,045	5.40%	5.10%	4.70%
Sales, General & Admin	$16,705	$15,261	$14,194	6.30%	6.70%	6.60%
Operating Income	**$70,898**	**$61,344**	**$60,024**	**26.70%**	**26.80%**	**27.80%**
Add Income and Expense Items	$2,005	$2,745	$1,348	0.80%	1.20%	0.60%
Earnings Before Interest and Tax	$72,903	$64,089	$61,372	27.40%	28.00%	28.50%
Interest Expense	$0	$0	$0	0.00%	0.00%	0.00%
Earnings Before Tax	$72,903	$64,089	$61,372	27.40%	28.00%	28.50%
Income Tax	$13,372	$15,738	$15,685	5.00%	6.90%	7.30%
Net Income	**$59,531**	**$48,351**	**$45,687**	**$22.40%**	**21.10%**	21.20%

Source: https://www.wallstreetmojo.com/common-size-income-statement/

Advantages of Common Size Income Statement Analysis

i) A helps a financial user to understand the income statement more clearly in terms of the ratio or percentage of each item in the income statement as a percentage of the company's total sales.

ii) It helps an analyst ascertain the trend concerning the percentage share of each item on the income statement and its impact on the company's net income.

iii) A financial analyst can use a common-size income statement to compare the financial performances of different entities at a glance since each item is expressed in terms of the percentage of total sales.

Disadvantages of Common Size Income Statement Analysis

i) Many financial experts see the common size income statement as useless because there isn't any approved standard proportion of each item to the total sales.

ii) If year after year preparation of a particular company's income statement is not consistent, then performing any comparative study of common size statement income statements may end up being misleading

E. Fund Flow Analysis

The balance sheet gives a static picture of the company's position on a particular data. It does not disclose the changes that have occurred in the financial position of the unit over a period of time. The investor should know,

a) How are the profits utilized?

b) Financial source of dividend.

c) Source of fiancé for capital expenditure.

d) Source of finance for repayment of debts.

e) The destiny of the sale proceeds of the fixed assets and

f) Use of the proceeds of the share or debenture issue or fixed deposits raised from public.

These items of information are provided in the funds flow statement. It is a statement of the sources and application of funds. It highlights the changes in the financial condition of a business enterprise between two balance sheet dates.

The investor could see clearly the amount of funds generated or lost in operations. He could see how these funds have divided into three significant uses like taxes, dividends and reserves.

Moreover, the application of long term funds towards the acquisition of current assets can be found out. This would reveal the real picture of the financial position of the company.

Example 1: Top Cements Limited presents the following information and you are required to calculate funds from operations.

Profit and Loss Account

Particulars	*Amount (Rs. in Lakhs)*	*Particulars*	*Amount (Rs. in Lakhs)*
To Operation Expenses	100000	By Gross Profit	200000
To Depreciation	40000	By Gain on Sale of Plant	20000
To Loss on Sale of Building	10000		
To Advertisement Suspense Account	5000		
To Discount Allowed	500		
To Discount on Issue of Shares written off	500		
To Goodwill written off	12000		
To Net Profit	52000		
	220000		220000

Solution:

Calculation of Funds from Operations

Particulars	*Amount (Rs. in Lakhs)*	*Amount (Rs. in Lakhs)*
Net Profit (given)		52000
Add: Non-fund or non-operating items which have been debited to Profit & Loss A/c:		
Depreciation	40000	
Loss on Sale of Building	10000	
Advertisement written off	5000	
Discount written off	500	

Goodwill written off	12000	67500
		119500
Less: Non-fund or non-operating items which have been credited to Profit & Loss A/c:		
Gain on Sale of Plant	20000	20000
Funds from Operations		99500

Alternatively,

Adjusted Profit & Loss Account

Particulars	*Amount (Rs. in Lakhs)*	*Particulars*	*Amount (Rs. in Lakhs)*
To Depreciation	40000	By Opening balance	-
To Loss on Sale of Building	10000	By Gain on Sale of Plant	20000
To Advertisement Suspense A/c	5000	**By Funds from Operations (Balancing Figure)**	**99500**
To Discount written off	500		
To Goodwill written off	12000		
To Closing balance	52000		
	119500		119500

Example 2: The Balance Sheets of United Corporation as on 31st December, 2020 and 31st December, 2021 are as follows:

Liabilities	*2020 (Rs.)*	*2021 (Rs.)*	*Assets*	*2020 (Rs.)*	*2021 (Rs.)*
Share Capital	500000	700000	Land and Buildings	80000	120000
Profit & Loss	100000	160000	Plant and Machinery	500000	800000
General Reserve	50000	70000	Stock	100000	75000
Sundry Creditors	153000	190000	Debtors	150000	160000
Bills Payable	40000	50000	Cash	20000	20000
Outstanding Expenses	7000	5000			
	850000	1175000		850000	1175000

Additional information:

1. Rs.50000 depreciation has been charged on plant and machinery during 2021.
2. A piece of machinery was sold for Rs.8000 during 2021. It had cost Rs.12000, depreciation of Rs.7000 had been provided on it.

Prepare a Schedule of Changes in Working Capital and a Statement showing the Sources and Application of Funds for 2021.

Solution:

Schedule of Changes in Working Capital

Items	***2020***	***2021***	***Changes in Working Capital***	
			Increase	***Decrease***
Current Assets:				
Stock	100000	75000	-	25000
Debtors	150000	160000	10000	-
Cash	20000	20000	-	-
	270000	255000		
Current Liabilities:				
Sundry Creditors	153000	190000	-	37000
Bills Payable	40000	50000	-	10000
Outstanding Expenses	7000	5000	2000	-
	200000	245000		
Working Capital (Current Assets – Current Liabilities)	70000	10000		
Net Decrease in Working Capital		**60000**	60000	
	70000	70000	72000	72000

Statement and Sources of Application of Funds

(For the year ended December 31, 2021)

Sources	*Rs.*	*Application*	*Rs.*
Funds from Operations(1)	127000	Purchase of Land and Buildings	40000
Issue of Shares	200000	Purchase of Plant and Machinery (2)	355000
Sale proceeds of machinery	80000		
Decrease in working capital	60000		
	395000		395000

Workings:

(1) Adjusted Profit & Loss Account

Particulars	*Rs.*	*Particulars*	*Rs.*
To Plant & Machinery A/c (Depreciation)	50000	By Balance b/d (Opening Balance)	100000
To General Reserve (Transferred during 2021)	20000	By Plant & Machinery (Profit on sale)	3000
To Balance c/d	160000	By Funds from Operations (Balancing figure)	127000
	230000		230000

(2) Plant & Machinery

Particulars	*Rs.*	*Particulars*	*Rs.*
To Balance b/d	500000	By Bank (Sale of machinery)	8000
To Profit & Loss A/c (profit on sale)	3000	By Profit & Loss A/c (Depreciation)	50000
To Bank A/c (Purchase of Machinery & Plant) (Balancing figure)	355000	By Balance c/d	800000
	858000		858000

F. Cash Flow Statement

The investor is interested in knowing the cash inflow and outflow of the enterprise. The cash flow statement is prepared with the help of balance sheet, income statement and some additional information. It can be either prepared in the vertical form or in the horizontal form. Cash flows related to operations and other transactions are computed. The statement shows the causes of changes in cash movements over an operating cycle. The factors responsible for the reduction of cash balances in spite of increase in profits or vice versa are ascertained.

Example 1: From the following Profit and Loss Account of Success Ltd., calculate Net Cash Flows from operating activities.

Particulars	*$*	*Particulars*	*$*
To depreciation	40800	By gross profit	394400
To rent	72000	By profit on sale of building	53600
To administrative expenses	48000	By profit on sale of furniture	50400
To salaries	64000	By income tax refund	18400
To loss on sale of plant	12800		
To provision for bad debts	64000		
To goodwill written off	34400		
To loss on sale of machinery	19600		
To provision for tax	24000		
To proposed dividend	48000		
To net profit	89200		
Total	**5,16,800**	**Total**	**5,16,800**

Solution:

Calculation of Net Cash Flow from Operating Activities of Success Limited

Particulars	*$*	*$*
Profit for the year		89200
Add:		
Provision for bad debts	64000	
Depreciation	40800	
Goodwill written off	34400	
Loss on sale of plant	12800	
Loss on sale of machinery	19600	
Provision for tax	24000	
Proposed dividend	48000	243600

		332800
Less:		
Profit on sale of building	53600	
Profit on sale of furniture	50400	
Income tax refund	18400	122400
Net Cash Flow from Operating Activities		210400

Example 2:

From the following information extracted from the book of Max Ltd. for the year 2019-20, calculate net cash flow from investing activities.

Particulars	***2018-19 ($)***	***2019-20 ($)***
Furniture	100,000	120,000
Machinery	1,500,000	1,800,000
Building	2,000,000	1,980,000
Land (at cost)	1,800,000	1,600,000
Investment (long-term)	90,000	210,000

Additional information is given as follows:

- Depreciation charged on furniture during the year was $10,000.
- Depreciation on machinery charged during the year was $25,000.
- Machinery, the book value of which was $80,000, sold for $75,000.
- Land was sold at a profit of $90,000.

Solution:

Particulars	***$***	***$***
Cash Receipts		
Cash receipts from sale of land	290000	
Sale of machinery	75000	365000
Cash Payments		
Purchase of furniture	30000	
Purchase of machinery	405000	
Purchase of investment (210000 – 90000)	120000	555000
Net Cash Flow from Investing Activities		(190000)

Note: $190,000 indicates cash outflows are more than inflows.

Working Notes:

Furniture Account

Particulars	*$*	*Particulars*	*$*
To balance b/d	100000	By Depreciation	10000
To Bank- Purchase of Furniture (Balancing figure)	30000	By Balance c/d	120000
	130000		130000

Machinery Account

Particulars	*$*	*Particulars*	*$*
To balance b/d	1500000	By Depreciation	25000
		By Bank- Sale of Machinery	75000
		By Loss on Sale of Machinery ($80000 - $75000)	5000
To Bank- Purchase of Machinery	405000	By Balance c/d	1800000
	1905000		1905000

Building Account

Particulars	*$*	*Particulars*	*$*
To balance b/d	2000000	By Depreciation (Balancing figure)	20000
		By Balance c/d	1980000
	2000000		2000000

Land Account

Particulars	*$*	*Particulars*	*$*
To balance b/d	1800000	By Bank – Sale of Land ($200000 + $90000)	290000
To Profit and Loss Account (Profit on Sale of Land)	90000	By Balance c/d	1600000
	1890000		1890000

TECHNICAL ANALYSIS

In the fundamental analysis, share prices are predicted on the basis of a three stage analysis. After the analysis has been completed, the deciding factors that emerge are the financial performance indicators like earnings and dividends of the company. The fundamentalist makes a judgement of the equity share value with a risk return framework based upon the earning power and the economic environment. However, in actual practice, it often happens that a share having sound fundamentals refuses to rise in value and vice versa. We would now examine an alternative approach to predict share price behavior. This approach is called the Technical Analysis. It is used in conjunction with fundamental analysis and not as its substitute.

Technical analysis is an analysis for forecasting the direction of prices through the study of past market data, primarily price and volume. This Technique assumes market prices of securities are determined by the demand-supply equilibrium. The shifts in this equilibrium give rise to certain patterns of price and volume of trading which have a tendency to repeat themselves over a period of time. An analyst who is familiar with these patterns can predict the future behaviour of stock prices by noticing the formation of these patterns. These predictions are indicative and do not provide irrefutable declarations about future trends. In this type of analysis, no weightage is given to intangible items like investors' attitude, market sentiment, optimism, pessimism etc.

Technical analysis is based on the following assumptions:

- The inter-play of demand and supply determines the market value of shares.
- Supply and demand are governed by various factors – both rational and irrational.
- Stock values tend to move in trends that persist for a reasonable time.
- These trends change as a result of change in demand-supply equilibrium.
- Shifts in demand and supply can be detected in charts of market action.
- Chart patterns tend to repeat themselves and this repetition can be used to forecast future price movements.
- Markets behave in a random style.
- Markets discount every future event that has a bearing upon share values.

DOW JONES THEORY

It is one of the earliest theories of technical analysis. The theory was formulated by Charles H. Dow of Dow Jones & Co. who was the first editor of Wall street Journal of USA. According to this theory, share prices demonstrate a pattern over four to five years.

These patterns can be divided into three distinct cyclical trends- primary, secondary or intermediate and minor trends.

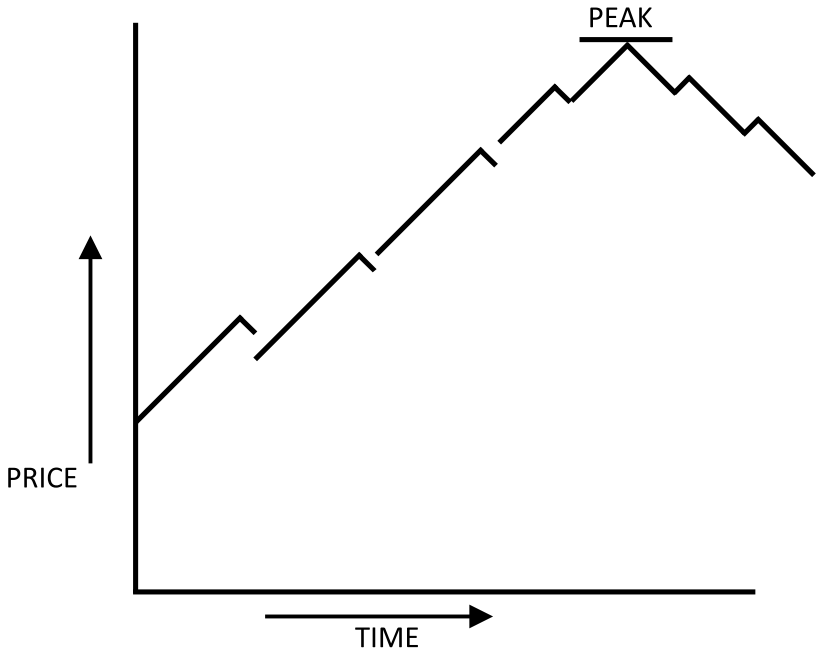
Primary Trends

The primary trend lasts from one to three years. Over this period, the markets exhibit definite upward or downward movement which is punctuated by shorter spans of trend reversal in the opposite directions. The trend reversal is called the secondary trend. Primary trend is indicative of the overall pattern of movement.

In Dow theory, the primary trend is the major trend of the market, which makes it the most important one to determine. This is because the overriding trend is the one that affects the movements in stock prices. The primary trend will also impact the secondary and minor trends within the market.

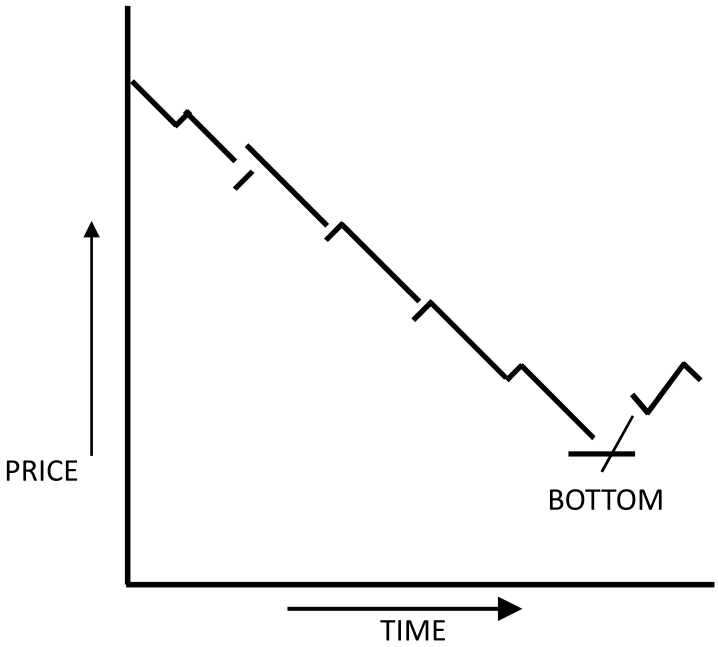
If the primary trend is upward, it is called a bullish phase of the market. If the primary trend is downwards, it is called a bearish phase. Illustrations of bullish phase and bearish phase are given below:

Graph of Bullish Phase



In a bullish phase, after each peak, there is a fall but the subsequent rise is higher than the previous one. The prices reach higher level with each rise. After the peak has been reached, the primary trend now turns to a bearish phase.

Graph of a Bearish Phase



In a bearish phase, the overall trend is that of decline in share values. After each fall, there is slight rise but the subsequent fall is even sharper.

Secondary Trends

In Dow theory, a primary trend is the main direction in which the market is moving. Conversely, a secondary trend moves in the opposite direction of the primary trend, or as a correction to the primary trend.

For example, an upward primary trend will be composed of secondary downward trends. This is the movement from a consecutively higher high to a consecutively lower high. In a primary downward trend the secondary trend will be an upward move, or a rally. This is the movement from a consecutively lower low to a consecutively higher low.

In general, a secondary, or intermediate, trend typically lasts between three weeks and three months, while the retracement of the secondary trend generally ranges between one-third to two-thirds of the primary trend's movement.

Minor Trend

The last of the three trend types in Dow theory is the minor trend, which is defined as a market movement lasting less than three weeks. Minor trends are changes occurring every day within a narrow range. These trends are not decisive of any major movement. The minor trend is generally the corrective moves within a secondary move, or those moves that go against the direction of the secondary trend.

TOOLS OF TECHNICAL ANALYSIS

The two variables concerning groups of securities or individual securities that technicians watch are the behavior of prices and volume of trading contributing to and influenced by changing prices. Technical analysts use two major types of tools for their analysis. These are the charts and the price indicators.

1. TECHNICAL CHARTS

These are the plottings of prices and trading volumes on charts. The purpose of reading and analysing these charts is to determine the demand-supply equation at various levels and thus to predict the direction and extent of future movement of the prices. The charts are not infallible but because of their repeated accuracy, they have come to be accepted. In all the charts, a correlation exists between market price action and the volume of trading when the price increase is accompanied by a surge in trading volumes, it is a sure sign of strength. On the other hand, when the decline in share prices is accompanied by increased volumes, it is indicative of beginning of bearish trend.

There are four ways to construct a chart. These are Line Chart, Bar Chart, Candle Stick Chart and Point & Figure Chart.

Line Chart

A Line chart is a style of chart that is created by connecting a series of data points together with a line. This is the most basic type of chart used in finance and it is generally created by connecting a series of past prices together with a line. Line charts are the most basic type of chart because it represents only the closing prices over a set period. The line is formed by connecting the closing prices for each period over the timeframe and the intra-period highs and lows of stock prices are ignored. This type of chart is useful for making broad analysis over a longer period of time.

Line Chart Example – Source: StockCharts.com

Bar Chart

Bar charts expand upon the line chart by adding the open, high, low, and close – or the daily price range, in other words – to the mix. The chart is made up of a series of vertical lines that represent the price range for a given period with a horizontal dash on each side that represents the open and closing prices. The opening price is the horizontal dash on the left side of the horizontal line and the closing price is located on the right side of the line. If the opening price is lower than the closing price, the line is often shaded black to represent a rising period. The opposite is true for a falling period, which is represented by a red shade.

