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JAGAT GURU NANAK DEV PUNJAB STATE OPEN UNIVERSITY, PATIALA (Established by Act No. 19 of 2019 of the Legislature of State of Punjab)

MASTER OF COMMERCE

SEMESTER-II

MCMM21203T

FINANCIAL MANAGEMENT

Head Quarter: C/28, The Lower Mall, Patiala-147001 Website: www.psou.ac.in The Study Material has been prepared exclusively under the guidance of Jagat Guru Nanak Dev Punjab State Open University, Patiala, as per the syllabi prepared by Committee of Experts and approved by the Academic Council.

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COURSE COORDINATOR AND EDITOR:

Dr. Pinky Sra Assistant Professor JGND PSOU, Patiala.





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PREFACE

Jagat Guru Nanak Dev Punjab State Open University, Patiala was established in December 2019 by Act 19 of the Legislature of State of Punjab. It is the first and only Open University of the State, entrusted with the responsibility of making higher education accessible to all, especially to those sections of society who do not have the means, time or opportunity to pursue regular education.

In keeping with the nature of an Open University, this University provides a flexible education system to suit every need. The time given to complete a programme is double the duration of a regular mode programme. Well-designed study material has been prepared in consultation with experts in their respective fields.

The University offers programmes which have been designed to provide relevant, skill-based and employability-enhancing education. The study material provided in this booklet is selfinstructional, with self-assessment exercises, and recommendations for further readings. The syllabus has been divided in sections, and provided as units for simplification.

The Learner Support Centres/Study Centres are located in the Government and Government aided colleges of Punjab, to enable students to make use of reading facilities, and for curriculum-based counselling and practicals. We, at the University, welcome you to be a part of this institution of knowledge.

Prof. G. S. Batra Dean Academic Affairs



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SEMESTER-II

(MCMM21203T): FINANCIAL MANAGEMENT

MAX. MARKS: 100 EXTERNAL: 70 INTERNAL: 30 PASS: 35% Credits:6

Objective:

To enable the students to understand the concept of financial management and will be capable of taking long term investment decisions. To provide detailed knowledge of various components of working capital management and capital structure. To be acquainted with dividend policy and various practices in this regard.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

SECTION A

Foundations of Finance

Unit I Financial Management an Overview, Time Value of Money **Unit II** Valuation of Securities, Risk and Return

Investment Decisions

Unit III Cost of Capital **Unit IV** Capital Budgeting I, Capital Budgeting II

Long Term Financing

Unit V Sources of Long-Term Finance **Unit VI** Capital Market

SECTION B

Unit VII Lease Financing, Project Financing **Unit VIII** International Business Finance

Financing and Dividend Decisions

Unit IX Leverage Operating, Financial and Total **Unit X** Capital Structure Decision, Dividend Policy Decision

Management of Working Capital

Unit XI Working Capital, Cash Management **Unit XII** Inventory Management, Receivables Management

Suggested Readings:

- Berk, Jonathan and DeMarzo, Peter, "Financial Management", 2nd Edition (2010), PearsonEducation, Dorling Kindersley (India) Pvt Ltd.
- Bhattacharya, Hrishikes, "Working Capital Management: Strategies and Techniques", 2ndEdition (2009), Prentice Hall, New Delhi.
- Brealey, Richard A; Stewart, C. Myers and Allen, F. "Principles of Corporate Finance", 8thEdition (2006), McGraw Hill, New York.
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- Pandey I.M., "Financial Management", 9th Edition (2009), Vikas Publishing House
- Van Horne. J.G. and J.M. Wachowicz Jr., "Fundamentals of Financial Management", 13thEdition (2009), Prentice Hall, Delhi.
- Van Horne, James G, "Financial Management and Policy", 12th Edition (2002), Prentice Hall, Delhi
- Khan, MY, Jain, PK, "Financial Management", 6th Edition (2011), Tata McGraw Hill, NewDelhi..
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SEMESTER-II

(MCMM21203T): FINANCIAL MANAGEMENT

COURSE COORDINATOR AND EDITOR: DR. PINKY SRA

SECTION A

UNIT NO.	UNIT NAME	
UNIT 1	Financial Management an Overview, Time Value of Money	
UNIT 2	Valuation of Securities, Risk and Return	
UNIT 3	Cost of Capital	
UNIT 4	Capital Budgeting, I	
UNIT 4A	Capital Budgeting, II	
UNIT 5	Sources of Long-Term Finance	
UNIT 6	Capital Market	

SECTION B

UNIT NO.	UNIT NAME
UNIT 7	Lease Financing, Project Financing
UNIT 8	International Business Finance
UNIT 9	Leverage Operating, Financial and Total
UNIT 10	Capital Structure Decision, Dividend Policy Decision
UNIT 11	Working Capital, Cash Management
UNIT 12	Inventory Management, Receivables Management

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 1: FINANCIAL MANAGEMENT: AN OVERVIEW

STRUCTURE

- **1.1. Objectives**
- **1.2. Introduction**
- **1.3. Definition of Financial Management**
- **1.4. Scope of Financial Management**
- **1.5.** Objectives of Financial Management
- **1.6. Functions of Financial Management**
- **1.7. Functions of Finance Managers**
- **1.8. Agency Problems**
- **1.9 Financial Policy**
- **1.10. Questions for Practice**

1.1. OBJECTIVES

After completing this Students will be able to

- Define financial management
- Understand the scope of financial management
- Define the objectives of financial management
- Define the Functions of financial management
- Explain the functions of finance manager
- Understand and identify the Agency problems
- Define Scope of financial policy

1.2. INTRODUCTION

All organisations, including banks and other financial institutions, as well as industrial and retail companies, need financial management. From schools to highway departments, financial management is critical in the running of governmental institutions. Financial managers are also in charge of determining the terms of credit. and the amount of stock a company should keep in order to meet client demand. Merger analysis, how much cash to retain on hand, and how much of the company's revenues to invest back into the business dividends are paid out.

Financial management subject has absolute importance for mainly two reasons:

- a) You need knowledge of finance to make many personal decisions, ranging from investing for your retirement to deciding whether to lease versus buy a car.
- b) Virtually all the important business decisions have financial implications, so important decisions are generally made by teams from the accounting, finance, legal, marketing, personnel, and production departments.

In recent years, financial management has emerged as a critical discipline for both academics and practitioners. They now have a significant say in how money is raised and allocated. Academics are particularly interested in this topic since it is still developing and because there are some areas of financial management where there are disagreements and no consensus solutions have yet been achieved. Financial management is of importance to practitioners because it helps them comprehend, analyse, and solve the most critical issues.

In nutshell, almost every business decision has a financial impact, and non-financial executives must know enough about finance to work these effects into their own specialised analyses.