Bar Chart Example – Source: StockCharts.com

Candlestick Charts

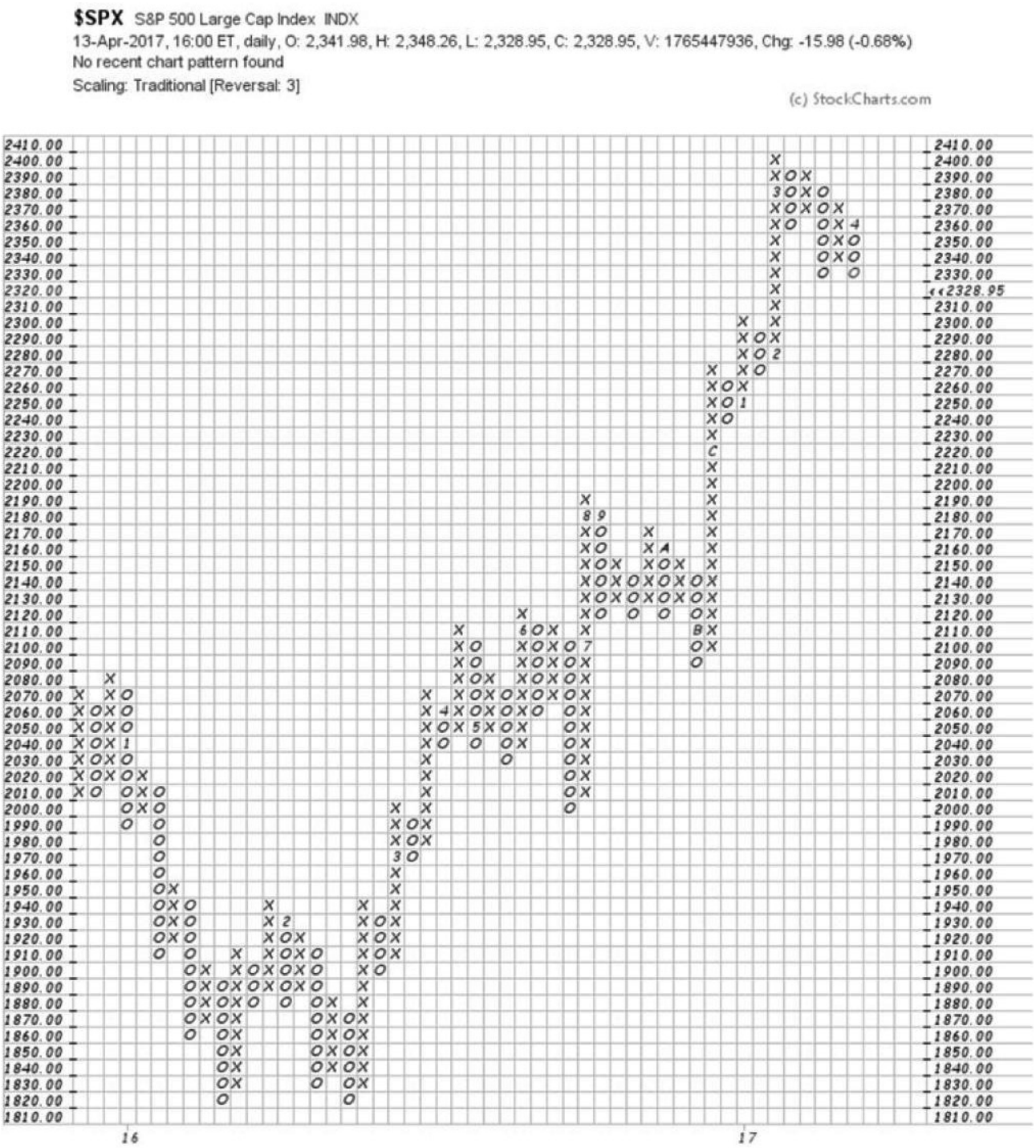
Like a bar chart, candlestick charts have a thin vertical line showing the price range for a given period that is shaded different colors based on whether the stock ended higher or lower. The difference is a wider bar or rectangle that represents the difference between the opening and closing prices.

Falling periods will typically have a red or black candlestick body, while rising periods will have a white or clear candlestick body. Days where the open and closing prices are the same will not have any wide body or rectangle at all.

Candlestick Example – Source: StockCharts.com

Point and Figure Charts

n this type of charts, emphasis is laid on charting price changes only and time and volume elements are ignored. The first step in drawing a figure and point chart is to put a X in the appropriate price column of a graph. Successive price increases are added vertically upwards in the same column as long as the uptrend continues. Once the price drops, the figures are moved to another column and Os are entered in downward series till the downward trend is reversed.



Point and Figure Chare Example – Source: StockCharts.com

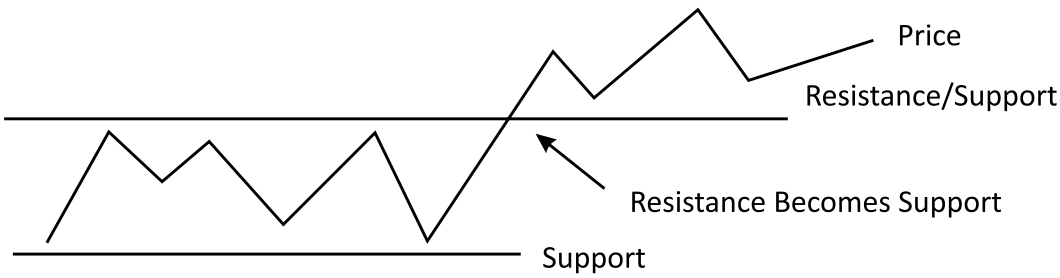
Patterns created by charts

Once the charts have been constructed, analysts seek to locate certain indicators/patterns in the charts. The common patterns are being described below:

1. Support and resistance levels

A support level indicates the bottom which the share values are unable to pierce. After rising time and again, the share price dips to a particular level and then starts rising again. At this level, the share gets buying support. A resistance level is that level after which the share price refuses to move up in repeated efforts. At this level, selling emerges. Support and resistance levels are valid for a particular time period. Once these levels are breached, beginning of a new bull or bear phase is signaled.

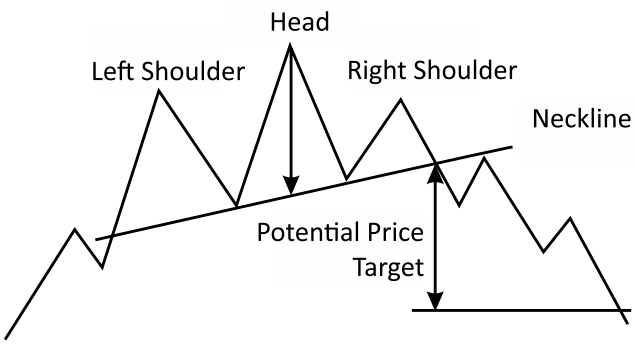
Support and Resistance



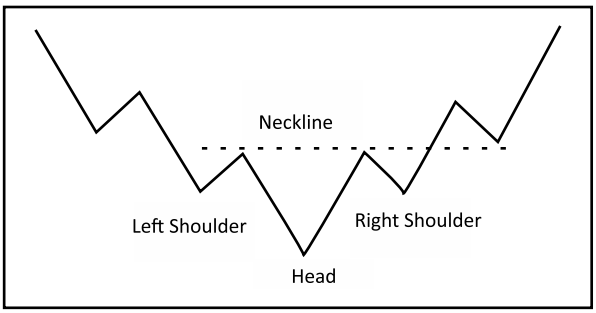
2. Heads and Shoulders configuration

In this type of chart configuration, a formation similar to heads and shoulders is created wherein the neckline acts as the resistance or support line. As the head and shoulder top is formed, a resistance level appears at the top of the head. The volumes start declining near the head top and reversal sets in. The volumes become heavy again and shrink near the neckline where another reversal of trend begins.

Head and Shoulders Top (HST) Pattern

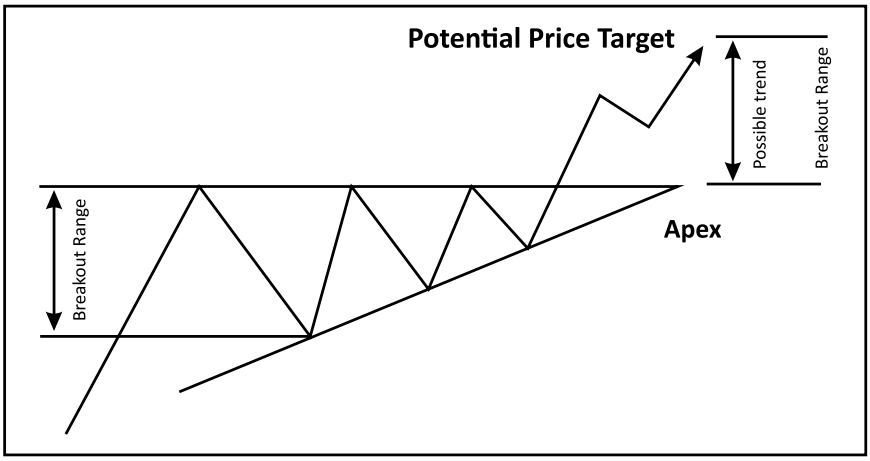


Inverse Head and Shoulder Top (IHST) Pattern



3. Triangle or coil formation

This pattern represents a pattern of uncertainty. Hence it is difficult to predict which way the price will break out.

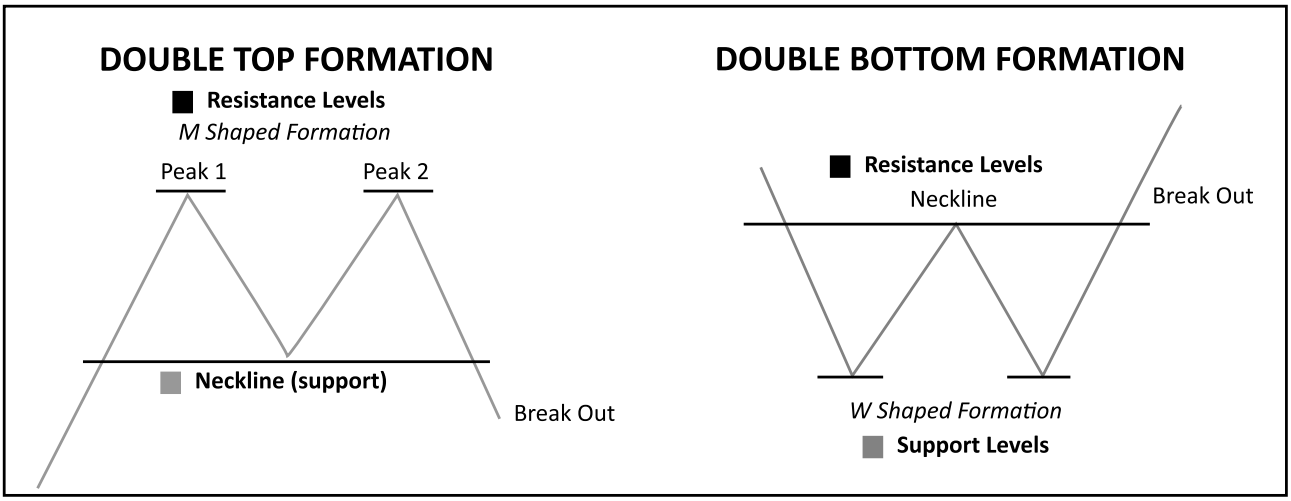


4. Double Top Formation

It represents a bearish development, signaling that the price is expected to fall.

5. Double bottom formation

It represents a bullish development, signaling that the price is expected to rise.



Limitations of charts

Interpretation of charts is prone to subjective analysis. This factor is a major cause of often contradictory analysis being derived from the same charts. Also the changes in charts are quite frequent in the short term perspective leading to a host of buy and sell recommendations which are not in the best interest of the investor. Another disadvantage is that decisions are made on the basis of chart alone and other factors are ignored.

2. TECHNICAL INDICATORS

Apart from the charts, technical analysts use a number of indicators generated from prices of stocks to finalise their recommendations. These indicators are often used in conjunction with charts. Some of the important

indicators are the Advance Decline Ratio, the Market Breadth Index and Moving Averages.

(a) Advance-Decline Ratio

It is the ratio of the number of stocks that increase to the number of stocks that have declined. If the ratio is more than one, the trend is assumed to be bullish. If the ratio starts declining, a change of trend is signaled.

(b) Market Breadth Index

This index is a variation of the Advance-Decline Ratio. This index is computed by taking the difference between the number of stocks rising and the number of stocks falling. If during a month, 400 out of 1000 stocks in the market have risen and 300 have declined while 300 have remained unchanged, then market breadth would be calculated as

= 2(400–300)/300. The figure of each time period is added to the previous period. If market breadth is increasing along with rise in stock indices, it confirms the bullish trend and vice cersa.

(c) Moving Averages

A moving average is the average of share values of a set of consecutive number of days. If we have to calculate 50 days moving average, we calculate the average for days 1–50. Then on day 51, we add the value of day 51 and deduct the value of day 1 and so on . Similarly, moving averages for 100 days, 200 days and 300 days can be calculated. Moving averages provide a benchmark for future valuation. If share value is below the moving average, it has scope for appreciation. If the value is above the moving average, the upside is limited in the near term.

(d) Relative Strength Index

The relative strength index (RSI) is a momentum indicator used in technical analysis. RSI measures the speed and magnitude of a security's recent price changes to evaluate overvalued or undervalued conditions in the price of that security.

The RSI is displayed as an oscillator (a line graph) on a scale of zero to 100. The indicator was developed by J. Welles Wilder Jr. and introduced in his seminal 1978 book, New Concepts in Technical Trading Systems.

The RSI can do more than point to overbought and oversold securities. It can also indicate securities that may be primed for a trend reversal or corrective pullback in price. It can signal when to buy and sell. Traditionally, an RSI reading of 70 or above indicates an overbought situation. A reading of 30 or below indicates an oversold condition.

As a momentum indicator, the relative strength index compares a security's strength on days when prices go up to its strength on days when prices go down. Relating the result of this comparison to price action can give traders an idea of how a security may perform. The RSI, used in conjunction with other technical indicators, can help traders make better-informed trading decisions.

The RSI uses a two-part calculation that starts with the following formula:

$$RSI = 100 - \frac{100}{1 + RS}$$

$$RS = \frac{\text{Average Gain Per Day}}{\text{Average Loss Per Day}}$$

RS= Relative Strength

The RSI can be calculated for any number of days depending on the wish of the technical analyst and the time frame of trading adopted in a particular stock market. RSI is calculated for 5,7,9 and 14 days. If the period taken is more, the possibility of getting wrong signals is reduced. Reactionary or sustained rise or fall in the price of the scrip is foretold by the RSI.

Calculation of RSI of ABC Limited

Date	*Price (Rs)*	*Gain*	*Loss*
October 1	300	-	-
October 6	304	4	-
October 7	319	15	-
October 8	317	-	2
October 11	319	2	-
October 12	333	14	-
October 13	331	-	2
October 14	332	1	-
October 18	348	16	-
October 19	346	-	2
		52 / 6 =8.67	6/3 = 2

$$RSI = 100 - \frac{100}{1 + 4.335}$$

$$= 100 - 18.74$$

$$= 81.26$$

The broad rule is, if the RSI crosses seventy there may be downturn and it is time to sell. If the RSI falls below thirty it is time to pick up the scrip.

(e) Aroon Indicator

The Aroon indicator is a technical indicator that is used to identify trend changes in the price of an asset, as well as the strength of that trend. In essence, the indicator measures the time between highs and the time between lows over a time period. The idea is that strong uptrends will regularly see new highs, and strong downtrends will regularly see new lows. The indicator signals when this is happening, and when it isn't.

The indicator consists of the "Aroon up" line, which measures the strength of the uptrend, and the "Aroon down" line, which measures the strength of the downtrend. The Aroon indicator was developed by Tushar Chande in 1995.

Formulas of the Aroon Indicator

$$\text{Aroon Up} = \frac{25 - \text{Periods Since 25 period High}}{25} *100$$

$$\text{Aroon Down} = \frac{25 - \text{Periods Since 25 period Low}}{25} *100$$

The Aroon calculation requires the tracking of the high and low prices, typically over 25 periods.

1. Track the highs and lows for the last 25 periods on an asset.
2. Note the number of periods since the last high and low.
3. Plug these numbers into the Up and Down Aroon formulas.

The Aroon Up and the Aroon Down lines fluctuate between zero and 100, with values close to 100 indicating a strong trend and values near zero indicating a weak trend. The lower the Aroon Up, the weaker the uptrend and the stronger the downtrend, and vice versa. The main assumption underlying this indicator is that a stock's price will close regularly at new highs during an uptrend, and regularly make new lows in a downtrend.

The indicator focuses on the last 25 periods, but is scaled to zero and 100. Therefore, an Aroon Up reading above 50 means the price made a new high within the last 12.5 periods. A reading near 100 means a high was seen very recently. The same concepts apply to the Down Aroon. When it is above 50, a low was witnessed within the 12.5 periods. A Down reading near 100 means a low was seen very recently.

Crossovers can signal entry or exit points. Up crossing above Down can be a signal to buy. Down crossing below Up may be a signal to sell. When both indicators are below 50 it can signal that the price is consolidating. New highs or lows are not being created. Traders can watch for breakouts as well as the next Aroon crossover to signal which direction price is going.

(f) Price Rate of Change

The Price Rate of Change (ROC) is a momentum-based technical indicator that measures the percentage change in price between the current price and the price a certain number of periods ago. The ROC indicator is plotted against zero, with the indicator moving upwards into positive territory if price changes are to the upside, and moving into negative territory if price changes are to the downside.

Thus, The Price Rate of Change (ROC) oscillator is an unbounded momentum indicator used in technical analysis set against a zero-level midpoint. A rising ROC above zero typically confirms an uptrend while a falling ROC below zero indicates a downtrend. When the price is consolidating, the ROC will hover near zero. In this case, it is important traders watch the overall price trend since the ROC will provide little insight except for confirming the consolidation.

$$\text{ROC} = \frac{\text{Closing Price}_p - \text{Closing Price}_{p-n}}{\text{Closing Price}_{p-n}} \times 100$$

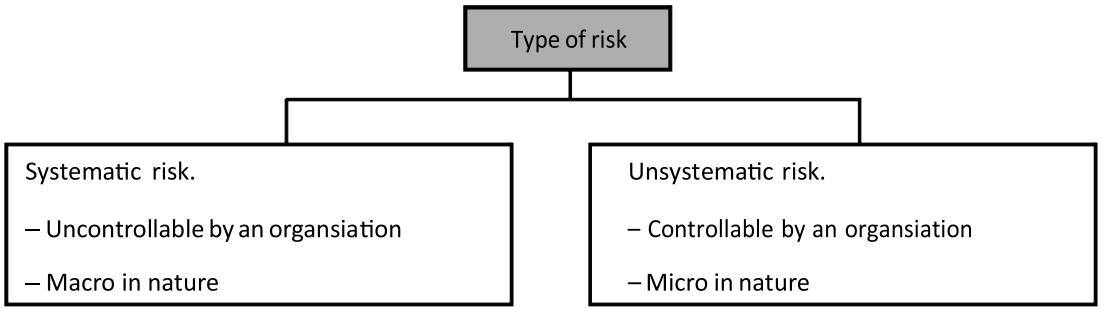
Where:

Closing Price$p$=Closing price of most recent period

Closing Price$p-n$=Closing price n periods beforemost recent period

RISK AND ITS TYPES

Risk in security analysis is generally associated with the possibility that the realized returns will be less than the returns that were expected. In finance, different types of risk can be classified under two main groups, viz., systematic risk and unsystematic risk.



A. Systematic risk.

B. Unsystematic risk.

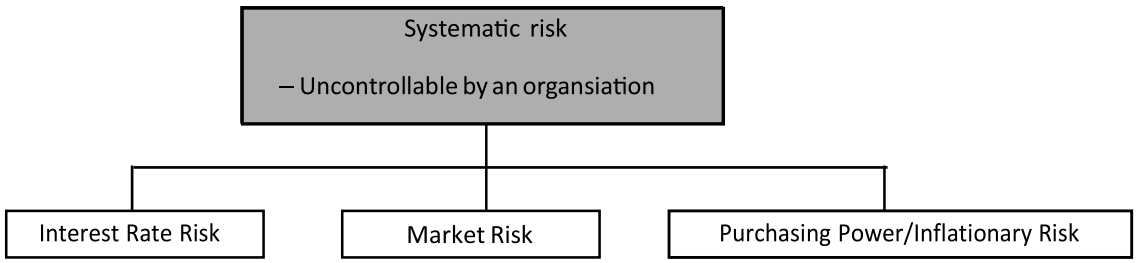
A. Systematic Risk

Those forces that are uncontrollable, external and broad in their effect are called sources of systematic risk. Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view. Systematic risk is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization.