1.3. DEFINITION OF FINANCIAL MANAGEMENT

The most popular and acceptable definition of financial management as given by different authors:

By Solomon

"Financial management is concerned with the efficient use of an important economic resource namely, capital funds".

By S.C. Kuchal

"Financial Management deals with procurement of funds and their effective utilization in the business"

Weston and Brigham

"Financial management is an area of financial decision-making, harmonizing individual motives and enterprise goals".

1.4. SCOPE OF FINANCIAL MANAGEMENT

Financial management is one of the essential components of general management, which is directly tied to numerous functional departments such as human resources, marketing, and production. Financial management encompasses a broad scope and employs diverse methodologies. The following are significant financial management focuses:

a) Financial management and Accounting

Finance and accounting were once considered to be one discipline, but the two have since been combined into Management Accounting since it aids the finance manager when making choices. As a method of accurately and consistently documenting and classifying financial transactions, accounting utilises systematic record-keeping, classification, summarization, and measurement. A company's activities can be tracked via accounting, which employs the widely established double entry bookkeeping system whereas finance is concerned with how inflows and outflows of money might be used to achieve a company's long-term goals. Accounting records includes the financial information of the business concern. This financial information is very much helpful to finance manager to take decisions. Hence, presently financial management and accounting are distinct and interrelated.

b) Financial Management and Economics

Economics is the study of how resources are distributed in a society. It looks at how people exchange goods and services with each other, with or without money. It cares about supply and demand, costs and profits, as well as production and use. The work of economists is very important to the field of finance, and many economic tools are used in this field. Assumptions of microeconomics are used as a starting point to explain how a "business firm" operates in the modern world. It uses forecasting and other models from macroeconomics and compares them to the current situation to figure out what will happen if the company takes different actions. Finance analysts make predictions for each company whereas the economists make

predictions for the industry as well as overall economy. The economic equations are also applied in financial management, such as the money value discount factor, the economic order quantity, etc. Financial economics is a new field that offers a lot of opportunities in the financial and economic fields.

c) Financial Management and Marketing

Marketing and financial management are interrelated and mutually dependent on one another for success. When it comes to finances, everything from profits to costs to project feasibility to sales growth to financial performance at the end of each year is taken into consideration. In contrast to this, marketing is primarily concerned with revenue targets and volumes as well as sales in comparison to competitors. Finance is required by the marketing department in order to meet their needs. Finance managers or finance departments are responsible for allocating appropriate funds to marketing departments, which falls within their purview. For successful marketing, a strong financial foundation is required. Sales of corporate products will not improve until advertising and publicity are conducted, and profits and financial soundness will not be generated unless sales are increased.

d) Financial Management and Human Resource

The partnership between the HR and finance departments is crucial to the success of an organisation. Human Resources and Finance are working for the same objective of a healthy and prosperous organisation. When these two departments are able to collaborate, positive business outcomes are produced. A solid link between the two departments increases employee productivity and engagement, as well as profits for the company. Managers of human resources must evaluate the costs and advantages of recruiting new personnel. Additionally, they must examine the influence of its HR policies on the organization's profitability. These factors necessitate data analysis and financial estimates. Finance managers analyse the impact of wage increases, bonuses, and other incentive programmes on the profitability of their organisation. Hence, financial management is directly related with human resource management.

e) Financial Management and Operations

Operational management is a key component of any company that wants to turn money into profit. There is a direct correlation between the profitability of a company and its ability to produce. Because the manufacturing department requires raw materials, machinery, personnel, operational expenditures, etc., production performance necessitates financing. In the financial department, these costs are determined and estimated, and the financial manager provides the necessary amount of money to the production department. When it comes to money, the financial management needs to be knowledgeable of all operational processes and the financial resources required for each one. If the production manager can achieve this, he would be holding the cost of the output under control and thereby help in maximizing profits for the company.

1.5. OBJECTIVES OF FINANCIAL MANAGEMENT

The goal of financial management is to acquire and invest funds in the best way possible. Its main goal is to use business funds in a way that makes the business as valuable and profitable as possible. It is up to the top management to set the goals or objectives that the business needs to reach. The company's goals give it a framework for making decisions about investments, financing, and dividends. In other words, goals set up a standard by which the effectiveness and profitability of a decision can be measured. The choice of such a criterion is between making the most money and making as much money as possible. Hence, the financial manager must determine the basic objectives of the financial management. Objectives of financial management may be broadly divided into two parts such as:

a) Profit Maximisation

Profit is the primary goal of any firm. Profit is essential to the survival of every business. All activities that raise profits should be undertaken, and those that diminish profits should be avoided, according to this viewpoint. The goal of profit maximisation is to select profitable assets, projects, and decisions, and to reject those that are not. Earning a profit is essential for a company's survival as an economic organisation. A company's profits also act as a hedge against unavoidable dangers. This means that profit maximisation is seen as the primary purpose of business. Profit maximization consists of the following important features:

- i. The efficiency of a business is measured by how much profit it makes. So it shows where the business stands as a whole.
- ii. The ultimate goal of a company concern is to make a profit, and as a result, it examines all of the potential avenues for increasing the profitability of the enterprise.
- iii. The profit maximisation is also termed as to maximise profit per share. It maximises corporate operations for profit.

Favourable arguments for Profit maximization

- a) The state of the economy and business conditions does not remain constant throughout time. Recession, depression, intense competition, and other bad business conditions are possible. When faced with an undesirable situation, a company's ability to survive will be determined by its ability to draw on prior earnings. As a result, when the circumstance is favourable, a corporation should strive to earn more and more in order to maximise cash per share earnings.
- b) It leads to the optimization of business operations in order to maximise profits.
- c) Profit reduces the risk in the business operations
- d) Profitability enhances the social responsibility activities and fulfil social needs
- e) Profit is the main source of finance for the company.

Unfavourable arguments/ Critics for profit maximization

- a) As a result of profit maximisation, customers, suppliers, and public shareholders suffer. They are treated with disparities.
- b) Profit maximisation leads to increase unethical practices such as corruption, unfair trading practises, in the business
- c) Companies exploit the employees and consumers to achieve the objective of profit maximization.

Drawbacks of Profit maximization

- a) "Profit" is a vague and imprecise concept that is difficult to describe accurately. It might mean a variety of things to various individuals. Should we focus on short-term earnings or long-term profits when making decisions? Is it referring to total profits or earnings per share of stock? Even if we define profits in terms of earnings per share and strive to maximise earnings per share, this does not necessarily imply a gain in the market value of the stock or an increase in the economic well-being of the shareholder.
- b) While the profit maximisation target takes into account future cash flows, it neglects to take into account the quantity and timing of profits. It treats all profits as equal even if they are earned over a period of time that differs from one another. There is no consideration given to the notion that cash acquired today is more valuable than the same amount of cash received three years from now.
- c) The goal of maximising profits does not take into account the impact of dividend policy on stock market pricing

d) Profit maximization does not consider risk of the business concern.

Wealth maximization

Wealth maximization is one of the recent techniques. The strategy is sometimes referred to as the net present value maximisation approach. It is believed that the value of an asset is measured in terms of the benefits derived from its use less the cost of acquisition, and that this approach is correct. In the profit maximisation method, advantages are measured in terms of cash flows received from its utilisation rather than in terms of accounting profits, which was the basis for measuring benefits in that approach. One of the most significant characteristics of the wealth maximisation criterion is that it takes into account both the quantity and quality dimensions of benefits. At the same time, it takes into account the concept of time worth of money. It is necessary to account for time and risk variables when calculating the value of future cash flows. To do so, the cash flows are discharged or reduced by a particular percentage, which is known as the discount rate.

Favourable arguments for profit maximization

- a) Wealth maximisation is preferable to profit maximisation since the primary goal of a business concern under this notion is to increase the worth or wealth of the shareholders rather than to maximise profits.
- b) Wealth maximization considers both time and risk of the business concern.
- c) Wealth maximization provides efficient allocation of resource.
- d) Wealth maximization considers the comparison of the value to cost associated with the business concern.

Unfavourable arguments for profit maximization

- a) Wealth maximisation leads to a set idea of how a business should work, but this may not be right for how businesses work today.
- b) The objective of wealth maximization is not necessarily socially desirable.
- c) Wealth maximization creates ownership-management controversy.
- d) Wealth maximization can be activated only with the help of the profitable position of the business concern.

Difference between Profit maximization and Shareholder's wealth maximization

S.	Profit Maximization	Shareholder's Wealth Maximization
No.		

1	Profit Maximization is a short-term	Shareholder's Wealth Maximization is a
	process	long-term process
2	Profit Maximization ignores timing,	Shareholder's Wealth Maximization
	cash flows and risk	approach consider timing, cash flows
		and risk as main decision variables
3	Profit Maximization is a narrow	Shareholder's Wealth Maximization is a
	approach	wide approach
4	It ignores time pattern of return	It considers time pattern of return.

1.6. FUNCTIONS OF FINANCIAL MANAGEMENT

The functions of financial management can be categorised into following types:

a) Investment Decisions

Investment decisions are very important to the success or failure of the business. Most of the time, value is used to measure how well these kinds of decisions work. Projects that are good investments are worth more than they cost. When these kinds of projects are taken on, the value of the company goes up, which makes the shareholders rich. Investing today will pay off in the long run. So, the financial manager cares not just about how big the benefits are, but also about how long the company has to wait for them. The money should start coming in as soon as possible. Also, these benefits aren't always sure to happen. A new project could be a huge success, or it could be a terrible failure. The financial manager needs a way to put a price on these possible future benefits that are not yet known. The financial manager must be expertise in risk measurement and hedging techniques. Investment decisions are also involved in merger and acquisition strategies. Good understanding of valuation tools and methods must be there to get the fair value of the target companies.

b) Financing Decisions

When a company requires financing, it can either invite investors to contribute cash in exchange for a part of future earnings or it can offer investors a series of set payments over a period of time. Through the purchase of shares of stock, the individual becomes an investor and a part-owner in the company. On the other side, the investors takes on the role of a lender who must be reimbursed at some point. Since capital refers to the firm's sources of long-term financing and that the markets for long-term financing are referred to as the capital markets,

the decision on long-term financing mix is sometimes referred to as the capital structure decision.

- i. There are countless variants within the core distinction i.e. either issue new shares of stock or borrow the money.
- ii. Assume that the corporation wishes to borrow money.
- iii. What should it do in terms of long-term debt financing: go to the stock markets or borrow from a financial institution?
- iv. Should it borrow from foreign country, accepting and promising to repay in foreign currency, or should it borrow in home country, receiving and promising to repay home currency?
- v. Should it insist on the ability to pay off the debt early if interest rates in the future fall significantly?

Additionally, the financial manager is involved in several crucial short-term decisions. For instance, they must ensure that the company has sufficient cash on hand to cover next week's expenses and that any excess cash is invested to earn interest. These short-term monetary decisions encompass both investing (how to invest extra funds) and finance (how to raise cash to meet a short-term need).

c) Dividend Decisions

In every organization, finance manager must make a decision on how much of the company's income should be retained or distributed as dividends. The company's goal must be taken into consideration when calculating the dividend payment ratio. An optional dividend payout ratio will enhance shareholders' wealth if margin investors do not care about current dividends and capital gains. As a source of equity financing, dividends must be weighed against the opportunity cost of holding on to earnings. Financial managers also have to think about the preferences of shareholders, the company's financial requirements, and other factors and limits that affect dividend payments, whether they be cash or stock.

1.7. FUNCTIONS OF FINANCE MANAGERS

Finance managers are the link between the real assets of a company and the financial markets where the company gets money. The financial manager's job is to keep track of how money moves from investors to the company and then back to investors. When financial assets are sold to get cash, the flow of cash begins. The cash is used to buy the real assets that the business

needs to run. If the business does well, the cash flow from the real assets will be enough to more than pay back the initial investment. Last, the money is either put back into the business or given back to the investors who put it there in the first place. Businesses are inherently risky, but the financial manager needs to ensure that risks are managed.

The financial manager is confronted with two fundamental issues.

- a) How much money should the company invest? (Capital Budgeting Decisions)
- b) What specific assets should the company invest in? (Financing Decisions)

How should the funds required for an investment be raised, and what methods should be used to do so? This is the decision on how to fund the project.

The important functions of finance managers are as follows:

a) Forecasting Financial Requirements

The Finance Manager's major responsibility is to forecast the financial needs of the company. In this role, he has to examine the company's financial needs in terms of investment of funds as well as acquisition of funds. He also has to report the financial results to the company.

b) Acquiring Necessary Capital

It is the duty of the finance manager to find the various appropriate strategies to mobilize the funds and also examine the various risks and costs involve in the various sources from where the funds will be acquired.

c) Investment Decision

The finance manager has to choose the best investment options based on how much money they will bring back. He must know how to use capital budgeting techniques to figure out how investments can be used most effectively. When investing money, the finance manager must keep in mind the principles of safety, liquidity, and making money.

d) Cash Management

Cash management is another important function of finance manager. Adequate cash management is not only necessary for the efficient utilisation of cash, but it also assists the organisation in meeting its short-term liquidity requirements.

e) Interrelation with Other Departments

The finance manager interacts with a wide range of functional divisions, including marketing, production, personnel, systems, research, and development, to name a few. In addition to having solid expertise in financial-related topics, a finance manager should

be well-versed in a variety of other areas. Throughout the business organisation, he must maintain positive relationships with all of the functional departments.