In this way economic, political and sociological changes are sources of systematic risk. For example, if an economy moves into recession or if there is a political upheaval, it will cause the prices of nearly all the securities, whether bond or equity to decline.

Firms with high systematic risk tend to be those whose sales, profits and stock prices follow the general trend in the level of economic or stock market activity. These may include companies that deal in basic industrial goods like automobile manufactures.

The types of systematic risk are depicted and listed below.



1. Interest rate risk,
2. Market risk and
3. Purchasing power or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk is the variation in the single period rates of return caused by the fluctuations in the market interest rate. It particularly affects debt securities as they carry the fixed rate of interest.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

3. Purchasing power or inflationary risk

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period.

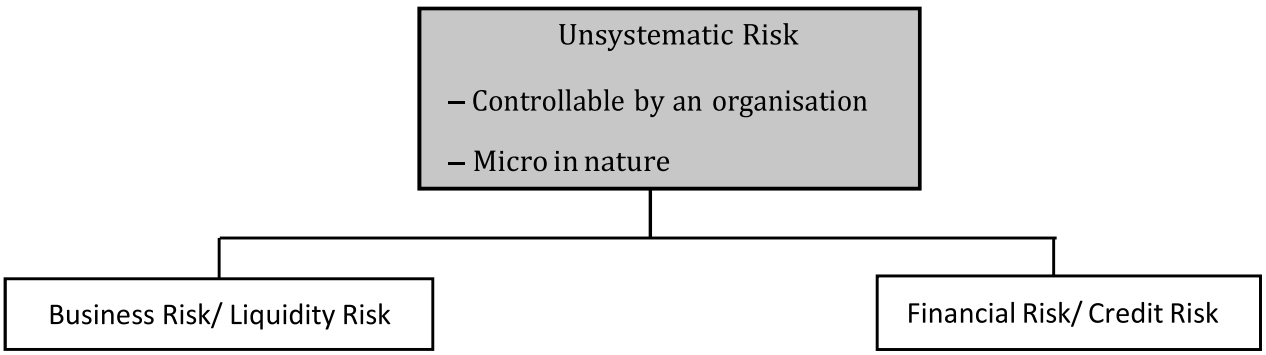
B. Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are controllable, internal factors which are peculiar to a particular industry or firm/(s). It may be because of change in management, labour strikes which will impact the returns of only specific firms which are facing the problem.

It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk.

Higher proportion of unsystematic risk is found in firms producing non durable consumer goods. Examples include suppliers of telephone, power and food stuffs.

The types of unsystematic risk are depicted and listed below.



1. Business or liquidity risk,
2. Financial or credit risk

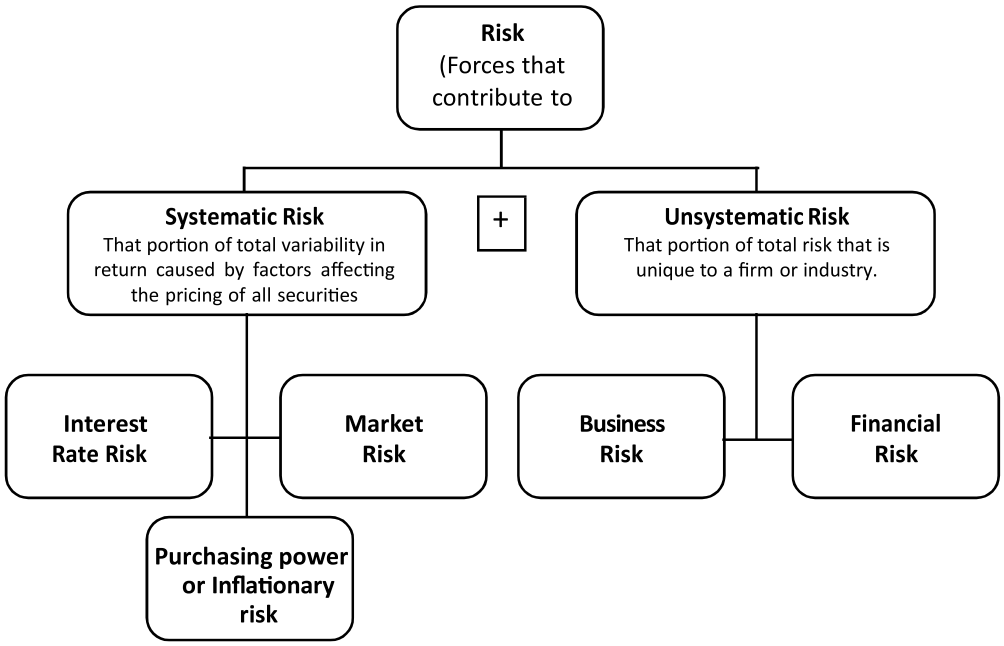
Now let's discuss each risk classified under this group.

1. Business or liquidity risk

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc.

2. Financial or credit risk

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are sourced for the projects.



RETURN OF THE SECURITY

Return is the primary motivating force that drives investment. It represents the reward for undertaking investment. One of the important property of a security that the investors are concerned with is the return that can be expected from holding a security. Earning a return on an investment requires a passage of time. After some time has passed, one may make an objective measurement of the rate of an investment return that has been achieved. The word "return" can be misleading, since no single measure of return can answer all possible questions regarding results. The reasons lie in the fact that taxes, inflation, commissions, and the timing of cash flows all play major roles in "correct" calculation of returns.

The return of an investment consists of two components:

Current Return – The first component that comes to mind when one is thinking about return is the periodic cash flow (income), such as dividend or interest, generated by the investment. Current return is measured as the periodic income in relation to the beginning price of the investment.

Capital Return – The second component of return is reflected in the price change called the capital return – it is simply the price appreciation (or depreciation) divided by the beginning price of the asset. For assets like equity stocks, the capital return predominates.

Thus, the total return for any security is defined as:

Total return = Current return + Capital return

The current return can be zero or positive, whereas the capital return can be negative, zero or positive.

MEASURING RETURN

Total return, or holding period return (r), is perhaps the best unique, rational and comparable measures of results, no matter what type of asset is under discussion. Holding period return is the total return received from holding an asset or portfolio of assets over a period of time, generally expressed as a percentage. Holding period return is calculated on the basis of total returns from the asset or portfolio – i.e. income plus changes in value. It is particularly useful for comparing returns between investments held for different period of time.

Holding Period Return (HPR) and **annualized HPR** for returns over multiple years can be calculated as follows:
Holding Period Return = Income + (End of Period Value – Initial Value) / Initial Value

Annualized HPR = $\{[(\text{Income} + (\text{End of Period Value} - \text{Initial Value})] / \text{Initial Value} + 1\}^{1/n} - 1$, where n = number of years.

Returns for regular time periods such as quarters or years can be converted to a holding period return through the following formula:

(1 + HPR) = (1 + r1) x (1 + r2) x (1 + r3) x (1 + r4) where r1, r2, r3 and r4 are periodic returns. Thus,

Example 1:

$$HPR = [(1 + r1) \times (1 + r2) X \ldots (1 + rn)] - 1$$

r = % return per period

n = number of periods

Mr. A invested Rs. 10,000 in shares of XYZ Company 10 years ago, and that your shares (including reinvested dividends) are currently worth Rs. 23,800. Using this information, calculate total investment return of Mr. A.

$$\text{Total investment return} = \frac{\text{Rs.23,800} - \text{Rs.10,000}}{\text{Rs.10,000}} = 1.38 \text{ (or 138\%)}$$

So, total return over a decade has been 138%. Since we're considering a 10-year period, we will use (1/10) i.e. 0.1 as power to calculate the annualized return:

Annualised return = $(1 + 1.38)^{0.1} - 1 = 0.0906$

Translated to a percentage, this shows that Mr. A's 10-year investment in XYZ Company produced an annualized return of 9.06%.

Often, it is necessary to adjust the return for taxes which makes a difference to the total returns. Let us take a simple example to illustrate these point.

Portfolio Information		
Beginning value		₹ 1,00,000
Cash flows		
Dividends received	₹7,500	
Capital appreciation	₹12,500	
Ending value		₹1,20,000
Total Return	[(1,20,000/1,00,000)]-1 = **20%**	

Suppose the investor has a tax rate of 30%. The Rs.7,500 in dividends yields only Rs.5,250 after taxes (Rs.7500 *.70), and the capital gains is only Rs.8,750 after taxes (Rs.12,500*.70). So, after-tax return equals

[(1,00,000+5,250+ 8,750)/1,00,000]-1= 14%

High nominal returns may also reflect high inflation rate. Suppose that during the performance measurement period a 10 percent return was required just to maintain purchasing power. After-tax real return equals

[(1,00,000+5,250+ 8,750)/1,00,000(1.10)]-1= 3.6364%

So, the rate of return to this portfolio is either 20% or 14% or 3.6364%. for a tax exempt investor the 20% return is appropriate. For a taxable investor, the return is only 14%. Inflation affects both equally.

Example 2: Three years ago, Fred invested $10,000 in the shares of ABC Corp. Each year, the company distributed dividends to its shareholders. Each year, Fred received $100 in dividends. Note that since Fred received $100 in dividends each year, his total income is $300. Today, Fred sold his shares for $12,000, and he wants to determine the HPR of his investment.

Solution: Using the HPR formula, we can find the following:

$$\text{Holding Period Return (HPR)} = \frac{\$300 + \$12000 - \$\ 10000}{\$10000} = 0.23 \text{ or } 23\%$$

Example 3: What is the HPR for an , who bought a stock a year ago at $50 and received $5 in dividends over the year, if the stock is now trading at $60?

Solution:

$$\text{Holding Period Return} = \frac{5 + (60 - 50)}{50} = 30\%$$

Example 4: Which investment performed better: Mutual Fund X, which was held for three years and appreciated from $100 to $150, providing $5 in distributions, or Mutual Fund B, which went from $200 to $320 and generated $10 in distributions over four years?

Solution:

$$\text{HPR for Fund X} = \frac{5 + (150 - 100)}{100} = 55\%$$

$$\text{HPR for Fund Y} = \frac{10 + (320 - 200)}{200} = 65\%$$

Note: Fund B had the higher HPR, but it was held for four years, as opposed to the three years for which Fund X was held. Since the time periods are different, this requires annualized HPR to be calculated, as shown below.

Calculation of Annualized HPR

Annualized HPR for Fund X:

$= (0.55 + 1)^{1/3} - 1 = 15.73\%$

Annualized HRP for Fund Y:

$= (0.65 + 1)^{1/4} - 1 = 13.34\%$

Thus, despite having the lower HPR, Fund X was the superior investment.

APPROACHES TO VALUATION OF SECURITY

Security analysis begins with assessing the intrinsic value of security. There are three main schools of thought on the matter of security price evaluation. Advocates of different schools can be classified as (1) Fundamentalists; (2) Technicians; and (3) efficient market advocates. Let us compare these different perspectives in summary form before describing them in detail.

(1) The Fundamental Approach: The Fundamental approach suggests that every stock has an intrinsic value. Estimate of intrinsic worth of a stock is made by considering the earnings potential of firm which depends

upon investment environment and factors relating to specific industry, competitiveness, quality of management, operational efficiency, profitability, capital structure and dividend policy. The earning potential is converted into the present value of the future stream of income from that stock discounted at an appropriate risk related rate of interest. Security analysis is done to compare the current market value of particular security with the intrinsic or theoretical value. Decisions about buying and selling an individual security depends upon the comparison. If the intrinsic value is more than the market value, the fundamentalists recommend buying of the security and vice versa.

(2) Technical Approach: The technical analyst endeavours to predict future price levels of stocks by examining one or many series of past data from the market itself. The basic assumption of this approach is that history tends to repeat itself and the price of a stock depends on supply and demand in the market place and has little relationship with its intrinsic value. All financial data and market information of a given security is reflected in the market price of a security. Therefore, an attempt is made through charts to identify price movement patterns which predict future movement of the security. The main tools used by technical analysis are: (1) The Dow Jones theory which asserts that stock prices demonstrate a pattern over four to five years and these patterns are mirrored by indices of stock prices. The theory employs two Dow Jones averages – the industrial average and the transportation average. If industrial average is rising, then transport average should also rise. Simultaneous price movement is the main prediction which may show bullish as well as bearish results. Chart Patterns are used along with Dow Jones Theory to predict the market movements.

(3) Efficient Capital Market Theory : The theory is popularly known as "Efficient Capital Market Hypothesis: (ECMH). The advocates of this theory contend that securities markets are perfect, or at least not too imperfect. The theory states that it is impossible to beat the market because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. It is based on the assumption that in efficient capital markets prices of traded securities always fully reflect all publicly available information concerning those securities. Market efficiency was development in 1970 by the economist Eugene Fama, whose theory of efficient market hypothesis stated that it is not possible for an investor to outperform the market because all available information built in to all stock prices. For market efficiency, there are three essential conditions; (i) all available information is cost free to all market participants; (ii) no transaction costs; and (iii) all investors similarly view the implications of available information on current prices and distribution of future prices of each security.

It has been empirically proved that stock prices behave randomly under the above conditions. These conditions have been rendered unrealistic in the light of the actual experience because there is not only transaction cost involved but traders have their own information base. Moreover, information is not costless and all investors do not take similar data and interpretation with them.

Efficient Market Hypothesis has put to challenge by the fundamental and technical analysts to the extent that random walk model is valid description of reality and the work of chartists is of no real significance in stock price analysis. In practice, it has been observed that markets are not fully efficient in the semi-strong or strong sense.

Inefficiencies and imperfections of certain kinds have been observed in the studies conducted so far to test the efficiency of the market. Thus, the scope of earning higher returns exists by using original, unconventional and innovative techniques of analysis. Also, the availability of inside information and its rational interpretation can lead to strategies for deriving superior returns.

In short, if these theories are taken in their strongest forms, fundamentalists say that a security is worth the present value (discounted) of a stream of future income to be received from the security; technicians assert that the price trend data should be studied regardless of the underlying data; efficient market theorists contend that a share of stock is generally worth whatever it is selling for.

There are four confusing terms which are appearing at this juncture-face value, book value; market value and intrinsic value. Let us first clarify all them.

Face value of the security is the denominating value. It is also called the nominal value. When we say that authorized share capital of a company is ₹ 200 lac divided into 20 lac shares of ₹ 10 each, we mean that the face value or the nominal value of the share is ₹ 10/- each.

The book value may be much more than the face value. Let us assume that the shares of ₹ 10/- each are issued at ₹ 30/- each. The issuer is charging a premium of ₹ 20/- for the intrinsic value equalization. The issuer normally charges premium for the following attributes:

- Long years of establishment and profitable track record.
- Leadership position in the market.
- Potential for continued growth in the future.
- Existence of free reserves with the issuer which makes the book value higher than the face value.

Case Study

Let us clarify the concept of book value a little further. Assuming that a company has been incorporated with an authorized capital of 2 crore shares of ₹ 10/- each and the company operates profitably for three years, the broad financial position of the company shall be as under:

(₹ *In lacs*)

Item	*Year 1*	*Year 2*	*Year 3*
Income	600	1,200	2,400
Expenditure	800	1,000	1600
Profit/Loss	(200)	200	800
Equity Capital	2,000	2,000	2,000
Free Reserves	– 200	0	800
Face Value/share	10	10	10
Book Value/share (Share capital + free reserves)	9	10	14

Book value of the share of the company became less than face value at the end of the first year due to the loss incurred by it. The book value was equal to the face value at the end of the second year due to recoupment of the loss. At the end of the third year the book value become ₹ 14/- due to building up of reserves. If, after the end of the third year the issuer wishes to come up with an offering of additional shares, the offer price will not be less than ₹ 14.

In actual market conditions does the book value track the market value? We may observe the trend of few company

Sl. No.	*Name of the Company*	*Face ValuePer Share*	*Book Value*	*Market Value(As on 30 September)*
(1)	*(2)*	*(3)*	*(4)*	*(5)*
1	HB Ltd.	1	13.8	168.70
2	FI Ltd.	10	136.3	250.50
3	IT Ltd.	5	314.3	3411.30

Sl. No.	Name of the Company	Face ValuePer Share	Book Value	Market Value(As on 30 September)
4	ITB Ltd.	10	175.8	349.80
5	BIS	10	299.3	229.70
6	RP Ltd.	10	20.4	22.60
7	RL Ltd.	10	138.2	562.60
8	IDD Ltd.	10	101.9	144.85
9	MTGL Ltd.	10	151.2	109.50
10	SC Ltd.	2	61.4	210.70
11	RLD Ltd.	5	190.5	821.15
12	HCT Ltd.	2	60.5	205.90
13	HPC Ltd.	10	173.8	172.45
14	CIP Ltd.	10	152.8	946.35
15	NES Ltd.	10	27.5	565.85
16	HH Ltd.	2	34.3	248.75
17	TISC Ltd.	10	93.6	116.50
18	LCET Ltd.	10	77.1	129.15
19	T&L Ltd.	10	133.0	167.00
20	BA Ltd.	10	283.2	380.05
21	BHL Ltd.	10	182.6	160.15
22	HIND Ltd.	10	621.5	522.10
23	ZTE Ltd.	1	99.2	57.50
24	BSS Ltd.	10	194.3	216.20
25	GRA Ltd.	10	295.3	309.00
26	GSIM Ltd.	10	75.3	367.15
27	GLX Ltd.	10	155.14	163.00
28	ASC Ltd.	10	171.17	138.15
29	CAS Ltd.	10	32.1	189.80
30	CIG Ltd.	10	18.2	131.20

We note that the market value is not equal to the book value for shares of any of the leading companies of the country. In fact, there is wide divergence between these two. The divergence is mostly on the upper side except in some cases. We can conclude, therefore, that book value is not a perfect indicator of the intrinsic value of a security. At best it can be an indicator of the floor value or base value below which the market value in normal circumstances should not slide. Book value is a historic indicator. It depicts what the company has earned and saved in the past. It does not reflect the future earning potential of the company.

Having considered that the book value is not an appropriate measure for ascertaining the real or intrinsic value of a security, let us take up a more rigourous process of evaluating securities called fundamental analysis.

FUNDAMENTAL APPROACH TO VALUATION

The investor seeks to arrive at the real value or the intrinsic value of a security through the process of security analysis. This value is arrived at by using a number of tools of financial analysis and it approximates the level at which the demand and supply of stock of the security would be in equilibrium leading to stability of prices. Price of the security below and above this level would tend to be unstable.

Money has a "time value." the powerful tools of compounding and discounting can help us build a theoretical framework of valuation of bonds and stocks. Bond values are reasonably easy to determine. As long as a bond is not expected to go into default, the value of the bond is made up of present values of annual interest payments plus the principal amount to be recovered at maturity or sooner. Valuation of equity is different because earnings and dividend streams are uncertain as to timing of receipt and the amount of dividend. The value of an equity stock at any moment in time can be thought of as the discounted value of a series of uncertain future dividends that may grow or decline at varying rates over time.

It is easiest to start with equity valuation where the expected holding period is one year. The benefit any investor receives from holding an equity stock consists of dividends plus any change in price during the holding period. Suppose we buy one share of SBI at the beginning of the year for Rs. 500. We hold the stock for one year. Rs.20 in dividends is collected at year-end, and the share is sold for Rs.530. the rate of return achieved is the composite of dividend yield and change in price (capital gains yield). Thus, we get

Dividend yield = D/P= 20/500 = .04 Capital gains yield = 530-500/500= .06

The total rate of return achieved is .04+.06=.10 or 10 percent. How might we express this same notion in terms of present values? Thus:

$$P0 = \frac{D1}{(1+r)} + \frac{P1}{(1+r)}$$

where:

D1 = dividend to be received at the end of year 1

r = investor's required rate of return or discount rate P1 = selling price at the end of year 1

P0 = selling price today

Therefore,

$$500 = \frac{₹\ 20}{(1+r)} + \frac{530}{(1+r)}$$

Will r = .10 balance the equation? At a required rate of return of 10 percent, the dividend is worth ₹18.18 (₹20*.909) and selling price has a present value of ₹ 481.8182 (₹530 *.909) (see present value table). The combined present value is ₹ 500.