1.8. AGENCY PROBLEMS

The goals of management may be different from those of the firm's stockholders. In a large company, the stock may be held by so many people that stockholders can't even say what their goals are, let alone control or influence management. Ownership and control are often two different things, which gives management the freedom to act in its own best interests instead of those of the stockholders. Agents make decisions on behalf of the stockholders, who hope that the agents will do what's best for them. Jensen and Meckling were the first to make a complete theory of the firm's agency. ' They show that the principals, in this case the stockholders, can be sure that the agent (management) will make the best decisions only if the right incentives are given and the agent is watched. Incentives include stock options, bonuses, and perks. They are directly related to how close management decisions are to the interests of stockholders. Creditors and equity holders with different agendas also create agency issues, as each side will seek to monitor the other. Similarly, other stakeholders-employees, suppliers, consumers, and communities-may have varying objectives and may wish to observe the conduct of equity holders and management. There are agency issues in a company's investment, financing, and dividend decisions.

"The agency problem is considered as the conflict of interest between the company's managers and its stockholders. This conflict occurs when personal interests are given a priority over the professional duties each party needs to fulfil".

Causes of Agency Problems

- a) When a conflict of interest arises between the principal and the agent
- b) When the agent is making decisions on behalf of the principal that is not in the bestinterest of each associated party
- c) The agent may act independently from the principal in order to obtain some sort of previously agreed upon incentive or bonus
- d) Confidentiality breach regarding the personal and financial information of the principal
- e) Insider trading with the information provided by the principal
- f) When the principal acts against the recommendations provided by the agent.

1.9. FINANCIAL POLICY

Firm has to pen out its financial policies with respect to its goals and objectives. Financial policies set up some rules and regulations related to its investment and fund raising strategies that firm has to follow during achieving its goals.

Financial policy can be defined as "The draft of rules and regulations that describes the firm's preferences towards its capital structure, investment strategies for investing in future projects and business model structure with a goal of maximizing shareholder's wealth."

Need of Financial Policy

Financial policy plays an important part in business. Financial policy has become mandatory for any firm to perform following functions:

- (a) Financial Policy ensures that the investment made by firm should offer positive return.
- (b) Financial Policy ensures that major sectors (Agriculture, Services, Manufacturing etc.) of economy should not be ignored while investing funds in any project.
- (c) Financial Policy tries to minimize the degree of risk while making investment
- (d) Financial Policy tries to mitigate those practices in the business models that may have negative effect on the image of firm, life cycle of business and product.

Factors affecting Financial Policy

Under financial policy, a firm draw strategic mapping regarding various functions of business.

Financial policy of a firm depends upon the following factors:

- (a) Industry to which business of firm is associated
- (b) Market share of the firm
- (c) Risk associated with business and future investment
- (d) Net cash flow
- (e) Financial policies of rivals within industry and between industries

Characteristics of Financial Policy

The main characteristics of financial policy are following: -

- (a) It should be easy to understand.
- (b) It should be able to fulfill short term and long term goals of firm.
- (c) It should be feasible.

- (d) It must help in optimum utilization of available resources.
- (e) It should be able to handle future challenges and their impact of business

Relationship between Financing Decisions and Financial Policy

Under financial management, the companies develops a variety of strategies, such as the expansion of an existing business or the introduction of a new product. The company requires capital in order to expand its operations (both organically and inorganically). The company will be unable to grow its operations or adopt other strategic decisions if the necessary funds are not available. The corporation must choose between debt and equity financing in order to raise the necessary capital. The debt might be either long-term or short-term in nature. Long-term debt can be obtained through a financial institution at a fixed interest rate, and short-term financing can be obtained through sources such as bill discounting, overdraft, and other similar methods. Ordinary shares or preference shares may be issued as part of the equity financing. Ultimately, it is the company's financial policy that will determine which financial institutions will be utilised for the purpose of raising funds. The extent to which the company will raise funds from various sources of finance is determined by the financial policies of the company's management

1.10. QUESTIONS FOR PRACTICE

LONG ANSWER QUESTIONS

- 1. Why should a company concentrate primarily on wealth maximization instead of profit maximization?
- 2. Explain the scope of financial management.
- 3. Discuss the role of financial manager.
- 4. Explain the importance of financial management

MCQs

- 1. The primary goal of financial management is
 - a) To maximize the return
 - b) To maximize the shareholders' wealth
 - c) To maximize the profit
 - d) To minimize the risk
- 2. The investment decision is the most important of the firm's three major decisions, when it comes to:
 - a) Value creation

- b) Value addition
- c) Value proposition
- d) None of the above
- 3. Financial management is mainly concerned with:
 - a) Arrangement of funds
 - b) Efficient management of business
 - c) All aspects of acquisition and utilization means of financial resources of firms
 - d) None of the above
- 4. Shareholder wealth" in a firm is represented by:
 - a) The number of people employed in the firm
 - b) The book value of the firm's assets less the book value of its liabilities
 - c) The amount of salary paid to its employees.
 - d) The market price per share of the firm's common stock.

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COURSE: FINANCIAL MANAGEMENT

UNIT 2: VALUATION OF SHARES & DEBENTURES, RISK AND RETURN

STRUCTURE

- 2.1 Objectives
- 2.2. Introduction
- 2.3. Need of Valuation of Shares
- 2.4. Terminology in Valuation
- 2.5. Factors affecting valuation of shares
- 2.6. Valuation of Bonds / Debentures
- 2.7. Valuation of Shares
- 2.8. Introduction: Risk and Return
- 2.9. Return on Investment
- 2.10. Risk in Investment
- 2.11. Capital Asset Pricing Model
- 2.12. Arbitrage Pricing Theory
- 2.13. Difference between CAPM and Apt
- 2.14. Risk Measurement Techniques
- 2.15. Know your understanding of concepts
- **2.16.** Questions for Practice

2.1 OBJECTIVES

After completing this chapter students will be able to understand

- * Meaning of valuation
- * Need of valuation

- * Different techniques of valuation of shares
- * Different techniques of valuation of debentures
- * Concept of Risk
- * Classification of Risk
- * Concept of Covariance, Systematic Risk
- * Capital Asset Pricing model and its applications
- * Arbitrage Pricing model and its applications
- * Risk measurement techniques

2.2. INTRODUCTION

"Nothing in this world is free"

There is a value to everything in the world that is made up of things. When we buy something, we have to pay its value in order to own it.

Valuation of an asset is the most important thing to think about when investing. If a candidate does well in the interview, has good grades, and has a lot of experience, no company will pay or give him more than he deserves. Because no one wants to pay more for a commodity or stock than it is worth, no one wants to pay more for it.

No one can predict how much stock will be worth when it's time to sell it. There are a lot of things that have to be taken into account when valuing a stock. These things include things like how much cash flow is expected, how long it will take to get to that cash flow, how well the company has done in the past and how well the company will do in the future. The same things can't be used to value all kinds of things. It takes a different kind of information to value different types of businesses. For example, when we value a financial company, we need a different type of information than when we value a manufacturing company. There are a lot of differences between the two. Assets, liabilities, and sources of income are all different. When you value something, you can't use the "fit to all" concept because it doesn't work in that way. Accounting statements (Balance sheet, Income statement, and Cash flow statements) can be very useful when trying to figure out how much something is worth.

2.3. NEED OF VALUATION OF SHARES

Companies go for valuation process for their share because of some of the following main reasons:

- 1) When shares are not listed in the stock exchange
- Where shares are hold jointly by the partners in a company and partnership firm dissolved, it becomes necessary to value of shares.
- 3) Where a portion of the shares is to be given by a member of proprietary company to another member as the member cannot sell it in the open market, it becomes necessary to certify the fair price of these shares by an auditor.
- 4) When large portion of shares are under transfer
- 5) During amalgamation of companies when there is the need for having a fair valuation of shares to settle the purchase price
- 6) When a loan advanced on the security of shares, it becomes necessary to know the value of shares on the basis of which loan has been advanced.
- 7) When shares are given in a company as gift it may be necessary for the purpose of assessing gift tax, to place a value on the shares.
- 8) When preference shares or debentures are converted into equity share it becomes necessary to value the equity shares for ascertaining the number of equity shares required to be issued for debentures or preference shares which are to be converted.

2.4. TERMINOLOGY IN VALUATION

Following are some important terms in valuation -

- a) *Book-value:* Book Value is the value of an asset shown on the books of the organization including the annual report. That value may be at original cost or market. It is also known as Face Value or Nominal value and shown in the books of accounts and Balance Sheet.
- b) *Quoted Value*: Quoted value is the value of a share stated by the stock exchange at the end of a day's trade.
- c) *Par Value:* Par value is the nominal or face value of a share.
- d) Value at a Premium: If shares are sold or issued at a price more than the book value, then it is called value at a premium. Suppose shares of Rs. 10 each are sold or issued at Rs. 12 each, this value of Rs 12 is called value at a premium. Rs. 2 is premium paid on the share of Rs. 10.
- e) *Value at a Discount* If shares are sold or issued at a price lower than their book or face value, it is called Value at a Discount. If a share of Rs. 10 is sold at Rs. 9, then it

is a case of Value at a Discount. But for all accounting purpose, the book value of Rs. 10 is recorded.

- f) *Intrinsic Value* Intrinsic value of company is also known as true or real value of company. Intrinsic value can be defined as the present value of future cash flow. It is the estimated value of company on the basis of internal business drivers. Intrinsic value of company is calculated on the basis of fundamentals of business (free cash flow and dividends).
- g) *Extrinsic Value* Extrinsic value is known as fair value. It is the value assigned to the assets of company by the market. It is the agreed price / consensus price of assets at which large number of buyers and sellers are ready to trade.

*Intrinsic value and extrinsic value of asset are different.

h) **Firm Value** - It is the value that an individual assigned to the company or assets on the basis of its perception about risk and return attached to the company and asset.

2.5. FACTORS AFFECTING VALUATION OF SHARES

The value of shares depends upon various micro (internal) and macro (external) economic factors. Some of the main factors are as follows:

- 1. Nature of business
- 2. Economic policies of the Government
- 3. Demand and supply of shares
- 4. Rate of dividend paid
- 5. Yield of other related shares in the Stock Exchange, etc.
- 6. Net worth of the company.
- 7. Earning capacity.
- 8. Quoted price of the shares in the stock market.
- 9. Profits made over a number of years.
- 10. Dividend paid on the shares over a number of years.
- 11. Prospects of growth, enhanced earning per share, etc

2.6. VALUATION OF BONDS / DEBENTURES

Bonds and debentures are long term debt instruments through which corporate and government institutions raise funds from the public.

Terminology used in valuation of Bonds / Debentures

- 1. **Par Value** Par value is the stated face value of the bond. The par value generally represents the amount of money the firm borrows and promises to repay on the maturity date.
- Coupon Rate Coupon rate is the stated interest rate (rate of return) that an investor gets for investing in a particular bond. It is generally stated in terms of percentage of its par value. It is paid annually to its investors.
- 3. **Maturity Date -** It is the specified date on which the par value of a bond along with interest must be repaid.
- 4. Maturity Period It is the total number of years for which a bond is issued to the investor and after that period investor will get his initial investment amount along with interest. For example Generally, government bonds have maturity periods upto 20 years whereas corporate bonds have maturity period from 3 years to 10 years.
 - **5. Yield to Maturity (YTM)** Yield to Maturity (YTM) is the percentage return that is earned on the bond in terms of the price paid and the interest earned

Yield to maturity =
$$\frac{\text{Coupon Amount}}{\text{Bond Price}}$$

Yield to maturity= $\frac{\text{Coupon Rate*Face Value}}{\text{Bond Price at maturity}}$

Assumptions in Bond Valuation

The bond valuation model is based on three assumptions:

- 1. Coupon payments are fixed throughout the life of the bond.
- 2. The next coupon payment is due exactly one year from now.
- 3. Coupon payments are made annually.

Formula for Valuation of Bond / Debenture

With change in interest rate in the market, the bond prices also change. When the interest rate is the same as the coupon rate, the bond sells for its face value.

 $P_0 = \sum_{t=1}^{n} \frac{\text{Coupon Rate}_1}{(1+K_e)^1} + \frac{\text{Coupon Rate}_2}{(1+K_e)^2} + \dots + \frac{\text{Coupon Rate}_n}{(1+K_e)^n} + \frac{\text{Maturity Value }_n}{(1+K_e)^n}$

Or

Po = Coupon Rate*PVIFA (Ke,t) + Maturity Value*PVIF(Ke,t)

Where

PVIFA = Present Value Interest Factor of Annuity
PVIF = Present Value Interest Factor
K_e = Required rate of return
n = Number of years (Holding period)
Coupon Rate – Interest received on Bonds
t = Maturity period

Bonds and Debentures are sold under three price parameters:

At Discount - When a bond is sold in the market at a specified percentage amount below its face value/par value then bond is said to be called as Bond at discount. No interest rate / coupon rate is specified on such bonds. The investors will get an amount equal to the amount of face value at the maturity. The difference between the purchase price of bond at discount and its face value is the interest amount that an investor will get on the bond.

Illustration: Suppose a company issues a bond for maturity period of 3 years. The face value of bond is Rs 1000 and coupon interest rate is 10% with annual coupon payment. The investor is willing to invest in this bond expects a return of 12%. What will be the value bond?