Should a rate of return of 15 percent have been required, the purchase price would have been too high at

₹ 500. (the dividend of ₹20 and selling price of ₹530 remains constant). To achieve a 15% return, the value of the stock at the beginning of the year would have had to be

P0 = (₹20/1.15) + (₹530/1.15)

= ₹17.39 + 460.87

= ₹ 478.26

An alternative approach would be to ask the question: at what price must we be able to sell the stock at the end of one year (if purchase price is ₹ 500 and the dividend is ₹ 20) in order to attain a rate of return of 15 percent?

₹ 500 = (₹20/1.15) + (P1/1.15)

₹ 500 = ₹17.39 + .87 P1

₹ 554.72 = P1 (selling price)

Now let us look at a multiple year holding period. In most cases dividends will grow from year to year. We can similarly add the present value of all dividends to be received over the holding period and the present value of the selling price of the stock to the end of the holding period to arrive at the present value of the stock.

To simplify, let us assume that dividends will grow at the constant rate into the indefinite future. Under this assumption the value of a share is

$$P_0 = \frac{D(1+g)}{(1+r)^1} + \frac{D(1+g)^2}{(1+r)^2} + \frac{D(1+g)^3}{(1+r)^3} + \frac{+D(1+g)^n}{(1+r)^n}$$

where n approaches infinity, this equation reduces simply to

$$P_0 = \frac{D1}{r - g}$$

This model states that the price of a share should be equal to next year's expected dividend divided by the difference between the appropriate discount rate for the share and its expected long term growth rate. Alternatively, this model can be stated in terms of the rate of return on an equity share as

r = (D1/P0) + g

Illustration: An investor is holding 1000 shares of Right Choice Ltd. The current rate of dividend paid by the company is ₹ 5/- per share. The long term growth rate is expected to be 10% and the expected rate of return is 19.62%. We need to find out the current market price of the share:

Solution

$$P_0 = \frac{D0\ (1+g)}{r - g}$$

$$= \frac{5(1 + 0.10)}{.1962 - .10}$$

$$\frac{5 \times 1.1}{0.0962} = \frac{5.5}{0.0962} = ₹57.17$$

The real value or intrinsic value is valid for a given set of conditions. These conditionalities include the national and international economic situation, industry specific and company specific circumstances. The first three conditionalities are viewed from a macro perspective in order to even out the effect of minor happenings. The last conditionality is observed at the micro level because at this level, even relatively smaller happenings can disturb the demand supply equilibrium.

ALTERNATIVE APPROACHES TO VALUATION

1. Random walk theory

In the Fundamental Analysis, factors such as economic influences, industry factors and particular company information are considered to form a judgment on share value. On the other hand, price and volume information is analyzed in Technical Analysis to predict the future course of share values. There is another approach which negates both Fundamental and Technical analysis. This approach has been based upon the research aimed at testing whether successive price changes are independent in different forms of market efficiency.

According to the theory, share prices will rise and fall on the whims and fancies of manipulative individuals. As such, the movement in share values is absolutely random and there is no need to study the trends and movements prior to making investment decisions. No sure prediction can be made for further movement or trend of share prices based on the given prices as at a particular moment. The Random Walk Theory is inconsistent with technical analysis. Whereas, it states that successive price changes are independent, the technicians claim that they are dependent. But believing in random walk does not mean that one should not believe in analyzing stocks. The random walk hypothesis is entirely consistent with an upward and downward movement in price, as the hypothesis supports fundamental analysis and certainly does not attack it.

One of the advantages of this theory is that one is not bothered about good or bad judgement as shares are picked up without preference or evaluation. It is easier for believers in this theory to invest with confidence. The second advantage is that there is no risk of being ill informed while making a choice as no information is sought or concealed.

Random walk theory implies that short term price changes i.e day to day or week to week changes are random but it does not say anything about trends in the long run or how price levels are determined.

2. Efficient – Market Theory

Efficient Market Hypothesis accords supremacy to market forces. A market is treated as efficient when all known information is immediately discounted by all investors and reflected in share prices. In such a situation, the only price changes that occur are those resulting from new information. Since new information is generated on a random basis, the subsequent price changes also happen on a random basis. Major requirements for an efficient securities market are:

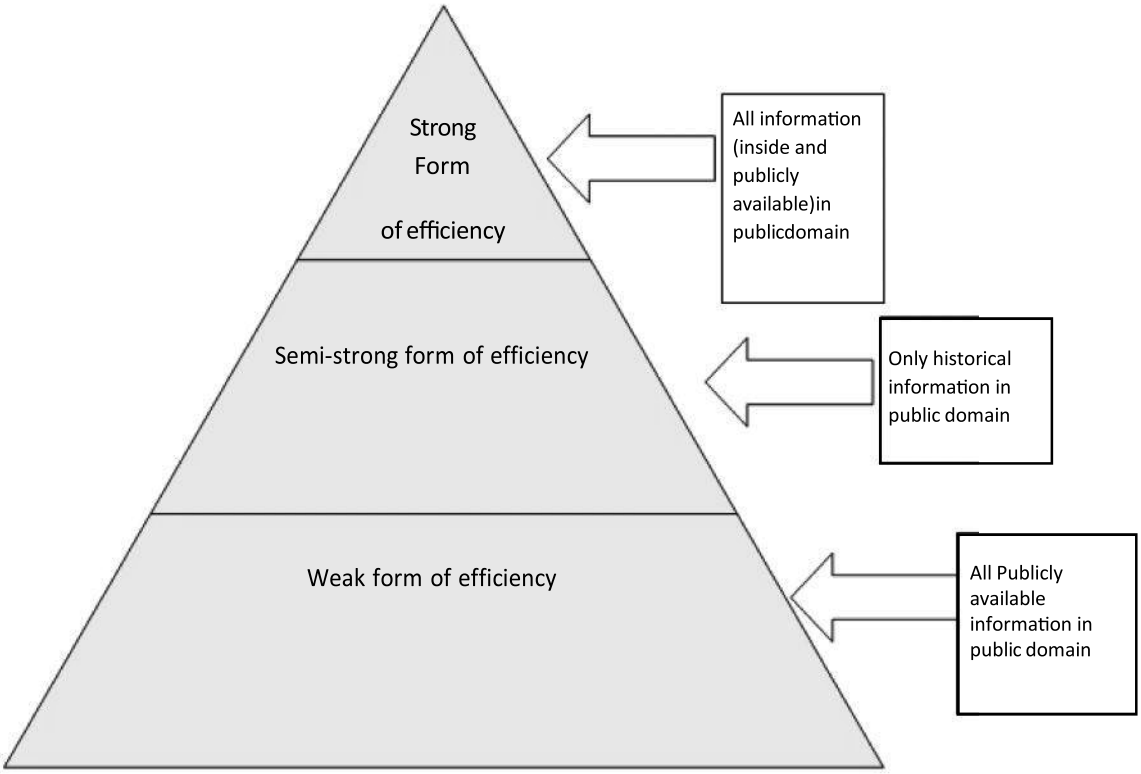
- Prices must be efficient so that new inventions and better products will cause a firms' securities prices to rise and motivate investors to buy the stocks.
- Information must be discussed freely and quickly across the nations so that all investors can react to the new information.
- Transaction costs such as brokerage on sale and purchase of securities are ignored.
- Taxes are assumed to have no noticeable effect on investment policy.
- Every investor has similar access to investible funds at the same terms and conditions.
- Investors are rational and make investments in the securities providing maximum yield.

Research studies devoted to test the random walk theory on Efficient Capital Market Hypothesis (ECMH) are put into three categories i.e.

(a) the strong form,

(b) the semi-strong form, and

(c) the weak form theory.



(a) ***The Strong Form of Efficiency:*** This test is concerned with whether two sets of individuals – one having inside information about the company and the other uninformed could generate random effect in price movement. The strong form holds that the prices reflect all information that is known. It contemplates that even the corporate officials cannot benefit from the inside information of the company. The market is not only efficient but also perfect. The findings are that very few and negligible people are in such a privileged position to have inside information and may make above-average gains but they do not affect the normal functioning of the market.

(b) ***Semi-strong form of Efficiency:*** This hypothesis holds that security prices adjust rapidly to all publicly available information such as functional statements and reports and investment advisory reports, etc. All publicly available information, whether good or bad is fully reflected in security prices. The buyers and sellers will raise the price as soon as a favourable price of information is made available to the public; opposite will happen in case of unfavourable piece of information. The reaction is almost instantaneous, thus, printing to the greater efficiency of securities market.

(c) ***The Weak Form theory:*** This theory is an extension of the random walk theory. According to it, the current stock values fully reflect all the historical information. If this form is assumed to be correct, then both Fundamental and Technical Analysis lose their relevance. Study of the historical sequence of prices, can neither assist the investment analysts or investors to abnormally enhance their investment return nor improve their ability to select stocks. It means that knowledge of past patterns of stock prices does not aid investors to make a better choice. The theory states that stock prices exhibit a random behaviour.

In this way, if the markets are truly efficient, then the fundamentalist would be successful only when (1) he has inside information, or (2) he has superior ability to analyse publicly available information and gain insight into

the future of the company. The empirical evidence of the random walk hypothesis rests primarily on statistical tests, such as runs test, correlation analysis and filter test. The results have been almost unanimously in support of the random walk hypothesis, the weak form of efficient market hypothesis.

3. Capital Asset Pricing Mode (CAPM)

CAPM explains the relationship between the Expected Return, Non-Diversifiable Risk (Systematic Risk) and the valuation of securities. Under CAPM price of a security is calculated with the help of expected return from security.

Formula for Computing Expected Return: E(RP) = Rf +(Rm –Rf {ß} Where E(RP) = Expected Return on Portfolio

RF = Risk Free Rate of Interest/ Return ß = Portfolio Beta

RM = Expected Return on Market Portfolio

Example 1: Using the following information calculate expected return:

Current yield on a U.S. 10-year treasury is 2.5%

The average excess historical annual return for U.S. stocks is 7.5%

The beta of the stock is 1.25

Solution: Expected return = Risk Free Rate + [Beta x Market Return Premium]

Expected return = 2.5% + [1.25 x 7.5%]

Expected return = 11.9%

Example 2: Winner Corporation stock will pay a dividend of $1.32 next year. Its current price is $24.625 per share. The beta for the stock is 1.35 and the expected return on the market is 13.5%. If the riskless rate is 8.2%, what is the expected growth rate of Winner Corporation?

Solution: Using the capital asset pricing model (CAPM),

E(Ri) = r + i [E(Rm) − r]

We first find the expected rate of return as:

E(Ri) = 0.082 + 1.35 [0.135 − 0.082] = 0.15355 = R

The expected rate of return E(Ri), for a security is also its required rate of return R by the investors. Using the growth model for a stock

$$P_0 = \frac{D_1}{R - g}$$

we get, $R - g = D_1/P_0$, or $g = R - D_1/P_0$,

which gives g = 0.15355 − 1.32/24.625 = 0.1.

Thus the growth rate is 10%

Example 3: Peak Services Ltd. common stock has a = 1.15 and it expects to pay a dividend of $1.00 after one year. Its expected dividend growth rate is 6%. The riskless rate is currently 12%, and the expected return on the market is 18%. What should be a fair price of this stock?

Solution: E(Ri) = r + i [E(Rm) − r]

we get E(Ri) = 0.12 + 1.15 [0.18 − 0.12] = 0.189

Thus, the expected return on the stock is 0.189, and the expected growth rate is 0.06.

$$P_0 \quad \frac{1}{0.189 - 0.06} = \$7.75$$

Example 4: Wonderful Oil stock currently sells at $120 a share. The stockholders expect to get a dividend of $6 next year, and they expect that the dividend will grow at the rate of 5% per annum. The expected return on the market is 12% and the riskless rate is 6%. Wonderful Oil announced that it has won the multimillion dollar navy contract, and in response to the news, the stock jumped to $125 a share. Find the beta of the stock before and after the announcement.

Solution: Using Gordon's growth model, $P_0 = D_1 / R - g$, we get $R = D_1/P_0 + g$, which is also the expected return on the stock, E(R). But by CAPM,

E(Ri) = r + i [E(Rm) − r]

we get

$$\beta = \frac{E(R_i) - r}{E(R_m) - r}$$

$$\text{Thus, } \beta = \frac{D_1 / P_0 + g - r}{E(Rm) - r}$$

$$\frac{D_1 / P_0 + g - r}{E(Rm) - r}$$

$$\beta = \frac{6/120 + 0.05 - 0.06}{0.12 - 0.06} = 0.667, \text{ before.}$$

$$\text{And } \beta = \frac{6/125 + 0.05 - 0.06}{0.12 - 0.06} = 0.633, \text{ after.}$$

Note : Detailed discussion on CAPM model is given in Portfolio Management.

Lesson Round up

- Investment may be defined as a conscious act on the part of a person that involves deployment of money in securities issued by firms with a view to obtain a target rate of return over a specified period of time.
- Investment is conscious act of deployment of money in securities issued by firms. Speculation also involves deployment of funds but is not backed by a conscious analysis of pros and cons.
- Investment is the employment of funds on assets with the aim of earning income or capital appreciation.
- Speculation also involves deployment of funds but it is not backed by a conscious analysis of pros and cons.
- Both gambling and betting are games of chance in which return is dependent upon a particular event happening.

- Risk in security analysis is generally associated with the possibility that the realized returns will be less than the returns that were expected.
- Risk can be classified under two main groups, viz., systematic risk and unsystematic risk.
- Return is the primary motivating force that drives investment. It represents the reward for undertaking investment.
- The main objective of security analysis is to appraise are intrinsic value of security.
- The Fundamental approach suggests that every stock has an intrinsic value which should be equal to the present value of the future stream of income from that stock discounted at an appropriate risk related rate of interest.
- Technical approach suggests that the price of a stock depends on supply and demand in the market place and has little relationship with its intrinsic value.
- Efficient Capital Market Hypothesis (ECMH) is based on the assumption that in efficient capital markets prices of traded securities always fully reflect all publicly available information concerning those securities.
- Performance of a company is intimately related to the overall economic environment of the country because demand for products and services of the company would under normal circumstances be directly related to growth of the country's economy.
- Industry level analysis focuses on a particular industry rather than on the broader economy.
- Dow Jones theory shows that share prices demonstrate a pattern over four to five years and these patterns can be divided into primary, secondary and minor trends.
- Charts and Indicators are two major tools of Technical Analysis.

GLOSSARY

Security Analysis : Security analysis refers to the method of analyzing the value of securities like shares and other instruments to assess the total value of business which will be useful for investors to make decisions. There are three methods to analyze the value of securities – fundamental, technical, and quantitative analysis.

Quantitative Analysis: Quantitative analysis refers to the analysis of securities using quantitative data.

Portfolio Theory : Portfolio theory was proposed by Harry M. Markowitz of University of Chicago. According to Markowitz's portfolio theory, portfolio managers should carefully select and combine financial products on behalf of their clients for guaranteed maximum returns with minimum risks.

Alpha : The amount of return expected from an investment from its inherent value.

Annualized : A procedure where figures covering a period of less than one year are extended to cover a 12-month period.

Annualized rate of return : The average annual return over a period of years, taking into account the effect of compounding. Annualized rate of return also can be called compound growth rate.

Appreciation : The increase in value of a financial asset.

Asset allocation : The process of dividing investments among cash, income and growth buckets to optimize the balance between risk and reward based on investment needs.

Asset class : Securities with similar features. The most common asset classes are stocks, bonds and cash equivalents.

Average maturity : For a bond fund, the average of the stated maturity dates of the debt securities in the portfolio. Also called average weighted maturity. In general, the longer the average maturity, the greater the fund's sensitivity to interest-rate changes, which means greater price fluctuation. A shorter average maturity usually means a less sensitive - and consequently, less volatile - portfolio.

Bear market : A bear market is a prolonged period of falling stock prices, usually marked by a decline of 20% or more. A market in which prices decline sharply against a background of widespread pessimism, growing unemployment or business recession. The opposite of a bull market.

Benchmark : A standard, usually an unmanaged index, used for comparative purposes in assessing performance of a portfolio or mutual fund.

Beta : A measurement of volatility where 1 is neutral; above 1 is more volatile; and less than 1 is less volatile.

Blue chip : A high-quality, relatively low-risk investment; the term usually refers to stocks of large, well-established companies that have performed well over a long period. The term Blue Chip is borrowed from poker, where the blue chips are the most valuable.

Capitalization : The market value of a company, calculated by multiplying the number of shares outstanding by the price per share.

Cash equivalent : A short-term money-market instrument, such as a Treasury bill or repurchase agreement, of such high liquidity and safety that it is easily converted into cash.

Equity fund : A mutual fund/collective fund in which the money is invested primarily in common and/or preferred stock. Stock funds may vary, depending on the fund's investment objective.

Expense ratio : The ratio between a mutual fund's operating expenses for the year and the average value of its net assets.

Green bonds : A type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental friendly projects.

Green Bond Principles : Voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond.

Growth stock : Typically a well-known, successful company that is experiencing rapid growth in earnings and revenue, and usually pays little or no dividend.

Impact investing : A sustainable investment style that seeks to generate measurable positive social or environmental impact alongside financial return. Investment themes include activities such as affordable housing, education and healthcare.

Investment stewardship : Engaging with companies and voting proxies to ensure our clients' interests are represented and protected and the company is focused on responsible allocation of capital and long-term value creation.

Horizontal Analysis : Horizontal analysis is used in financial statement analysis to compare historical data, such as ratios, or line items, over a number of accounting periods. Horizontal analysis can either use absolute comparisons or percentage comparisons, where the numbers in each succeeding period are expressed as a percentage of the amount in the baseline year, with the baseline amount being listed as 100%. This is also known as base-year analysis.

Vertical Analysis : Vertical analysis is a method of analyzing financial statements that list each line item as a percentage of a base figure within the statement. The first line of the statement always shows the base figure at 100%, with each following line item representing a percentage of the whole. For example, each line of an income statement represents a percentage of gross sales, while each line of a cash flow statement represents each cash inflow or outflow as a percentage of total cash flows.

TEST YOURSELF

(These are meant for re-capitulation only. Answers to these questions are not to be submitted for evaluation)

1. What is security analysis? Why do we need to carry it out?
2. What are the various kinds of risks?
3. What are the various techniques of security analysis?
4. Describe some techniques of Technical analysis.
5. A Ltd has just declared a dividend of ₹10 per share. (Dividend ratio 100%)The ROE of the company is 20%, while EPS has been ₹40 per share. If the Investor required rate of return is 20%, then what should be the price per share?

   (Answer: ₹230 per share)

6. The analysts are of view that company YZ Ltd equity share will give a return of 20% if the economy grows at a faster pace. If the economy stays at the same rate of growth as in present times, then the equity share is expected to give the return of 10% only. If the economic growth rate goes down the expected return of the share is only 5%. The analysts further estimate that the probability of good, status quo and recession of economy are:- 50%,30% &20%. What is the average return of YZ Ltd equity share?

   (Answer: 14%)

LIST OF FURTHER READINGS

1. Security Analysis and Portfolio Management, 2nd Edition by Pandian Punithavathy
2. Security Analysis and Portfolio Management by Donald E. Fischer and Ronald J. Jordan
3. Security Analysis and Portfolio Management by Ambika Prasad Dash

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4. Fundamental Analysis: Combining the Search for Quality with the Search for Value, https://www.wm.edu/offices/auxiliary/osher/course-info/classnotes/shanecontemporaryaccountingresearch.pdf

Operational Approach to Financial Decision

Lesson 19

KEY CONCEPTS

■ Financial Management ■ Costing ■ Marginal Costing ■ Breakeven Point ■ Margin of Safety ■ Angle of Incidence

Learning Objectives

To understand:

- Nature, Scope and Objectives of Costing
- Key concept of costing
- Basics Principles of Costing
- Marginal Costing-Breakeven Point, Angle of Incidence, Margin of Safety

Lesson Outline

- Introduction
- An Overview of Costing
- Key Concepts
- Basics Principles of Costing
- Marginal Costing-Breakeven Point, Angle of incidence, Margin of Safety
- Lesson Round-Up
- Glossary
- Test Yourself
- List of Further Readings
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INTRODUCTION

One of the three strategic dimensions to achieve competitive advantage in industry, together with product differentiation and focus or niche, according to Michael E. Porter's theory of generic competitive strategies, is "Cost Leadership." Cost leadership refers to delivering services or producing items at the lowest possible cost while retaining quality for more competitive pricing. It is crucial for an entity to fit into one of the three competitive strategy dimensions in a business environment where every entity strives to obtain the top position not only in domestic but also in the global competitive market. If an organisation has a strong Cost and Management Accounting system in place, it can attain cost leadership, another topic related to Cost and Management Accounting. This chapter will cover a variety of cost accounting topics as well as how they are used in manufacturing and service environments.

AN OVERVIEW OF COSTING

Any system for allocating expenses to a business component is known as costing. Costing is frequently used to create costs for customers, distribution channels, personnel, geographical regions, goods, product lines, processes, subsidiaries, and whole businesses. Planning and managing a company's operating expenses is the process of costing. In order to budget, anticipate, and monitor costs more accurately, it also involves gathering, evaluating, and reporting cost information. Cost is the price paid, which is typically calculated based on the resources given up to accomplish a specific goal. It is a price paid in exchange for certain commodities or services. Not all costs are expenses. While some expenditures are expenses, others are assets. Costs have expired (been used up).

ICWAI, India defines cost as "measurement in monetary terms, of the amount of resources used for the purpose of production of goods or rendering services"

Cost refers to the amount of payment made to acquire any goods and services. In a simpler way, the concept of cost is a financial valuation of resources, materials, risks, time and utilities consumed to purchase goods and services. From an economist's point of view, the cost of manufacturing any goods and services is often said to be the concept of opportunity cost.

The concepts, practices, procedures, and processes used in a firm to plan and regulate how its resources are used are included in the definition of cost accounting. The application of costing and cost accounting principles, methodologies, and techniques to the science, art, and practise of cost control and the determination of profitability is how CIMA (London) defines it. It also comprises the dissemination of data obtained from it for managerial decision-making.

Cost accounting is therefore the science, the art, and the practise of a cost accountant. It is a science in that it is a body of methodical knowledge that a cost accountant must possess in order to carry out his tasks and responsibilities in a professional manner. It is an art since it calls for a cost accountant's expertise and talent to apply cost accounting principles to a variety of managerial issues, such as price fixing, cost control, etc.

Nature and Scope of Costing

Costing is the process of determining costs, according to the C.I.M.A., London. It discusses methods and procedures for estimating costs as well as the guiding concepts and regulations governing how much goods and services should cost. Cost accounting is a technique for cost accounting. Analyzing the costs related to a good or activity is only one aspect of cost accounting. It considers a number of factors, such as different cost structures, possible business opportunities, budget planning, profitability analysis, and more. In this context, "scope" refers to the area of activity. Calculating the cost of a specific good or activity is referred to as cost accounting. Both internal and external reports reporting can benefit from the data it gives. Cost information is presented in detail in internal reporting

NATURE OF COSTING

1. Cost Accounting is a Branch of Knowledge-Though cost accounting is considered as a branch of financial accounting, it is one of the important branches of knowledge. It is an organized body of knowledge consisting of its own principles, concepts and conventions. These principles and rules vary from industry to industry.

2. Cost Accounting is a Science- Cost accounting is considered as a science because it is a body of systematic knowledge relating to not only cost accounting but relating to a wide variety of subjects such as law, office practice and procedure, data processing, production and material control, etc. It is necessary for a cost accountant to have intimate knowledge of all these field of study in order to carry on day-to-day activities. But it is to be admitted that it is not a perfect science as in the case of natural science.

3. Cost Accounting is an Art. Cost accounting is an art in that it calls on the ability and expertise of a cost accountant to apply the concepts, procedures, and methods of cost accountancy to specific management issues. These issues include determining cost control, determining profitability, and other issues.

4. Cost accounting is a profession. In recent years, cost accounting has emerged as one of the crucial and most difficult occupations. These two facts make this opinion clear. First, the establishment of numerous professional organisations, including the National Association of Accountants (NAA), the Institute of Cost and Management Accountants in the United Kingdom, the Institute of Cost and Works Accounts in India, and similar organizations in developed and developing nations, has increased public awareness of the costing profession. Second, many students have enrolled in these institutions in order to gain expensive degrees and membership necessary for supporting themselves.

(a) Costing methodology and process: Costing methodology consists of two separate processes.

(i) Cost collection and classification based on numerous factors.

(ii) Apportionment and allocation of costs that cannot be directly attributed to production. Costing as a process is concerned with the regular determination of cost using the official approach.

(b) Cost estimation is done in three parts.

(i) Expenditure analysis and data collecting,

(ii) Production measurement at various stages

(iii) Compensating for production costs to accomplish the initial step. Different systems, including Historical, Estimated, and Standard Cost, have been created in costing. Costing has created a variety of techniques for achieving the second phase, including work costing, contract costing, single or output costing, etc. for completing the final phase, finally. Important methods have been established in costing, including absorption costing, marginal costing, and standard costing.

Objectives of Costing

Facts are collected into statistics.

1. Ascertainment of Cost

The first and most significant goal of costing is cost determination. In order to ensure that all costs are included in the price of the products, techniques, and costing process employed, it is important to ascertain the cost of each product, process, or operation.

It is beneficial to do preliminary research and implement a system for recording costs in order to determine the cost of management with the assistance of the costing department. Materials, labour, and other expenses are maintained in a correct and thorough manner (referred to as covered heads).As a result, the management gathers cost information on a regular basis, which is then used to establish the selling price. Therefore, the costs and sales are equal. This matching procedure assists in determining and raising the product's profitability. Importantly, costing gives managers a way to determine costs as well as a foundation for determining the profitability of any services or products being provided.

2. Cost Control

Cost estimation alone is insufficient. Naturally, it is insufficient because the cost dictates the selling price, which in turn decides the profitability. As a result, "the lower the cost, the larger to profit" is the standard that everyone tries to adhere to. It's crucial to keep costs under control in order to bring about this norm's fundamental goal of lower prices for goods and services. A comparison is conducted after budgets have been created, standards have been established, and actual have been determined. Corrective action is conducted if any discrepancy between the actual, the budget, and the standards is found. As a result, managers can increase their income or lower the selling price while also helping to control costs. As a result, the customer can gain from higher quality, which can increase consumer loyalty to the brand and business.

3. Guidelines for Management

The devoted servant of managers in a company is costing. In all practical respects, it supports managerial decision-making. Managers can work toward efficiency for the entire organisation with the use of cost data that comes from costing. Cost information offers organisational recommendations for different managerial choices. For instance, the utilisation of cost data might direct the launch of a new product line, reveal areas of untapped capacity, or draw attention to growth prospects.

Types of Costing

Cost can be defined as the amount (measured in terms of money) paid for goods and services received (or to be received).Accountants and managers use many different concepts of cost, each usually for a different purpose.

It is the classification of cost that indicates to managers how the term is being used and whether they can do anything about the cost or not.

Important **types of costs** are explained below

Costs are broadly classified into four types: fixed cost, variable cost, direct cost, and indirect cost.

Variable Cost: A variable cost changes in direct proportion to a change in the level of activity.

Fixed Cost: These costs do not change in total as activity changes.

Direct Cost: A direct cost is a cost that can be traced to specific segments of operations.

Indirect Cost: An indirect cost is a cost that cannot be identified with specific segments of operations. Common costs are shared by multiple segments.

Relevant Costs : All those costs which influence a choice of alternatives in a particular situation (decision to be taken) and are also affected by that decision are said to be relevant costs of that decision

Irrelevant Costs : All those costs which remain the same and are not affected by the decision whatever alternative is chosen are said to be irrelevant costs for that decision

Sunk Costs: Sunk costs are the historical costs that arise due to decisions made in the past and cannot be changed by any decision made in future. Example: investments in Plant & Machinery is a prime example of sunk cost; in decisions relating to replacement of old machine, the written down value of old machine adjusted for its recoverable value is a sunk cost as it has been incurred in past and cannot be changed by future decision. Since sunk costs cannot be altered in future, they are always irrelevant costs in future decision making.

Shut down Costs: These are the unavoidable fixed costs which continue to be incurred even when a plant is temporarily shut down. Example: rent, insurance and depreciation of building, salaries of permanent staff etc. Managers must take into account shutdown costs while considering shutdown or continue decisions.

Imputed/Hypothetical/Notional Costs: These are the costs for which neither any transaction has taken place nor any cash outlay is there but it represents a sacrifice or resource use capable of being measured in monetary terms. Example: a producer is doing production in his own premises for which no rent is paid but which has a market value of Rs. 15,000 per month, he can record Rs. 15,000 per month as notional factory rent while determining the cost of production of output.

Out of Pocket Cost / Explicit Costs: These are those costs that require cash outlay due to a particular managerial decision. It represents both present and future outflow of cash due to a decision.

Advantages of Costing

Costing gives useful cost information. As a result, it is crucial in managerial decision-making. A sound costing system is also important in order to provide high-quality services. The costing department has a significant impact on the benefits managers gain from costing, notably in the following dimensions:

1. **Measurement and Improvement of Efficiency**: The chief advantage to be gained is that Cost Accounting will enable a concern to, first of all, measure its efficiency and then to maintain and improve it. This is done by suitable comparisons and analysis of the differences that may be observed. Example- if materials spent upon a pair of shoes in 2001 comes to Rs. 100 and for a similar pair of shoe the amount is Rs. 120 in 2002. It is an indication of decline in efficiency. Of course, the increase may only be due to increase in price of materials; it may also be due to greater wastage in use of materials or inefficiency at the time of buying so that unnecessary high prices were paid.
2. **Profitable and Unprofitable Activities:** It will throw light upon those activities which bring profits and those activities which result in losses. This will be done only if the cost of each product or each job is ascertained and compared with the price obtained.

3. **Fixation of Prices**: In many cases a firm is able to fix a price for its products on the basis of the cost of production. In such a case, price cannot be properly fixed if no proper figures of cost are available. In case of big contracts, no quotation can be made unless the cost of completing that contract can be ascertained. If prices are fixed without costing information, it is possible that the price quoted may either be too high, in which case orders cannot be obtained, or it may be too low, in which case an order will result in a loss. It is a mistake on the part of any management to believe that mere increase in sales volume will result in profits; increased sales at prices lower than the cost may well lead the concern to the bankrupt court. Only Cost Accounting will reveal what price will be profitable.

4. **Guide in Reducing Prices**: In certain periods it becomes necessary to reduce the price even below the total cost. This will be so when there is a depression or slump. Costs, properly ascertained, will guide management in this direction.

5. **Information for Proper Planning**: For a proper system of Costing, it is necessary to have detailed information about the facilities available about machine and labour capacity. This helps in proper planning of work so that no section is overworked and no section remains idle.

6. **Control over Materials etc.** : Information about availability of stocks of various materials and stores must be constantly available if there is a good system of Cost Accounting. This helps in two ways. Firstly, production can be planned according to the availability of materials and fresh stocks can be arranged in time when old stocks are exhausted. Secondly, loss due to carelessness or pilferage or any other mischief will be known and, therefore, put down.

7. **Decision Regarding Machine vs. Labour** : Some of the important questions before management can be solved only with the help of information about costs. For example, if there is the problem of replacement of labour by machinery, Cost Accounting will at least guide management in finding out what the cost of production will be if either machinery or labour is used.

8. **Expansion in Production**: Sometimes it is necessary to decide whether production of one product or the other is to be increased. This problem can also be solved only if proper information about costs is available.

9. **Reasons for Losses Detected**: Exact causes of existence of profits or losses will be revealed by a system of Cost Accounting. For example, a concern may suffer not because the cost of production is high or prices are low but because the output is much below the capacity of the concern. It is only Cost Accounting which will reveal this reason for loss. It also helps in distinguishing between expenditure and loss which is necessary and that which is unnecessary, that is to say, between normal and abnormal losses.

10. **Helps in Taking Decisions**: Cost Accounting inculcates the habit of making calculations with pencil and paper before taking a decision. It will certainly check recklessness. Also some of the silly mistakes that sometimes occur can be avoided if there is a good Cost Accounting system. To give an instance, a well-known firm once quoted for supply of mosquito nets to the Government at a very low price. It was only after the order was obtained that the firm found that, by mistake, the price of materials was not included in the quotation.

11. **Check on Accuracy of Financial Accounts**: A good system of Cost Accounting affords an independent and most reliable check on the accuracy of financial accounts. This check operates through reconciliation of profits shown by Cost Accounts and by Financial Accounts. On the basis of various advantages of Cost Accounting, it can be easily said that 'a good system of costing serves as a means of control over expenditure and helps to secure economy in manufacture'.

Limitation of Costing

1. **Expensive** : The organization of the costing system and highly compensated cost accountants require further spending before installing it, though, care must be taken to make sure that the savings outweigh the cost of the accounting system.
2. **More Difficult** : The cost accounting system includes a lot of processes in determining cost, such as gathering and classifying expenses, allocating and apportioning expenses, etc. These procedures are regarded as difficult and demand a number of forms and paperwork to prepare the reports. Accounts will take longer to prepare as a result of this.
3. **Limited Applicability** : It is impossible for all business companies to employ the same costing methods and techniques. Everything relies on the type of business it is and the products it produces. The results of the business are misled if the incorrect technique and procedure are employed.
4. **Inappropriate:** Cost accounting systems are only appropriate for large-scale businesses; they are not ideal for small-scale businesses because they are more expensive.
5. **Lack of Uniformity**: The biggest drawback of the cost accounting method is its lack of uniformity. It does not adhere to any standard process. It is feasible for two cost accountants of comparable competence to get different conclusions using the same data. As a result, it is said that all outcomes from cost accounting are only approximations.
6. **Lack of Accuracy** - Cost Accounting accuracy varies. When estimating costs for a certain circumstance, some assumptions are always made.

BASIC PRINCIPLES OF COSTING

1. **Cause-and-effect relationships**:

   For each expense component, a cause-and-effect link needs to be defined. Each cost should be as closely tied to its root cause as feasible, and its impact on the various departments should be determined. Only units that travel through the departments at which a cost has been incurred should share that cost.

2. **Previous Costs That Could Not Be Collected in the Past Should Not Be Included in Future Costs:**

   Recovering past costs that could not be recovered in the past should not be done since it will not only skew the results of the future period's actual operations but also other statements.

3. **Charge of Cost Only Upon Incurrence**:

   Only costs that have been legitimately incurred should be included in unit costs. For instance, unit costs shouldn't be included in selling costs while an item is still being produced.

4. **Abnormal Costs Are Excluded from Cost Accounts:**

   When calculating the unit cost, all expenses incurred for unusual causes (such as theft or negligence) shouldn't be taken into account. If done thus, it will skew expense estimates and mislead management, leading to poor choices.

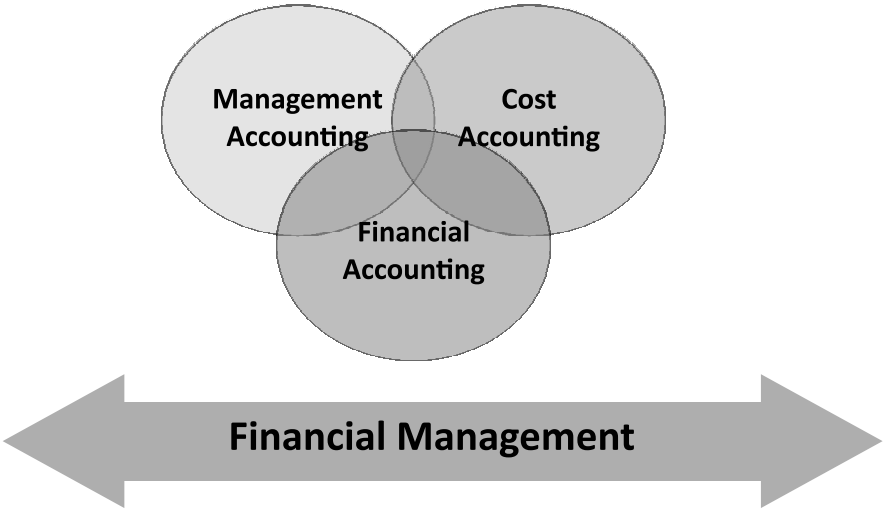
5. **Double Entry Principles Preferably Should Be Obeyed:**

   Cost ledgers and cost control accounts should, to the greatest extent possible, be maintained using double entry methods to reduce the likelihood of any error or mistake. By doing this, the accuracy of cost sheets and cost statements that are created for cost estimation and cost control would be guaranteed.

Relationship of Cost Accounting, Management Accounting, Financial Accounting and Financial Management

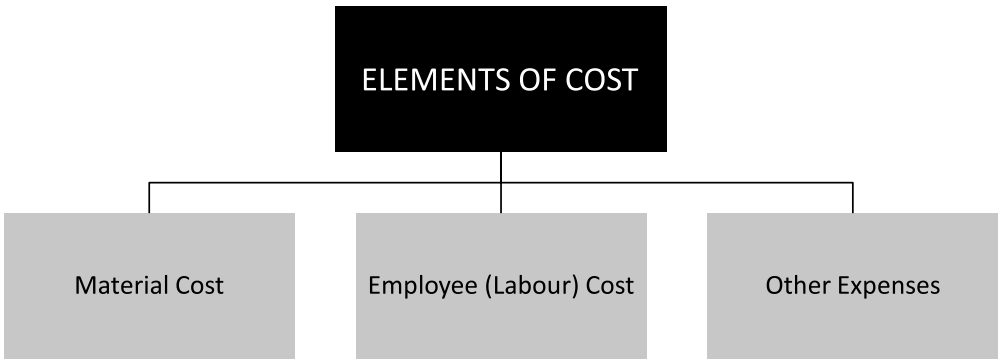
Different fields including Cost Accounting, Management Accounting, Financial Accounting, and Financial Management are closely related to one another.

These fields can occasionally interact and depend on one another.



CLASSIFICATION OF COSTS

It refers to the categorization of expenses based on their shared traits. The following categories are crucial for classifying costs: I By Nature or Element; (ii) By Functions; and (iii) By Variability or Behaviour (iv) By Capability (v) By Regularity (vi) By Costs for Managerial Decision Making.



Material cost: The price of the materials needed to produce a good or render a service is referred to as the material cost. All indirect materials required in the production process, such as cleaning supplies, are not included in the material cost.

Employee (Labour) Cost :The cost of labor is the sum of all wages paid to employees, as well as the cost of employee benefits and payroll taxes paid by an employer. The cost of labor is broken into direct and indirect (overhead) costs.

Other Expenses : Expenditure other than material and labour is the third element of cost.

It is defined by I.C.M.A. as- “The cost of service provided to an undertaking and the notional cost of the use of owned assets”.

Marginal Costing

The price to manufacture a second unit of output is known as the marginal cost. Since marginal cost aids in determining the level of production that is the most effective for a manufacturing process, it is a crucial topic in cost accounting. It is estimated by estimating the costs incurred even if just one more unit is produced.