Solution: Face value = Rs 1000

Maturity Period = 3 Years

Coupon interest rate = 10% Coupon Amount = 10% * 1000 = Rs 100

Market interest rate = 12%

Value of Bond (P₀)= $\frac{100}{(1+0.12)^1} + \frac{100}{(1+0.12)^2} + \dots + \frac{100}{(1+0.12)^3} + \frac{1000}{(1+0.12)^3}$

Value of Bond (P₀)= Rs. 951.96

Market price of bond (Rs 1000) < Face value of bond (Rs 1000)

Bond price will be at discount.

At Par – When a bond or debenture is sold at its face value in the market then bond is said to be at par or equal to its face value. When the required rate of return is equal to the coupon rate then current price becomes equal to face value.

Illustration: Suppose a company issues a bond for maturity period of 3 years. The face value of bond is Rs 1000 and coupon interest rate is 10% with annual coupon payment. The investor is willing to invest in this bond expects a return of 10%. What will be the value bond?

Solution: Face value = Rs 1000

Maturity Period = 3 Years

Coupon interest rate = 10% Coupon Amount = 10% * 1000 = Rs 100

Market interest rate = 10%

Value of Bond (P₀) = $\frac{100}{(1+0.10)^1} + \frac{100}{(1+0.10)^2} + \dots + \frac{100}{(1+0.10)^3} + \frac{1000}{(1+0.10)^3}$

Value of Bond (P₀)= 90.909 + 82.644 + 75.131 + 751.316

Value of Bond (P₀)= Rs. 1000

Market price of bond (Rs 1000) = Face value of bond (Rs 1000)

Bond price will be at par.

At Premium – When a bond or debenture is sold above than its face value in the market then bond or debenture is said to be bond/debenture at premium.

Illustration: Suppose a company issues a bond for maturity period of 3 years. The face value of bond is Rs 1000 and coupon interest rate is 10% with annual coupon payment. The investor is willing to invest in this bond expects a return of 8%. What will be the value bond?

Solution: Face value = Rs 1000

Maturity Period = 3 Years

Coupon interest rate = 10% Coupon Amount = 10% * 1000 = Rs 100

Market interest rate = 8%

Value of Bond (P₀)= $\frac{100}{(1+0.08)^1} + \frac{100}{(1+0.08)^2} + \dots + \frac{100}{(1+0.08)^3} + \frac{1000}{(1+0.08)^3}$

Value of Bond (P₀)= Rs 1,051.54

Market price of bond (Rs 1,051.54) >*Face value of bond (Rs 1000)*

Bond price will be at premium.

Relationship between Bond Price, Market interest rate and Coupon rate

Scenario	Condition	Result
Ι	Market interest rate < Coupon rate	Bond will be sold at Premium
II	Market interest rate = Coupon rate	Bond will be sold at Par
III	Market interest rate > Coupon rate	Bond will be sold at Discount

Valuation of Zero-coupon Bonds

Zero Coupon Bonds are bonds that don't pay any coupons or interest. These bonds pay only the face value.

Value of Bond = $\frac{\text{Face Value }_{n}}{(1+K_{e})^{n}}$

2.7. VALUATION OF SHARES

Ordinary shares are worth what they are worth today based on how much money they will make in the future and how much risk they take. Higher the risk of the share, the higher the rate of return that must be earned. As time goes on, shareholders get dividends from the company and the value of their shares rise at the end of that time.

Capital Gain = Final price of share - Purchase price of share

Value of shares depends upon the time period for which the shareholder holds the share.

Price of the stock is given by following formula -

$$P_o = \sum_{t=1}^{n} \frac{\text{Div}_t}{(1+i)^t} + \frac{P_n}{(1+i)^n}$$

Where,,

 $Div_t = Dividend in period t$

P_n=Maturity price of shares

We can calculate valuation of shares on the basis of the time period of holding the share into following types:

1. Single Period Valuation

The term "single period valuation" refers to an investor who holds the stock for only one year. He sells his part of the company at the end of the year. In single period valuation, the value of a share is determined by the amount of dividends received by the investor over the course of a year and the final price that he will receive at the end of the year, respectively.

$$Po = \frac{Div_1 + P_1}{(1 + K_e)}$$

Where,

 $Div_1 = Dividend$ received at the end of year $P_1 = Price$ of share at the end of year $K_e = Required$ rate of return

Illustration: What should be the current price of the share whose price is expected to be Rs 90 at the end of year and is expected to receive dividend of Rs 10 during the same period. The required rate of return in 10%.

Solution

 $Div_{1} = Rs \ 10$ $P_{1} = Rs \ 90$ $K_{e} = 10\%$ Formula $P_{o} = \frac{Div_{1} + P_{1}}{(1 + K_{e})}$ $P_{o} = \frac{10 + 90}{1.10}$ $P_{o} = Rs \ 90.90$

2. Multi Period Valuation of share

When stockholders own a stock for more than a year, this is referred to as a multi-period holding (for two years, three years and so on). During a multi-period valuation, the stock's worth is determined by the amount of dividends received at the end of each year and the final price of the shares that the shareholder expects to receive at the conclusion of the holding period.

Formula

$$P_{o} = \sum_{t=1}^{n} \frac{\text{Div}_{t}}{(1+k_{e})^{t}} + \frac{P_{n}}{(1+k_{e})^{n}}$$

Where,

 $Div_t = Dividend per shares in period t$ P_n = Selling price or Maturity price of shares $K_e = Required rate of return on shares$ n = total number of yearst= time periods (1,2,3)

Illustration: What will be the current price of share which is expected to receive dividend for first year Rs 5, second year Rs 10 and for third year Rs 12 and expected to sell at Rs 105 at the end of third year. The required rate of return is given 10%.

Solution –

~.

Given
$$Div_1 = Rs 5$$

 $Div_2 = Rs 10$
 $Div_3 = Rs 12$
 $K_e = 10\%$
 $P_3 = Rs 105$

Formula

$$\mathbf{P}_{0} = \frac{Div_{1}}{(1+K_{e})^{1}} + \frac{Div_{2}}{(1+K_{e})^{2}} + \frac{Div_{3}}{(1+K_{e})^{3}} + \frac{P_{3}}{(1+K_{e})^{3}}$$

Putting values in formula:

$$P_{0} = \frac{5}{(1+0.10)^{1}} + \frac{10}{(1+0.10)^{2}} + \frac{12}{(1+0.10)^{3}} + \frac{105}{(1+0.10)^{3}}$$
$$P_{0} = \mathbf{Rs} \ \mathbf{100.69}$$

3. Constant Growth Model – It is a type of dividend discount model used when valuing ordinary shares. The constant growth model is one of them. Under this model, it is expected that the dividend will grow at a steady rate over time. It is also known as Gordon model.