For Example:

Variable cost per unit	= Rs 25
Fixed cost	= Rs 1,00,000
Cost of 10,000 units	= 25 × 10,000 = Rs 2,50,000
Total Cost of 10,000 units = Fixed Cost + Variable Cost	
	= 1,00,000 + 2,50,000
	= Rs 3,50,000
Total cost of 10,001 units	= 1,00,000 + 2,50,025
	= Rs 3,50,025
Marginal Cost	= 3,50,025 – 3,50,000
	= Rs 25

***Illustration 1**:* From the following particulars calculate:

a. P/V Ratio b. Fixed Cost

b. I year sales Rs. 1, 95,000 profit Rs. 9,000

c. II Year sales Rs. 2, 25,000 profit Rs. 15,000

Solution:

P/V Ratio = Change in Profit / Change in Sales

= 15,000 - 9,000 / 2,25,000 1,95,000 = 6,000 /30,000 × 100

P/V Ratio = 20%

Variable Cost= Sales (1- P/V Ratio)

= Rs. 2,25,000 (1- 0.20)

= Rs. 2,25,000 × 0.80 = Rs. 1,80,000

Fixed Cost = Sales – Variable Cost – Profit

= Rs. 2,25,000 – Rs. 1,80,000 – 15,000 = Rs. 30,000

Illustration 2: A cost sheet shows the following situations prevailing in Star Ltd., which is facing depression: Direct Materials -- Rs. 50,000 Direct Wages -- Rs. 20,000 Overheads: Variable -- Rs. 10,000 Fixed -- Rs. 20,000 -- Rs. 30,000 Total Cost -- Rs.1,00,000 Sales 4,000 units @ Rs. 23 per unit -- Rs. 92,000 Loss: -- Rs. 8,000 There is no sign of improvement in the situation. Therefore, the management wants to know whether it is desirable to stop the production. What should be the minimum price at which company should shut down its production?

Solution:

Even if there is a loss of Rs. 8,000, it is not desirable to stop the production. Because, fixed costs will be incurred

even if production is stopped and loss would be equal to fixed cost of Rs. 20,000. The RCUB, B.Com – 6th Semester Elements of Costing – II Page | 10 present loss is less because selling price is more than marginal cost and the same contributes towards recovery of fixed costs. Therefore, so long as there is contribution, it is not advisable to stop the production. The following statement gives the clear idea of the situation.

Marginal Cost	***Per Unit***	***Total (Rs.)***
Sales price of 4,000 units	23.00	92000
Less: Variable Cost Direct Material	12.50	50,000
Direct Wages	5.00	20,000
Variable Overheads	2.50	10,000
Marginal (Variable) Cost	20.00	80,000
Contribution	3.00	12,000
Less: Fixed Cost	5.00	20,000
Loss	2.00	8,000

The price per unit of Rs. 23 is more than marginal cost of Rs. 20. Therefore, the production should be continued. The minimum price at which production should be discontinued should be equal to marginal cost. In this case marginal cost is Rs. 20, so minimum price should be Rs. 20. It is better to stop the production if selling price falls below the marginal cost of Rs. 20 to avoid the loss more than fixed cost of Rs. 20,000.

Illustration 3:

The National Company has just been formed. They have a patented process that will make them the sole suppliers of Product A.

During the first year, the capacity of their plant will be 9,000 units, and this is the amount they will be able to sell. Their costs are:

- Direct labor = $15 per unit
- Raw materials = $5 per unit
- Other variable costs = $10 per unit
- Fixed costs = $240,000

There are two parts to this question:

(a) If the company aims to make a profit of $210,000 for the first year, what should the selling price be? What is the contribution margin at this price?

(b) If, at the end of first year, the company aims to increase its volume, how many units will they have to sell to realize a profit of $760,000 given the following conditions?

- An increase of $100,000 in the annual fixed costs will increase their capacity to 50,000 units
- Selling price is at $70 per unit and no other costs change
- $500,000 is invested in advertising

Solution

(a) Calculation of selling price

Direct labor (9,000 x 15) = $135,000

Raw materials (9,000 x 5) = $45,000

Other variable costs (9,000 x 10) = $90,000

Total variable costs (PU 30) = 270,000

Add: Fixed Cost = 240,000

Profit = 210,000

Total sales value of 9,000 units @ $80 per unit = 720,000

(b) Sales in units

(Fixed expenses + Desired profit) / (Sales – Variable cost)

Thus,

Fixed Expenses = 2,40,000 (given) + 1,00,000 (extra) + 50,000 (advertisement cost)

= 840,000 + Desired Profit (760,000) = $1,600,000

= 1,600,000 / (70 – 30) = 40,000 units

Illustration 4:

From the following particulars find out the amount of profit earned during the year using the marginal costing technique :

Product	***A***	***B***	***C***
Output (units)	10,000	20,000	30,000
Selling Price (per unit)	Rs. 10	Rs. 10	Rs. 5
Variable cost (per unit)	Rs. 6	Rs. 7.50	Rs. 4.5

Total Fixed Cost Rs. 80,000.

Solution

Statement of Cost and Profit (Marginal Costing)

Product

	A (Rs)	***B (Rs)***	***C (Rs)***	***Total (Rs)***
Sales Revenue	100,000	200,000	300,000	600,000
Marginal Costs	60,000	150,000	270,000	480,000
Contribution	40,000	50,000	30,000	120,000
Fixed Costs				80,000
Profit				40,000

Thus the technique of marginal costing assumes that the difference between the aggregate value of sales and the aggregate value of variable costs or marginal costs, provides a fund (called contribution) to meet the fixed costs and balance is the profit. The concept of contribution is a very useful tool to management in managerial decisions making.

Illustration 5:

Two companies A Ltd. and B Ltd. sell the same type of product. Their income statement are as follows:

	A Ltd. (Rs)	***B Ltd. (Rs)***
Sales	2,40,000	2,40,000
Less : Variable Cost	96,000	1,20,000
Fixed Costs	64,000	40,000
Profit	80,000	80,000

State which company is likely to earn greater profit if there is: (i) heavy demand, (ii) poor demand for its products.

Solution

	A Ltd. (Rs)	***B Ltd. (Rs)***
Sales	2,40,000	2,40,000
Variable Cost	96,000	1,20,000
Contribution	144,000	120,000
P/V Ratio (Contribution ÷ Sales)	0.60	0.50

In case of A Ltd., every sale of Rs. 100 gives a contribution of Rs. 60 whereas in case of B Ltd. every sale of Rs. 100 provides a contribution of Rs. 50. In case of heavy demand, profit of A Ltd. will rise much faster in comparison to B Ltd. During poor demand or decline in sales of Rs. 100 will lead to decline in contribution in A Ltd. and B Ltd. by Rs. 60 and Rs. 50 respectively.

Mathematically,

Sales = Variable cost + Fixed cost ± Profit.

Sales – Variable cost = Fixed Cost ± Profit

Sales – Variable cost = Contribution

Contribution –Fixed cost = ± Profit

To make profit, contribution should be greater than fixed cost. Further, to maximize profit, contribution should be maximized. When contribution is equal to fixed cost, then a firm is at 'no profit no loss point' called break-even point.

Formulae of Marginal Costing: The difference between the change in costs and the change in quantity is used to compute marginal cost. Assume, for instance, that a factory wants to boost its output to 10,000 units from its present 5,000 units. The marginal cost of production is equal to the difference between the factory's present cost of production ($100,000) and the cost of production ($150,000) when production is increased (10,000 - 5,000).

Need for Marginal Costing

Marginal Costing is clearly the core aspect of traditional management accounting. Some of the classical applications of management accounting, however, have begun to lose their significance. The question thus arises: What is the current role of Marginal Costing in modern management accounting?

Marginal cost means the cost of the marginal or last unit produced. It is also defined as the cost of one more or one less unit produced besides existing level of production. In this connection, a unit may mean a single commodity, a dozen, and a gross or any other measure of goods. Example, if a manufacturing firm produces X unit at a cost of Rs.300 and X+1 unit at a cost of Rs.320, the cost of an additional unit will be Rs.20 which is marginal cost. Similarly if the production of X-1 units comes down to Rs.280, the cost of marginal unit will be Rs.20 (300– 280). The marginal cost varies directly with the volume of production and marginal cost per unit remains the same. It consists of prime cost, i.e. cost of direct materials, direct labor and all variable overheads. It does not contain any element of fixed cost which is kept separate under marginal cost technique.Therefore, the need for Marginal Costing is as follows:

1. Cost-volume-profit relationship data wanted for profit planning purposes is readily obtained from the regular accounting statements. Hence management does not have to work with two separate sets of data to relate one to the other.
2. The profit for a period is not affected by changes in absorption of fixed expenses resulting from building or reducing inventory. Other things remaining equal (e.g. selling prices, costs, sales mix), profits move in the same direction as sales when direct costing is in use.
3. Manufacturing cost and income statements in the direct cost form follow management's thinking more closely than does the absorption cost form for these statements. For this reason, management finds it easier to understand and use direct cost reports.
4. The impact of fixed costs on profits is emphasised because the total amount of such cost for the period appears in the income statement.
5. Marginal income figures facilitate relative appraisal of products, territories, classes of customers, and other segments of the business without having the results obscured by allocation of joint fixed costs.
6. Marginal costing lies in with such effective plans for cost control as standard costs and flexible budgets.
7. Marginal costing furnishes a better and more logical basis for the fixation of sales prices as well as tendering for contracts when business is at low ebb.
8. Break-even point can be determined only on the basis of marginal costing.

Features of Marginal Costing

The following are characteristics of marginal costing:

1. Appropriate and accurate division of total cost into fixed and variable by picking out variable portion of semi variable costs also.
2. Marginal costing avoids, the difficulties of having to explain the purpose and basis of overhead absorption to management that accompany absorption costing. Fluctuations in profit are easier to explain because they result from cost volume interactions and not from changes in inventory valuation.
3. It is easier to make decisions on the basis of marginal cost presentations, e.g., marginal costing shows which products are making a contribution and which are failing to cover their avoidable (i.e., variable) costs. Under absorption costing the relevant information is difficult to gather, and there is the added danger that management may be misled by reliance on unit costs that contain an element of fixed cost.

4. Marginal costing is essentially useful to management as a technique in cost analysis and cost presentation. It enables the presentation of data in a manner useful to different levels of management for the purpose of controlling costs. Therefore, it is an important technique in cost control.
5. Future profit planning of the business enterprises can well be carried out by marginal costing. The contribution ratio and marginal cost ratios are very useful to ascertain the changes in selling price, variable cost etc. Thus, marginal costing is greatly helpful in profit planning.
6. When a business concern consists of several units and produces several products and evaluation of performance of such components can well be made with the help of marginal costing.
7. It is helpful in forecasting.
8. When there are different products, the determination of number of units of each product, called Optimum Product Mix, is made with the help of marginal costing.
9. Similarly, optimum sales mix i.e., sales of each and every product to get maximum profit can also be determined with the help of marginal costing.
10. Valuation of stocks such as finished goods, work-in-progress is valued at variable cost only.
11. The fixed costs are written off soon after they are incurred and do not find place in product cost or inventories.
12. Prices are based on Marginal Cost and Marginal Contribution.
13. It combines the techniques of cost recording and cost reporting.

Ascertainment of Profit under Marginal Cost

The term "contribution" refers to a sum of money equal to the selling price of a good less the marginal cost. One way to characterize contribution is as follows:

Contribution = Selling Price – Marginal Cost

Contribution = Fixed Expenses + Profit

Contribution – Fixed Expenses = Profit

Income Statement under Marginal Costing

Income Statement

For the year ended 31-03-2021

Particulars	***Amount***	***Total***
Sales		25,00,000
Less : Variable cost		
Cost of goods manufactured	12,00,000	
Variable Selling Expenses	3,00,000	
Variable Administration Exp	50000	
		15,50,000

Contribution		9,50,000
Less : fixed cost		
Fixed Administration Exp	70,000	
Fixed selling Expenses	1,30,000	200,000
		7,50,000

***Illustration 1*:** X Ltd. Made sales during a certain period for Rs. 1,00,000. The net profit for the same period was Rs. 10,000 and the fixed overheads were Rs. 15,000. Find out: (i) P/V Ratio (ii) Sales needed to generate a profit of Rs. 15,000 (iii) A net profit of Rs. 150,000 from sales. (iv) Point sales that break even.

Solution:

(i) P/V Ratio = {(F+P) / S} x 100 Here, F = Rs. 15,000, P = Rs. 10,000 and S = Rs. 1,00,000. P/V Ratio = [(15,000 + 10,000) / 1,00,000] x 100 P/V Ratio = 25%.

(ii) P/V Ratio = {(F+P) / S} x 100 Here 25 = {(15,000+15,000) /S}x100 [Given Profit = Rs. 15,000] Or, S = (30,000/25) x 100 Sales = 1,20,000 Sales required to earn a profit of Rs. 15,000 = Rs.1,20,000.

(iii) When Sales =Rs.1,50,000, Then Profit = ? P/V Ratio ={(F+P) / S} x 100 Here, 25 = [(15,000+P)1,50,000] x 100 [Given Sales= Rs.1,50,000] Or, 15,000 + P = 1,50,000 x 25 / 100 Or, 15,000 + P = 37,500 Profit = 37,500 – 15,000 = Rs.22,500 Net Profit from sales of Rs.1,50,000 = Rs. 22,500.

(iv) We know, at BEP – P/V Ratio = F+ BEP Sales x 100 Or, 25 = (15,000 / BEP Sales) x 100 Or, BEP Sales = (15,000 / 25) x 100 = 60,000 ÷ Break – even Point Sales = Rs. 60,000.

Illustration 2 : The following data relate to a manufacturing company:

Plant capacity: 4,00,000 units per annum

Present utilization 40%

Actuals for the year were

Selling price ₹ 50per unit

Materials cost ₹ 20per unit

Variable manufacturing costs ₹15 per unit

Fixedcosts ₹ 27 lakhs

In order to improve capacity utilisation the following proposals are being considered.

Reduce selling price by 10%.

Spend additionally ₹3 lakhs on sales promotion.

How many units should be made and sold in order to earn a profit of ₹5 lakhs per year?

Solution:

Revised selling price (₹50 less 10%) ₹45 per unit

Variable cost:

Material cost Rs.20

Variable manufacturing cost (per unit) Rs.15

Total variable cost Rs.35 per unit

Contribution Rs.10 per unit

Total contribution required:

Fixed costs Rs.27,00,000

Additional promotion expenses Rs.3,00,000

Profit Rs.5,00,000

Total Rs.35,00,000

Total number of units to be made and sold to earn a contribution of Rs. 35,00,000

Total Contribution

= Contribution per unit

Rs. 35,00,000

= Rs. 10 = 3,50,000 units.

***Illustration 3*:** Statement of Marginal Cost

Particulars	***Product A Rs.***	***Product B Rs.***
Sales	100	100
Direct Materials	24	16
Direct Wages @ Rs. 2.00 per hour	6	10
Variable Overheads	4	6
Marginal Cost	34	32
Contribution	66	68
Contribution per kg of material	11	17
Contribution per hour of labour:	22	13.60
Contribution per hour of machine	16.50	22.67

Working Notes:

1. Materials used in kgs = Cost of material / Cost per kg

   Product A = 24/ 4 = 6 kgs

   Product B = 16 /4 = 4 kgs

2. Contribution per kg of Material = Contribution/ Number of kgs materials used

   Product A = 66 /6 = 11 Rs per kg

   Product B = 68/4= 17 Rs per kgs

3. Contribution per hour of labour: = Contribution / Labour hours

   Product A = 66/ 3 = 22 Rs per labour hour

   Product B = 68/5 = 13.60 Rs per labour hour

   Labour hours = (A) 6/2=3hours and (B)10/2=5 hours

4. Contribution per hour of machine: = Contribution/ Machine hours used

   Product A = 66/4 = Rs 16.50 per hour of machine

   Product B = 68/3 = Rs 22.67 per hour of machine

Recommendations:

(a) Product 'B' is recommended when material is in short supply

(b) Product 'A' is recommended when labour is scarce factor

(c) Product 'B' is recommended when production capacity is the limiting factor.

Advantages of Marginal Costing

The following are some benefits of marginal costing:

1. **Effective cost control –** It divides cost into fixed and variable. Fixed cost is excluded from product. As such, management can control marginal cost effectively.
2. **Treatment of overheads simplified –** It reduces the degree of over or under-recovery of overheads due to the separation of fixed overheads from production cost.
3. **Uniform and realistic valuation –** As the fixed overhead costs are excluded from product cost, the valuation of work-in-progress and finished goods become more realistic.
4. **Helpful to management –** It enables the management to start a new line of production which is advantageous. It is helpful in determining which is profitable whether to buy or manufacture a product. The management can take decision regarding pricing and tendering.
5. **Helps in production planning –** It shows the amount of profit at every level of output with the help of cost volume profit relationship. Here the break-even chart is made use of.
6. **Better results –** When used with standard costing, it gives better results.
7. **Fixation of selling price –** The differentiation between fixed costs and variable costs is very helpful in determining the selling price of the products or services. Sometimes, different prices are charged for the same article in different markets to meet varying degrees of competition.
8. **Helpful in budgetary control –** The classification of expenses is very helpful in budgeting and flexible budget for various levels of activities.
9. **Preparing tenders –** Many business enterprises have to compete in the market in quoting the lowest price. Total variable cost, when separately calculated, becomes the 'floor price'. Any price above this floor price may be quoted to increase the total contribution.
10. **"Make or Buy" decision –** Sometimes a decision has to be made whether to manufacture a component or a product or to buy it ready-made from the market. The decision to purchase it would be taken if the price paid recovers some of the fixed expenses.
11. **Better presentation –** The statements and graphs prepared under marginal costing are better understood by management executives. The break-even analysis presents the behaviour of cost, sales, contribution etc. in terms of charts and graphs. And, thus the results can easily be grasped.

Breakeven Point

The break-even point (break-even price) for a trade or investment is determined by comparing the market price of an asset to the original cost; the break even point is reached when the two prices are equal.

The break-even point is **the point at which total cost and total revenue are equal**, meaning there is no loss or gain for your small business. In other words, you've reached the level of production at which the costs of production equals the revenues for a product.

A company's breakeven point is the point at which its sales exactly cover its expenses. **Fixed Costs ÷ (Price - Variable Costs)** = Breakeven Point in Units. Pricing a product, the costs incurred in a business, and sales volume are interrelated

The phrase "ascertainment of level of operations when total revenue equals entire costs" is used to describe break-even analysis. At any stage of operations, it is an analysis performed to determine the likely profit or loss. Break-even analysis is a technique for analysing how sales revenue, variable expenses, and fixed costs relate to one other in order to identify the operating level at which all costs are equal to sales revenue and there is no profit or loss.

This is a crucial strategy used in managerial decision-making and profit planning. Graphical charts are used to do break-even analysis. A break-even chart shows an approximation of profit or loss at various sales volume levels within a specific range. The break-even charts display sales income, fixed costs, and variable costs.

The objectives of break even analysis are given below:

(1) In order to forecast profit accurately, it is essential to know the relationship between profits and costs on the one hand and volume on the other.

(2) It is useful in setting up flexible budgets which indicate costs at various levels of activity.

(3) It is of assistance in performance evaluation for the purposes of control. For reviewing profits achieved and cost incurred the effects on costs of changes in volume are required to be evaluated.

(4) Pricing plays an important part in stabilizing and fixing up volume. Analysis of break even relationship may assist in formulating price policies to suit particular circumstances by projecting the effect which different price structures have on costs and profits.

(5) As predetermined overhead rates are related to a selected volume of production, study of break even relationship is necessary in order to know the amount of overhead costs which could be charged to product costs at various level of operation.

Steps in Construction of Break-even Chart

Building a break-even chart involves the following steps:

Step 1:

Choose a scale for the horizontal axis' sales (units).

Step 2:

Choose a scale for the vertical axis of costs and revenues.

Step 3:

Create a fixed cost line that is perpendicular to the horizontal axis.

Step 4:

Beginning at the fixed cost point on the vertical axis, draw the total cost line.

Step 5:

Draw a sales line that extends from the origin (zero) to the point of greatest sales.

Step 6:

When total costs equal total revenues, the sales line will cross the total cost line.

Step 7:

The "break-even point," or the location where there is neither a profit nor a loss, is the intersection of two lines.

Step 8:

The sales value and quantity produced at break-even point are given by the lines drawn from junction to the horizontal axis and vertical axis.

Step 9:

If the production falls below the break-even threshold, a loss is displayed, and if it exceeds the break-even point, a profit is displayed.

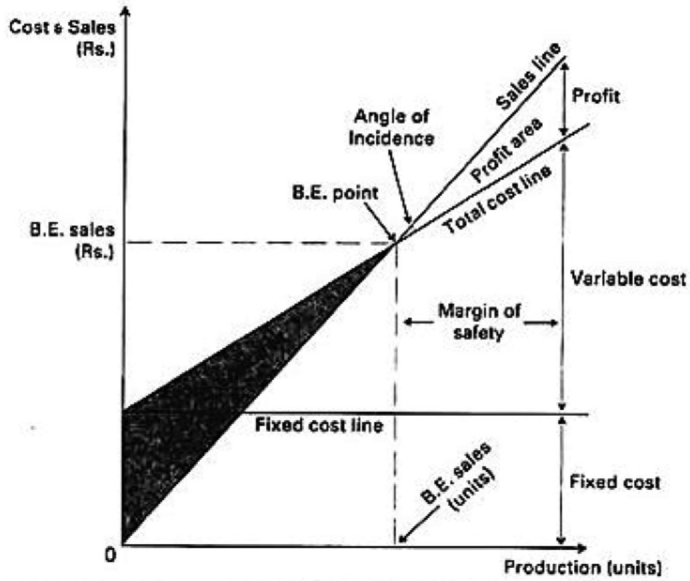
Step 10:

The margin of safety is equal to the total sales minus break-even sales.

Step 11:

The angle of incidence is the angle that the sales line creates with the total cost line when it intersects that line at the break-even point.

FIGURE 19.1 BREAK-EVEN CHART



In order to evaluate an organization's viability and make judgments about profit planning and expense control, break-even point analysis is useful. The break-even point, or point at which there is no net profitability, occurs when sales are just equal to costs. Costs are made up of both fixed and variable expenses.

It is a helpful instrument in financial planning that is used to recover expenditures and increase revenues. The break-even point will change as operating conditions, such as selling price, variable cost, and fixed cost, change. Costs must be divided into fixed and variable costs for the purpose of calculating the break-even point.

When calculating the break-even point, the fundamental premise is that the selling price per unit, variable cost per unit, and fixed cost per unit remain constant.

The fundamental premise in calculating break-even point is that selling price per unit, variable cost per unit, and total fixed expenses are constant. The operational and sales capacity needed to cover all costs is known as the break-even point. Beyond the point of break-even, any more activity or sales will result in a profit for the company.

Formulae for Break-Even Analysis:

$$\text{Break – Even point (unit)} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

$$\text{Break – Even point (unit) (Rs.)} = \frac{\text{Fixed cost}}{\text{p/v ratio}}$$

or = Break – even units x Selling price p.u.

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{Desired sales} = \frac{\text{Fixed cost + Desired profit}}{\text{p/v ratio}}$$

At Break – even point

Contribution = Fixed cost

Contribution – Fixed cost = 0

Illustration 1: StarX Ltd. Sold goods for ₹ 30,00,000 in a year. In that year, the variable cost is 60% of sales and profit is ₹ 8,00,000. Find out: (i) P/V Ratio, (ii) Fixed Cost, (iii) Break-even sales, (iv) sales that would still be profitable if the selling price were cut by 10% but fixed costs were raised by 1,00,000.

Solution:

Sales	=30,00,000
Less: Variable Cost (60% of Sales)	=18,00,000
Contribution	=12,00,000
Less:Fixed Cost	*
Profit	=8,00,000

Profit = C – FC

8,00,000 = 12,00,000 – FC

FC = 4,00,000..... (ii)

P/V Ratio = CS x 100 = 12,00,000 30,00,000 x 100 = 40%.....(i)

BEP = $FCPVRatio$ = 4,00,000 40% = 10,00,000.....(iii)

iv..... Required Statement

Sales (30,00,000 ÷ 10%) = 27,00,000

Less: V.C = 18,00,000

Contribution = 9,00,000

Revised P/V Ratio = CS x 100 = 9,00,000 27,00,000 x 100 = 1 3 x 100 = 33 1/ 3 %

Revised BEP $FCPVRatio$ = 4,00,000+1,00,000 331 3 % = ₹ 15,00,000

***Illustration 2*:** A company manufactures a products, currently providing 80% capacity with a turnover of ₹8, 00,000 at ₹ 25 per unit. The cost data are as under: Material cost ₹7.50 per unit, Labour cost ₹6.25 per unit. Semi-variable cost (including variable cost of ₹3.75 per unit) ₹1, 80, 000,Fixed cost ₹90,000 up to 80% level of output, beyond this an additional ₹20,000 will be incurred.

Calculate: 1. Activity level at breakeven point

Solution:

1. Number of units sold = Sales ÷ Selling price p.u. = ₹8,00,000 ÷ 25 per unit = 32,000 units

Fixed cost included in the semi-variable cost = Total semi variable cost – variable element

= ₹1,80,000 – (`3.75 p.u. x 32,000 units) = ₹60,000

Variable cost p.u. = ₹7.50 + 6.25 + 3.75 =`17.50

Contribution p.u, = Selling price – variable cost = ₹(25 – 17.50) = ₹7.50

Breakeven Point = Fixed Cost/Contribution per unit = 90000+60000/7.50 = 20,000 units

`Activity level at BEP = 80% / 32000 units * 20,000 units = 50.00%

***Illustration 3*:** MNP Ltd sold 2, 75,000 units of its product at ₹37.50 per unit. Variable costs are ₹ 17.50 per unit (manufacturing costs of ₹ 14 and selling cost ₹ 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amounting to ₹ 35, 00,000 (including depreciation of ₹ 15, 00,000). There is no beginning or ending inventories. Required: COMPUTE breakeven sales level quantity and cash breakeven sales level quantity.

Solution:

Break even Sales Quantity = Fixed cost/ Contribution margin per unit = 35, 00,000 / 20 ₹ = 1, 75,000 units Cash Break-even Sales Quantity = Cash Fixed Cost/ Contribution margin per unit

= 20, 00,000/ 20 ₹ =1, 00,000 units.

Illustration 4: Mahindra Ltd. sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margins per unit are ₹ 40 for J and ₹ 20 for K. Fixed costs are ₹ 6, 16,000 per month.

Sales mix (in quantity) is 4 units of Product- J and 3 units of Product- K i.e. Sales ratio is 4: 3

Composite contribution per unit by taking weights for the product sales quantity

=Product J- 40* 4/ 7 + Product K- 20*3/ 7 = ₹22.86 + ₹8.57 = Rs 31.43

Composite Break-even point = Common Fixed Cost/ Composite Contribution per unit

= 6,16,000 / 31.43 = 19,600 units

Break-even units of Product-J = 19,600*4/ 7 = 11,200 units

Break-even units of Product- K = 19,600*3/7 = 8,400 units

Assumption and Limitation of Breakeven Analysis

In doing a break-even analysis, the following presumptions and restrictions should be taken into account:

(a) To do a break-even analysis, all expenditures must be divided into fixed and variable components. Accurately separating semi-variable costs into their variable and fixed components is challenging.

(b) All fixed costs are expected to remain constant throughout all levels of activity. However, in actuality, it could not be permanently fixed.

(c) Another presumption is that variable costs actually fluctuate and are directly related to production volume. It indicates that the variable cost per unit of the product stays the same. In actuality, output and variable costs are not always strictly correlated.

(d) In a break-even analysis, it is assumed that production and sales units are equal, and that there is no inventory at the start or end of the period under consideration. In reality, inventory will always be present.

(e) Assuming that the sales mix does not change and that the selling price stays the same at all output levels, there will be no change in the selling price. In the actual world, it can be necessary to frequently alter the selling pricing and product mix in order to boost sales.

(f) It is assumed that there won't be any changes to productivity, operational effectiveness, product requirements, or methods of production and distribution. It is impracticable to assume that these factors remain constant because, in reality, operating efficiency and productivity depend on the availability of labour.

(g) A break-even chart can only show the position of one product; it is necessary to create separate charts for each product. It also fails to show the numerous items that make up the sales mix.

(h) The capital used in the business, which is one of the key factors in determining the profitability of the company and its goods, is ignored by break-even analysis.

(I) The break-even charts presumptively depict total cost and total revenue as straight lines. Costs and revenue have a curvilinear function in real life.

Profit Volume Ratio

Profit-Volume Ratio (P/V) measures the percentage of turnover that each product contributes to. It shows how the contribution to sales is related. Knowing the business's profitability is helpful.

This ratio is calculated as:

P/V Ratio = Contribution/Sales x 100

One can increase contribution by doing any of the following:

(a) A rise in the asking price

(b) Lower marginal costs through effective use of labour, resources, and machinery.

(c) Emphasize the selling of goods having a comparatively higher PV ratio.

Limitation

When utilising PV ratios in break-even analysis, the following restrictions should be kept in mind:

(a) A P.V. ratio that strongly relies on revenue surpluses over variable costs

(b) The PV ratio does not account for the capital expenditures required by the increased productive capacity as well as the increased fixed costs.

(c) It simply provides a general sense of the relative profitability of the various products and product lines. Making a final choice will not be of any assistance.

(d) The accurate division of costs into fixed and variable costs is a necessary condition for comparing profitability using the PV ratio. Oversimplifying anything can result in a wrong conclusion.

(e) The most profitable item will only be shown by a higher P.V. ratio per unit of sales or output when other conditions are constant.

***Illustration 1*:** The profit volume ratio of X Ltd. is 50% and the margin of safety is 40%. You are required to calculate the net profit if the sales volume is ₹1,00,000

Margin safety Ratio = Margin Safety/Actual Sales *100

40 = Marginal Safety/100,000*100

Margin of Safety = Rs 40,000

Marginal safety = Profit /PV ratio

Rs 40,000= Profit/50%

Profit = 40000*50%

= Rs 20,000

Illustration 2:

The following details have been provided by ABC Ltd. Sales of 20,000 units (at Rs. 5 per unit) and per unit. for variable costs: Rs. 3. A fixed cost fee of Rs. 8,000 each year. Determine the company's break-even revenue and p.v. ratio.

$$\text{P.V. Ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times 100 = \frac{(\text{Rs. } 5 - \text{Rs. } 3)}{\text{Rs. } 5} \times 40\% \text{ or } 0.40$$

$$\text{Break – Even Sales} \quad \frac{\text{Fixed cost}}{\text{P.V. ratio}} = \frac{\text{Rs. } 8{,}000}{.40} = \text{Rs. } 2{,}00{,}000$$

Solution:

$$\text{P.V. Ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times 100 = \frac{\text{Rs. } 5 - \text{Rs. } 3}{\text{Rs. } 5} = 40\% \text{ or } 0.40$$

$$\text{Break – Even Sales} = \frac{\text{Fixed cost}}{\text{P.V. ratio}} = \frac{\text{Rs. } 8{,}000}{.40} = \text{Rs. } 2{,}00{,}000$$

Illustration 3:

You must use the following data to determine the break-even point. Price at time of sale: Rs. 20 Rs. 80,000 fixed cost per annum 4, 00,000 rupees in sales for the year at variable cost per unit.

The quantity of units involved matches the level of production anticipated.

Working notes:

(a) Contribution p.u. = Selling price p.u. - Variable cost p.u.

= 20 minus 4 equals 16

16 rupees worth of contribution

(b) The PV ratio is calculated as follows: Contribution p.u./Selling price p.u. x 100 = Rs.16/Rs.20 x 100 = 80% or 0.80

Break-even sales result in neither a profit nor a loss.

Verification

Break-even sales = Fixed cost - Variable cost = 0.

5,000 units times 20 rupees, 5,000 units times 4, and 80,000 rupees equal zero.

1,00,000 minus 20,000 minus 80,000 = 0.

For example : DB Ltd furnished the following information

Particulars	***2005-2006***	***2006-2007***
Sales (Rs 10/unit)	200,000	2,50,000
Profit	30,000	50,000

You are required to compute:

(a) P/V Ratio.

(b) Break-even point.

(c) Total variable cost for 2005-2006 & 2006-2007.

(d) Sales required to earn a profit of Rs. 60,000.

(e) Profit/Loss when sales are Rs. 1,00,000

Solution:

(a) P/V Ratio = Change in Profit Change in Sales x 100 Here, P/V Ratio = [(50,000–30,000) / (2,50,000–2,00,000)] x100 = 40%

(b) P/V Ratio = {(F+P) / S} x 100 In the year 2006-2007 – P/V Ratio = [(F + 50,000) / 2,50,000] x 100 Or, 40 = (F + 50,000) 2,500 Or, F + 50,000 = 1,00,000 Fixed Cost = Rs. 50,000 Now, BEP Sales = Fixed Cost / P/V Ratio x 100 ∴ BEP Sales = (50,000 /4) x 100 = Rs. 1,25,000.

(c) P/V Ratio = {(S – V) / S} x 100 In the year 2005-2006 – 40 = {(2,00,000 – V) / 2,00,000} x 100 Or, 80,000 = 2,00,000 – V Or, V = 2,00,000 – 80,000 Total Variable Cost for 2005-06 = Rs. 1,20,000. In the year 2006-07 – 40 = {(2,50,000 – V) / 2,50,000} x 100 Or, 1,00,000 = 2,50,000 – V Or, V = 2,50,000 – 1,00,000 Total Variable Cost for 2005-06 = Rs. 1,50,000.

(d) P/V Ratio = {(F + P) / S} x 100 Here, 40 = {(50,000 + 60,000) / S} x 100 Or, S = (1,10,000 / 40) x 100 ∴ Required Sales = Rs. 2,75,000.

(e) P/V Ratio = {(F + P) / S} x 100 Here, 40 = {(50,000 + P) / 1,00,000} x 100 Or, 40,000 = 50,000 + P P = (10,000) ∴ Loss = Rs. 10,000

Margin of Safety

Sales above the volume necessary to break even are referred to as the margin of safety. It stands for the discrepancy between sales at a particular activity level and sales at break-even. In order to keep the business' operations viable, there needs to be a suitable margin of safety.

A low margin of safety typically denotes large fixed expenses, meaning earnings won't be realised until there is a significant amount of activity to cover the fixed expenses. A margin of safety gives a concern strength and stability.

The margin of safety is an essential metric, particularly in periods of declining sales, to understand the true position to run profitably and to take action to raise the margin of safety.

The difference between actual sales and the break-even point is the margin of safety. The business is in a stronger financial position when there is a larger margin of safety. This implies that a higher profit margin and vice versa correspond to a higher margin of safety.

Margin of Safety is calculated by using the following formulae:

Margin of Safety = Actual Sales – Break- Even Sales

Or = Proft/ PV ratio

Or = Profit * Selling price p.u / Selling Price per unit – Variable cost per unit

Margin of Safety as % of Total Sales

= Margin of Safety / Total Sales *100

Illustration 1: From the following information of Akansha Co. Ltd. Calculate P/V Ratio and Margin of Safety.

i. Sales -- Rs. 10, 00,000

ii. Variable Cost -- Rs. 4, 00,000

iii. Profit -- Rs. 3, 00,000

Solution: Contribution = Sales – Variable Cost

= Rs. 10,00,000 – Rs. 4,00,000

= Rs. 6,00,000

Fixed Cost = Sales – Variable Cost – Profit or Contribution - Profit

= Rs. 10,00,000 – Rs. 4,00,000 – Rs. 3,00,000

= Rs. 10,00,000 – Rs. 7,00,000

= Rs. 3,00,000

P/V Ratio = 6,00,000/ 10,00,000*100

= 60%

BEP (Value) = Fixed Cost / P V Ratio

= 3, 00,000 / 0.6 = Rs. 5, 00,000

Margin of Safety = Sales – BEP

= Rs. 10, 00,000 – Rs. 5, 00,000

= Rs. 5, 00,000

Illustration 2: Surya Ltd has a total turnover of Rs. 10 lakhs. It is enjoying 30% margin of safety. Its total variable cost is 60% of sales. Determine Fixed Cost and BEP in Sales.

Solution: Variable Cost = 60% of Sales

= 0.60 × Rs. 10, 00,000 = Rs. 6,00,000

Contribution = Sales – Variable Cost

= Rs. 10,00,000 – Rs. 6,00,000

= Rs. 4,00,000

P/V Ratio = Contribution/ Sales

= 4,00,000/10,00,000*100 = 40%

Margin of Safety = 30% of Rs. 10,00,000

= Rs. 3,00,000

Margin of Safety = Profit/ P V Ratio :

. Profit = Margin of Safety × P/V Ratio

= Rs. 3, 00,000 × 0.40

Profit = Rs. 1, 20,000

Fixed Cost = Contribution – Profit

= Rs. 4, 00,000 – Rs. 1, 20,000

= Rs. 2,80,000

BEP (Value) = Actual Sales – Margin of Safety

= Rs. 10,00,000 – 3,00,000

= Rs. 7,00,000

How to improve margin of Safety

The product or product line will be more profitable the bigger the margin of safety.

Any of the following measures can increase the margin of safety:

(a) Trying to maintain the maximum level of actual sales while keeping the break-even point at the lowest possible level.

(b) Increased in sales volume

(c) A rise in the asking price.

(d) Increasing contribution due to a change in product mix.

(e) Reducing in fixed costs

(f) Reducing in variable costs.

(g) Eliminating unprofitable products from the sales mix.

Illustration 3: You have access to XYZ Ltd.'s data for the fiscal year that concluded on March 31, 2009,sales of 100,000 units at Rs. 10 p.u. for variable costs: Rs. 6. 3,00,000 rupees per year in fixed costs. Determine the safety margin.

Solution:

Break-even Sales = Fixed cost/Contribution p.u. = Rs. 3,00,000/Rs. 4 = 75,000 units

Margin of Safety =

= Actual sales – Break-even sales

= 1,00,000 units – 75,000 units = 25,000 units

= 25,000 units x Rs. 10 = Rs. 2,50,000.

Angle of Incidence

The "angle of incidence" is the angle that the sales line creates with the total cost line. Higher profit margins are predicted by larger incidence angles, and vice versa. It serves as a gauge of profitability over the point of break-even.

If the management is given important information about its profitability by taking into consideration and studying both the margin of safety and the angle of incidence. The most profitable posture for the business concern will be one with a large margin of safety and a wider angle of incidence, and vice versa.

Relationship of BEP, Margin of Safety and Angle of Incidence:

The relationship among Break-even point, Margin of safety and Angle of incidence is summarized as follows:

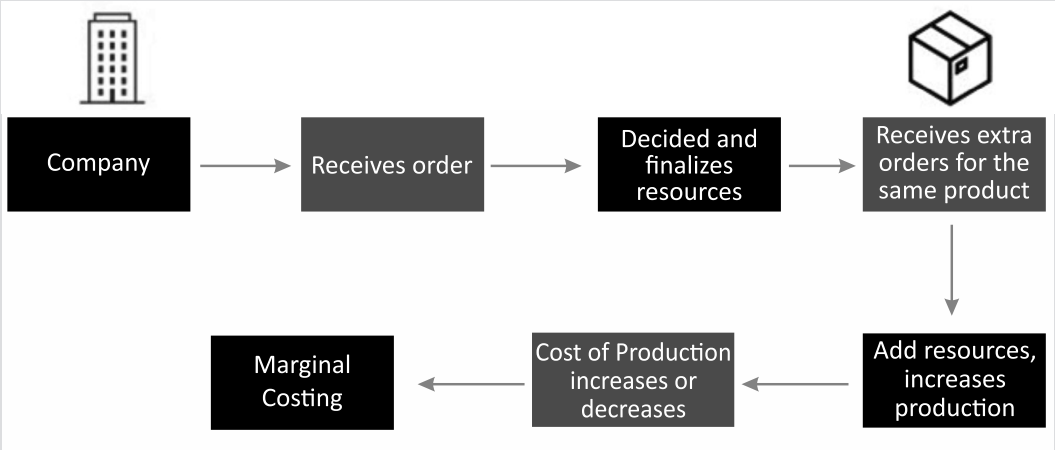
Break-Even Level: This is the production or sales level at which there is neither a profit nor a loss. As a result, there is neither a profit nor a loss at this point in the sales process. Only when actual sales exceed break-even sales does the company begin to make a profit. Better than a corporation with a higher break-even point is one with a lower break-even point.