Formula

$$P_{o} = \frac{\text{Div}_{1}}{K_{e} - g} = \frac{\text{Div}_{o} (1+g)}{K_{e} - g}$$

Where

 $Div_1 = Dividend$ received at the end of next year

Div_o = Dividend received current year

g = Growth rate in stock

 $K_e = Required rate of return$

Constant growth model is applicable only when $K_e > g$. If the equation is used in situations where $K_e < g$, the results will be both wrong and meaningless.

Illustration – The dividend per share is Rs 10 respectively. If the required rate of return is 10%, what should be the share price when growth rate is 5%.

Solution - Dividend = Rs 10

Required rate of return = 10%

Growth rate = 5%

Formula:

$$P_o = \frac{D_i}{K_e - g}$$

Putting Values in formula

$$P_{\rm o} = \frac{10}{0.10 - 0.05}$$

 $P_{o} = Rs \ 200$

4. Zero Growth Model

Zero growth model is used when a company's dividend payments are expected to remain constant.

Formula

$$P_o = \frac{Div}{K_e}$$

Where,

Div = Constant dividend $K_e = Required rate of return$

The model can be used to estimate the value of a stock for which dividend payments are expected to remain constant for a long period in the future.

Illustration – A company is expected to offer constant dividend at Rs 10 per year indefinitely. The required rate of return is 15%. Calculate the market price of share of company.

Solution-Given

Formula

$$P_o = \frac{Div}{K_e}$$

Putting values

$$P_0 = \frac{10}{1+0.15}$$

 $P_0 = Rs \ 8.69$

Preference Shares

The term "preferred stock" is often used to describe preference shares. Preference shares, which are issued by businesses that want to raise money, have the characteristics of both debt and equity investments. Common stocks do not have fixed dividends. Most preferred shares have them, but not all of them. Preference shareholders get dividend payments before other shareholders do. Preference shareholders do not have the same voting rights as common shareholders.

Under Section 55 of Companies Act 2013, a company can issue preference shares liable to be redeemed at the end of twenty years. Redeemable preference shares are reported as a liability. The dividend paid on such shares is recorded as an expense in the income statement.

Preference shares are of four types:

- a) Cumulative (Guaranteed) Preference shares- Shares having right of dividend even in those years in which it makes no profit are known as cumulative preference shares. In case the companies do not declare dividends for a particular year then they are treated as arrears and are carried forward to next year
- b) Non-cumulative Preference shares A non-cumulative preference share does not accumulate any dividend. In case the dividend by the company is not paid then they have the right to avail dividends from the profits earned from the particular year. Dividends are paid only from the net profit of each year. In case there is no profit accumulated for a particular year then the arrears of dividends cannot be claimed in subsequent years.
- c) **Participating preference shares** These shares have the right to participate in surplus profits of the company during liquidation after the company had paid to other

shareholders. The preferential shareholders receive stipulated rate of dividend and also participate in the additional earnings of the company along with the equity shareholders.

d) Convertible preference shares - Convertible preferred shares include an option that enables shareholders to convert their preferred shares into a set number of common shares, usually at any time after a pre-established date.

Valuation of Perpetual preference share – The value of perpetual preference share is calculated by following formula:

$$P_{o} = \frac{Div_{t}}{K_{e}}$$

Where

 $P_o =$ Market price of Perpetual preference share

 $D_i = Dividend$

Ke =Discount rate or Rate of return on perpetual preference share

Illustration: A perpetual preference share has a face value of Rs 100. It pays a dividend of Rs 20 to its investors. Te required rate of return is 15%. Calculate the current market price of Perpetual preference share.

Solution:

Given: Face Value = Rs 100

Dividend (Div) = Rs 20

Required Rate of return (Ke) = 15%

Formula

$$P_{o} = \frac{\text{Div}_{t}}{K_{e}}$$

Putting Values

$$P_{o} = \frac{20}{0.15}$$
$$P_{o} = 133$$

The current market price of Perpetual preference share is Rs 133.

Valuation of Redeemable Preference shares

Price of the stock is given by following formula

$$P_{p} = \sum_{t=1}^{n} \frac{\text{Div}_{t}}{(1+k_{e})^{t}} + \frac{P_{n}}{(1+K_{e})^{n}}$$

Or

 $P_p = Dividend*PVIFA_{(Ke,t)} + Maturity Value*PVIF_{(Ke,t)}$

Where

 $Div_t = Dividend per preference shares in period t$ $P_n = Selling price or Maturity price of preference shares$ $K_e = Required rate of discount on preference shares$ $P_p = Price of preference shares$ t = time periods (1,2,3)

Illustration: ABC ltd. company issue preference share to its investors at a face value of Rs 1000. The dividend is 15% on its face value and expected to be redeemed at 30% premium to the face value after 5 years. Calculate the current market price of Preference sahre if the required rate of return is 11%.

Solution

Given: $Div_t = 15\%$ on face value = 15% of 1000 $Div_t = Rs \ 150$ Maturity Value = 30% premium of face value = 1000 + 30% of 1000 = 100+300 Maturity Value = Rs 1300 $K_e = 11\%$ $t = 5 \ years$

Formula $P_p = Dividend*PVIFA_{(Ke,t)} + Maturity Value*PVIF_{(Ke,t)}$

Putting Values

 $P_p = 15*PVIFA_{(11\%,5)} + 1300*PVIF_{(11\%,5)}$

 $P_p = 15*3.696 + 1300*0.593$

 $P_p = 55.44 + 770.9$

 $P_p = 826.34$

The current price of preference share which will be redeemed after 5 years = Rs 826.34

RISK ANALYSIS

"Take calculated risks. That is quite different from being rash." George S. Patton

2.8. INTRODUCTION

Throughout this chapter, we will discuss the fundamental notion that investors prefer returns and dislike risk. Consequently, investors will invest in more risky assets only if they anticipate receiving comparatively high returns; the greater the perceived risk, the greater the expected rate of return that an investor will demand from his or her investment portfolio. We precisely explain what the term "risk" implies in the context of investments, we analyse the processes that are used to quantify risk, and we discuss the relationship between risk and necessary returns in further detail. In the next chapters, we will show how risk and return work together to show how the price of securities changes.

2.9. RETURN ON INVESTMENT

Spending money today with the goal of earning even more money tomorrow is a common practice among individuals and businesses. Using the concept of return, investors can easily express the financial performance of an investment in a straightforward manner. Consider the following scenario: you purchase ten shares of a stock for INR 1,000.The stock does not pay dividends, but you can sell it for INR 1,100 at the end of one year. Do you know how much money you made on your INR1,000 investment?

Return in INR = Amount Received – Amount Invested

= 1100 - 1000

Return in INR = INR 100

But there are two issues. First, timing of return and second, scale of return.

The solution to these scale and timing issue is to express investment results as rates of return, or percentage returns.