Angle of Incidence: In a break-even chart, this angle is created by the intersection of the total cost line and the total income line. Higher profitability is indicated by a larger angle of incidence, and lesser profitability is indicated by a smaller angle.

LESSON ROUND-UP

- Costing is fundamentally a method by which we allocate costs to various company components. It is a method of calculating costs.
- In order to support strategic planning and increase cost effectiveness, cost accounting is a system for tracking and analysing the price of goods and services.
- It's crucial for management, staff, and customers, among other stakeholders in a business. Despite their interdependence, cost accounting and financial accounting have different outcomes.
- Financial accounting shows you the profit and loss for the entire organisation, whereas cost accounting informs you of the costs associated with producing specific things. While there are benefits to having a specialised cost accounting system, a business that is capable of managing all of its costs can handle all
- Marginal costing: The extra expense incurred in producing an extra unit of output is referred to as a marginal cost. A different name for this approach is the cost-profit-volume analysis. The relationship between production volume, selling price, costs, expenses, and profits is examined via marginal cost analysis. It is determined by dividing by revenue after deducting variable costs.

What is Marginal Costing?



- Managers can use it to manage budgets and profitability, control manufacturing costs, optimise production, streamline operations, and much more.
- Marginal costs are typically influenced by variable expenses. However, in situations where output is increased, it can take fixed expenses into account. When a business sets the selling price for a good or service, it optimises profits when its marginal cost and marginal income are equal.
- A break-even point is used in multiple areas of business and finance. In accounting terms, it refers to the production level at which total production revenue equals total production costs. In investing, the break-even point is the point at which the original cost equals the market price
- Generally, to calculate the break-even point in business, fixed costs are divided by the gross profit margin. This produces a dollar figure that a company needs to break even.
- Margin of safety is an investing principle that involves only procuring a security when its market price is substantially less than its intrinsic value.
- The angle that a line (such as a ray of light) falling on a surface or interface makes with the normal drawn at the point of incidence.
- P/V ratio = Contribution/ Sales. It is used to measure the profitability of the company. Contribution is the excess of sales over variable cost. So basically P/V ratio is used to measure the level of contribution made at different volumes of sales.

GLOSSARY

Costing: Costing is any system for assigning costs to an element of a business.

Cost entry: Cost entries are the result of a transfer via data connectors from general ledger entries, cost allocations, and posted cost entries in cost journals.

Cost behavior: Cost behavior classifies costs according to their behavior in relation to changes in key business activities

Level: Level is used to define allocation order

Allocation target: The allocation targets determine where the costs are allocated

P/V ratio: Contribution/ Sales.

BEP: Breakeven point

Angle of Incidence: when the entire sales line crosses the cost line from below in the break-even chart

Margin of safety: a principle of investing in which an investor only purchases securities when their market price is significantly below their intrinsic value

Contribution: something that you give, especially money or help, or do together with other people

Unit: a single thing which is complete in itself, although it can be part of something larger

TEST YOURSELF

PRACTICE QUESTIONS

(I) Very Short Answer Questions:

1. Explain Costing?
2. What do you understand by Cost Accounting?
3. List four instances of expenses which constitute cost in a ready-made garments factory.
   a) List the four primary objects of costing.
   b) List the four main distinctions between financial accounting and cost accounting.
4. To fill in the fields, choose and check the best suitable option.
   i) Cost Accounting can predict future production costs Determine; forecast; analyse; and estimate
   ii) The management receives information from cost accounting for the following reasons: a) the wellbeing of the workforce; b) decision-making; c) efficiency; and d) profitability.
   iii) Cost statements are a component of a company's accounting. A published item; B legislation; C internal; D taxation
   iv) The costing is based on.....figures. A) predicted; B) actual; C) precise; D) estimated.
   v) Management must also review the costing records. A) audited, B) prepared, C) checked, D) analyzed.

(II) Short Answer Questions:

1. What does the term "cost accounting" mean?
2. What are the top three requirements for cost accounting?
3. What does "marginal costing" mean?
4. What does "breakeven point" mean?
5. What does "Angle of Incident" mean?
6. What are the formulas and how to compute the breakeven point?
7. What are the formulas for calculating marginal cost?

(III) Long Answer Questions:

1. What part does cost accounting play in determining prices?
2. What benefits does cost accounting offer?
3. What are the different characteristics of marginal costing?
4. What are the key areas of marginal costing decision-making?
5. A business manufactures 500 units at a variable cost of $200 each. Each unit costs $250, and the fixed costs come to $12,000 per month. Calculate the break-even point for this query using both units and sales. Display the profit at 90% capacity as well.
6. A business has $80,000 in sales, $4,000 in variable costs, and $4,000 in fixed costs. Calculate the following: PVR, BEP (Sales), safety margin, profit, and profit margin.

   Determine the PVR and sales at BEP based on the facts below.

   $15 is the variable cost per unit.

   Each unit sells for $20.

   Fixed costs equal $54,000.
7. If BEP for units is decreased to 6,000 units, what should the new selling price be?
8. Using the following information, determine I PVR, (ii) BEP, and (iii) Margin of Safety: Sales are $100,000, total expenses are $80,000, fixed expenses are $20,000, and net profit is $80,000.
9. Determine the break-even point and the percentage of sales at which it occurred if 100% of the sales are Rs. 3,00,000. 80% capacity profit calculation:
10. PL creates and markets two goods. Compared to the N, which sells for Rs. 15 per unit and has a total variable cost of Rs. 4.5 per unit, the M has a total variable cost per unit of Rs. 2.94 and is priced at Rs. 7. According to the marketing division's prediction, one unit of N will be sold for every five units of M. Total fixed costs for the organisation are Rs. 36,000.
11. Determine the break-even threshold and the proportion of sales at which it occurred if 100% of the capacity sales are Rs. 3,00,000. 80% capacity profit calculation
12. PL creates and markets two goods. Compared to the N, which sells for Rs. 15 per unit and has a total variable cost of Rs. 4.5 per unit, the M has a total variable cost per unit of Rs. 2.94 and is priced at Rs. 7. According to the marketing division's prediction, one unit of N will be sold for every five units of M. Total fixed costs for the organisation are Rs. 36,000.
13. **From the following data, you are required to calculate break-even point and net sales value at this point:**

Direct material cost per unit	10
Direct labour cost per unit	5
Fixed Overhead	50,000
Variable overheads @ 60% on direct labour	
Selling price per unit	25
Trade discount	4%

If sales are 10% and 25% above the break even volume, determine the net profits.

14. Fill in the blanks of each of the following independent situation:

15. Solve and complete the table

Particulars	***Products***		
	A	***B***	***C***
No of units sold	?	20,000	10,000
Selling Price per unit	30	?	40
Variable cost of Sales%	85	85	?
Contribution	?	50,0000	75,000
Fixed Cost	1,20,000	10,000	?
Profit/Loss	40,000	?	20,000

16. For a manufacturing concern, when volume of production is 8,000 units, average cost is Rs 8 per unit and when volume of production is 20,000 units, average cost is Rs 4.50 per unit. If the break-even point is reached at 8,000 units of production and sale, find out the P/V Ratio

17. Q1. The table below displays the costs and profits of three distinct goods produced by JABRA Co. Ltd.: X, Y, and Z.

	X	***Y***	***Z***	***Total***
Sales	3,00,000	1,80,000	1,20,000	6,00,000
Variable Cost	2,40,000	1,26,000	72,000	4,38,000
Contribution	60,000	54,000	48,000	1,62,000
Fixed Cost				81,000
Profit				81,0000

Can the company's profits be raised by altering the mix of products sold? To arrive to your answer, use the marginal costing technique.

18. The information in the next section refers to a business that only makes one product.

Direct Labour Per unit	$ 22
Direct materials per unit	$ 12
Variable overhead per unit	$ 6
Fixed Cost	$ 4,00,000
Selling Price per unit	$ 60

1. Explain what "break-even" means.
2. Why, exactly, is a company with a wide range of products less likely to gain from break-even analysis?

3. Construct a break-even chart based on the information shown above, showing the bare minimum number of units that must be sold for the business to break even. Your diagram has to have complete labels.

4. Take into account the variables that any company should take into account before employing a break-even analysis as the foundation for a choice..

19. The particulars of two plant producing an identical product with the same selling price are as under:

Capacity Utilization	***Plant X 70% (in Lacs)***	***Plant Y 60% (in Lacs)***
Sales	150	90
Variable Cost	105	75
Fixed cost	30	20

It has been decided to merge Plant Y with Plant X. The additional fixed expenses involved in the merger amount to 2 lacs. You are required to find out –

(a) the break even point of Plant X and Plant Y before merger and the break -even point of the merged plant.

(b) the capacity utilization of the integrated plant required to earn a profit of ₹ 18 lacs.

20. The table below displays the costs and profits for three separate Star Co. Ltd. products: A, B, and C.

	A	***B***	***C***	***Total***
Sales	3,00,000	1,80,000	1,20,000	6,00,000
Variable Cost	2,40,000	1,26,000	72,000	4,38,000
Contribution	60,000	54,000	48,000	1,62,000
Fixed Cost				81,000
Profit				81,0000

Can the profits of the company be increased by changing the sales mix of the products? Use Marginal Costing technique to arrive at your answer?

21. Information for two successive years are given below

Year	***Units***	***Selling Price***	***Average cost***
2020	12000	50	30
2021	15000	50	38

Calculate: (i) P/V Ratio and Fixed cost; (ii)Break even sales; (iii) sales to earn profit of Rs. 12,000; (iv) selling price to earn profit of Rs. 1,50,000 by selling price 9,000 units; (v) Margin of safety when profit is Rs.30,000.

LIST OF FURTHER READINGS

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9. Maskell &Baggaley (December 19, 2003). "Practical Lean Accounting". Productivity Press, New York, NY.

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WARNING

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EXECUTIVE PROGRAMME
CORPORATE ACCOUNTING & FINANCIAL MANAGEMENT
GROUP 1 • PAPER 4

(This test paper is for practice and self study only and not to be sent to the Institute)

Time allowed: 3 hours *Maximum Mark: 100*

PART I : CORPORATE ACCOUNTING (MARKS 60)

Questions 1

(a) Gross profit ratio of a company was 25%. Its credit revenue from operations was Rs. 40,00,000 and its cash revenue from operations was 10% of the total revenue from operations. If the indirect expenses of the company were Rs. 50,000 calculate its net profit ratio.

4 Marks

(b) Company A lists Rs. 40,00,000 in short-term liabilities and Rs. 70,00,000 in long-term liabilities on their balance sheet. They've also issued Rs. 20,00,000 in preferred stock, Rs. 5,00,000 in minority interest, and have around Rs. 8,00,000 outstanding shares trading at Rs. 10 per share. Using all that information, calculate the debt-to-capital ratio.

4 Marks

(c) X Ltd., has a current ratio of 3.5:1 and quick ratio of 2:1. If excess of current assets over quick assets represented by inventories is Rs. 48,000, calculate current assets and current liabilities.

4 Marks

(d) Explain the term "True and Fair View" while preparation and presentation of Financial Statements.

3 Marks

(4+4+4+3 = Total 15 Marks)

Questions 2

(a) On 1st October, 2022, A ltd acquired 6000 equity shares of B ltd of the face value of Rs.10 each at price of Rs.85000. Following are the balance sheet of companies

Particulars	**A Ltd.**	**B Ltd.**
Liabilities:		
Equity share capital of Rs.10 each	500000	100000
General reserve (1.4.22)	210000	50000
P&L a/c (1.4.2022)	45000	20000
Profit for the year	85000	22500
Creditors	120000	46000
Bills payable	40000	30000
Total	**1000000**	**268500**

Assets:		
Goodwill	150000	35000
Land and building	200000	50000
Plant and machine	250000	50000
Stock	100000	20250
Debtors	150000	67250
Investments	100000	
Bills receivables	10000	15000
Bank	30000	25000
Cash	10000	6000
Total	**1000000**	**268500**

1. Out of debtors and bills receivable of A ltd Rs.25000 and Rs.8000 respectively represented those due from B ltd.
2. The stock in hands of B ltd includes goods purchased from A ltd at Rs.10000 which includes profit charged by latter company at 25% at cost.

   Draw consolidated balance sheet as on 31.3.2023 with necessary working notes.

(10 Marks)

(b) What is Pre-acquisition Profits / Reserves and Post-acquisition Profits / Reserves in the process of preparing consolidated financial statements?

(5 Marks)

Questions 3

(a) Given below are the balance sheets of XYZ

(Amount In Rs.)

Particulars	**01-04-2022**	**31-03-2023**
I. Equity and Liabilities :		
Equity share capital	60,000	70000
Share premium	--	6000
General Reserve	9000	13000
Profit and Loss	6000	16160
6% Debentures	--	14000
Sundry creditors	17000	18140

Provision for taxation	4500	8100
Proposed Divided	6000	7000
Total	**102500**	**152400**
II. Assets :		
Land and building	46,000	78000
Plant and machinery	17080	28000
Furniture	1100	1300
Stock	16480	19140
Sundry debtors	15000	17100
Bank balance	6840	8860
Total	**102500**	**152400**

Additional Information:

Depreciation written off during the year

Land and building 12000

Plant and machinery 10000

Furniture 240

You are required to prepare a cash flow statement

(10 Marks)

b) What are the conditions for buyback of shares? Also states which funds / reserves can be utilized for the buy-back of shares?

(5 Marks)

Q. No. 4 or 4A

Questions 4

(a) ABC Limited decided to issue 24,000 shares of Rs.100 each payable at Rs.30 on application, Rs.40 on allotment, Rs.20 on first call and balance on second and final call. Applications were received for 26,000 shares. The directors decided to reject application of 2,000 shares and their application money being refunded in full. The allotment money was duly received on all the shares, and all sums due on calls are received except on 100 shares. Record the transactions in the books of ABC Limited.

(b) Show the following transactions in the Books of XYZ Ltd with respect to issue of 12%, 1,00,000 debentures of Rs. 100 each in the following situations.

i. At par and redeemable at par.

ii. At 10% discount and redeemable at par.

iii. At 10% premium and redeemable at par.

iv. At 10% premium and redeemable at a premium of 5%.

v. At par and redeemable at a premium of 5%.

vi. At 10% discount and redeemable at a premium of 5%

(c) ABC Ltd. Issued 1,00,000 equity shares. The whole of the issue was underwritten as follows: X 40%; Y 30%; Z 30%. Applications for 80,000 shares were received in all, out of which applications for 20,000 shares had the stamp of X, those for 10,000 shares that of Y and those for 20,000 shares that of Z. The remaining applications for 30,000 shares did not bear any stamp. Determine the liability of the underwriters.

(5 Marks Each * 3 = Total 15 Marks)

Alternate to Q. No. 4

Questions 4A

(i) What do you mean by cash from operating activities? How is this calculated?

(ii) What are the disclosure requirements with respect to "Inventory" in preparation and presentation of Financial Statements?

(iii) The board of director of XYZ Limited resolved that 400 equity shares of Rs.100 each be forfeited for non-payment of the second and final call of Rs.30 per share. Out of these, 300 shares were re-issued at Rs.60 per share to Mr. Shimit. Show the necessary journal entries along with working notes.

(5 Marks Each * 3 = Total 15 Marks)

PART II: FINANCIAL MANAGEMENT (40 MARKS)

Attempt all parts of Question No. 5

Question No.5.

(a) From the following three scenarios, ascertain the present value of each cash flow using a discount rate of 7%

S. No.	Scenarios
1.	Receive $15 every year, forever, starting today.
2.	Pay $60 every year for five years, with the first payment being next year, and then subsequently receive $40 every year for 20 years.
3.	Receive $70 today and then receive $70 in four years

(12 Marks)

(b) Best Ltd. has issued 10% 10,000 Preference Shares of Rs. 100 each and has incurred the following expenses: Underwriting Commission 2%, Brokerage 1%, and Other Expenses Rs. 5,000. If the present company tax rate is 40%, what will be the cost of capital after tax and before tax? Also calculate cost of preference capital, if corporate dividend tax is 10%.

(4 Marks)

(c) Skyline Ltd. has issued 1,000 equity shares of Rs. 100 each as fully paid. It has earned a profit of Rs. 10,000 after tax. The market price of these shares is Rs. 200 per share. Find out the cost of equity capital before and after tax assuming a tax rate of 40%.

(4 Marks)

(Total = 12+4+4 =20 Marks)

Attempt all parts of Question No. 6 or Question 6(A)

Question No.6

(a) The capital structure of Great Limited and its specific costs are given below. Find out simple and the weighted average cost of capital of the company.

Source	Amount (Rs.)	Specific Cost (after tax
Long-term Debts	15,00,000	4%
Preference Shares	10,00,000	12%
Equity Shares	20,00,000	15%
Retained Earnings	5,00,000	15%

(4 Marks)

(b) Consider the following data for a certain item purchased by Excellent Ltd.

Annual Usage	20,000 units
Fixed Cost per order	Rs. 750
Purchase Price	Rs. 250 per unit
Carrying cost	20 % of inventory value.

On the assumption that a 25% trade discount is offered, if the minimum order size is 1,000 units, should the company go in for the trade discount? Also describe the concept of Economic Order Quantity.

(6 Marks)

(c) Summarized below are the income and expenditure forecasts for the month of March to August, 2023 of Enthusiasm Limited.

Amount (Rs.)

Month	Sales (all credit)	Purchases (all credit)	Wages	Manufacturing Expenses	Office Expenses	Selling Expenses
March	70,000	36,000	9,000	4,000	2,000	4,000
April	62,000	38,000	8,000	3,000	1,000	5,000

Month	Sales (all credit)	Purchases (all credit)	Wages	Manufacturing Expenses	Office Expenses	Selling Expenses
May	64,000	35,000	10,000	4,500	2,500	4,000
June	60,000	35,000	9,500	3,500	2,000	3,000
July	56,000	39,000	8,500	4,000	1,500	4,000
August	60,000	34,000	8,000	3,000	1,500	4,000

Consider the following information:

1) Plant costing Rs.20,000 is due for delivery in July payable 10 percent on delivery and the balance after three months.
2) Advance tax of Rs.7,000 each is payable in March and June.
3) Period of credit allowed by suppliers 2 months and to customers 1 month.
4) Lag in payment of manufacturing expenses one-half month.
5) Lag in payment of all other expenses one month.

Prepare a cash budget for three months starting on 1st May 2008 when there was a cash balance of Rs.20,000 and comment on its cash scenario.

(10 Marks)

(Total = 4 + 6 + 10 = 20 Marks)

OR

Question No. 6A

(i) Acme Limited belongs to a risk class for which the appropriate rate of capitalization is 10%. The total number of equity shares is 30,000. The current market price of an equity share is Rs.90. The company is thinking to declare a dividend of Rs.5 per share at the end of the current year. The company expects to have a net income of Rs.8,00,000. It has proposal of making investment of Rs.7,00,000 in new proposals. If Modigliani and Miller approach is adopted, then ascertain whether the payment or non-payment of dividend will affect the value of equity shares of the company or not?

(8 Marks)

(ii) Peak Limited is engaged in manufacturing of tyres. From the following information compute the operating cycle of the company.

Particulars	Amount (Rs.)
Average stock of raw materials and stores	5,00,000
Average work-in-progress inventory	4,00,000
Average finished goods inventory	2,80,000
Average accounts receivable	3,00,000

Average accounts payable	1,80,000
Average raw materials and stores purchased on credit and consumed per day	20,000
Average work-in-progress value of raw materials committed per day	22,500
Average cost of goods sold per day	20,000
Average sales per day	25,000

(12 Marks)

(Total = 8+12 = 20 Marks)

***