Rate of Return = $\frac{\text{Amount Received - Amount Invested}}{\text{Amount Invested}}$ Ratre of Return = $\frac{1100-1000}{1000}$ Rate of return = 10%
Thus, the rate of return "standardizes" the INR return by considering the annual return per unit of investment

2.10. RISK IN INVESTMENT

Everyone aspires to a better life and is eager to begin working toward that goal. In his mind, every game is an opportunity to make money. When it comes to business, it's hard to avoid losing. Risk comes into play at this moment. Risk is an unavoidable aspect of doing business. The fact is that it is extremely important in finance and cannot be overlooked. Taking a risk without thinking about the consequences in terms of both the external and internal environment might lead to disaster. Every business strives to minimise risks to a manageable level to make its investment a profitable one. In order to make the best decisions, a person must take calculated risks. He should consider various factors and formulate effective strategies to reduce the risk in the business. It's like searching for a pearl in a deep sea when you come up with effective strategies

In finance, risk can be defined as "The difference between actual return and expected return."

It can be explained in simple way by considering following two scenarios:

Scenario I - Suppose an investor but one year government bonds with an expected return of 10%. At maturity, say after one year, the actual return on the investment will be 10%. This is riskless investment.

Scenario II - An investor invests in a specific stock with an expected return of 12% after a holding period of one year but after one year, due to market fluctuations, there may be the probability that the investor would get a return of 10%.

$$Risk = 12\% - 10\% = 2\%$$

The investor will get 2% less return from its expected return. Hence, this investment is a risky investment.

Risk Free Investment - In risk free investment the probability of getting expected return is 1. The funds are secured, and positive return is a guarantee irrespective of the prevailing market conditions. All the government bonds, treasury bills are risk free investments.

The following figure shows the return on risk free investment.



Risky Investment – In risky investments, the probability of getting expected return is not 1. It depends largely on the prevailing market conditions. It may be higher than expected return if market is bullish and may get the lower return if market turns to bearish.

Generally, Risk can be categorized as



a) **Diversifiable risk or Unsystematic risk:** - It is that type of risk which we can avoid. Diversifiable risk is caused by such random events as lawsuits, strikes, successful and unsuccessful marketing programs, winning or losing a major contract, and other events that are unique to a particular firm. Investors can mitigate or eliminate this risk by diversifying their investment portfolio. By withdrawing their money from the affected industry or corporation and investing it in a growth sector, they can avoid this situation. In this particular instance, investors are not obligated to bear the risk.

Diversifiable risk is of two types:

1) **Business risk**: - Business risk is related to particular business or firm. It may be internal risk or external business risk.

a) **Internal Business risk**: - It is associated with the firm's operating efficiency. It includes various internal factors that can affect firm's performance.

Examples - Strike in company, Death of key company officer, Production stop due to failure of machinery or shortage of raw material etc.

b) **External Business risk:** - This type of business risk affects the firm's efficiency from external environment factors.

Illustration -

Bankruptcy of major suppliers Reputation risk Business cycle Legal risk

 Financial risk: - Financial risk in a firm occurs from the possibility of a firm not being able to repay its debts on time. Such type of risk is associated with capital structure of firm.

Ex: - Higher the debt-equity ratio, higher is the financial risk. A firm with low proportion of debt has lower level of financial risk. Unlevered firm has no financial risk.

b) Non-diversifiable risk or Systematic risk: -Non – diversifiable risk or Systematic risk arises due to the risk associated with the economy of country or whole world. A Systematic risk is one that influences a large number of assets, each to a greater or lesser extent. This risk comes into picture due to economic, social, market and political changes such type of risks cannot be avoided. Every business has to bear this risk but tendency of risk may be change.

Non diversifiable risk can be categorized in following types:

- i) **Market risk**: Market risk happens due to change in market scenario.Ex: If the stock market is bullish then the price of all stocks will rise whereas if the stock market turns into bearish then the price of all stocks will show downward trend.
- ii) **Interest rate risk**: Interest rate risk happens due to change in interest rate trend. If the interest rate shows upward trend then investment in capital intensive industries, like real estate, manufacturing will show downward growth. It reflects the negative growth of the country.

iii)Inflation risk: - Inflation risk occurs due to uncertainties of purchasing power of people.Inflation is inversely proportional to purchasing power. Higher is the inflation lesser will be the purchasing power of people.

Total risk is defined as the summation of systematic risk and unsystematic risk.

Total risk = Systematic risk + Unsystematic risk

Parameters	Systematic Risk	Unsystematic Risk
Nature of risk	It is inherent risk	It is Unique or Asset specific risk
Elimination	It can't be avoided	It can be avoided
Occurrence	Occurs due to external Factors	Occurs due to internal factors
Example	Interest rate risk, Inflation risk, Market Risk	Financial Risk, Business Risk

2.11. CAPITAL ASSET PRICING MODEL

Capital asset pricing model was developed by William F. Sharpe. This model predicts the relationship between risk and expected rate of return on a risky security.

Assumptions in CAPM

- 1) All investors have same expectations about expected return and risk of securities.
- 2) All investors can lend and borrow at risk free rate of interest.
- 3) Investors make their investment decisions based on single horizon.
- 4) Capital markets are in equilibrium.
- 5) Taxes do not affect the choice of buying assets.
- 6) Investors are risk averse; they prefer higher expected return for a given level of risk.
- 7) Capital market is not dominated by any individual investors.

Mathematical representation of CAPM:

$\mathbf{E}(\mathbf{R}_i) = \mathbf{R}_f + \beta(\mathbf{R}_m - \mathbf{R}_f)$

 $E(R_i) = Expected$ rate of return on any individual security or portfolio of securities

 $R_{\rm f}$ = Risk free rate of return

- R_m = Expected rate of return from market
- β = Market sensitivity index of individual security (portfolio of securities)

Market Risk Premium - It shows how much we are earning extra by investing in market rather than in government bonds. It is represented by

Market risk premium = $(R_m - R_f)$

Graphical Representation of CAPM



Beta Coefficient (β)

Beta coefficient is also known as Beta. It is represented by Greek letter β . It represents the relationship between risk in the security and risk in the market index. It tells how much systematic risk a particular stock has relative to an average market. In other terms, It measures the sensitivity of stock to market movements.

$$\beta = \frac{\text{Risk in stock}}{\text{Risk in Overall Market or Market Index}}$$

The movement of beta with respect to market is explained in the following matrix.

Beta	Matrix
------	--------

Value of B	Risk	Nature of security
β < 1	The stock has <i>low level of risk</i>	Defensive security
	as to the stock market.	

$\beta = 1$	The stock has same level of	Neutral security
	<i>risk</i> as to the stock market.	
β>1	The stock has <i>high level of risk</i>	Aggressive security
	as to the stock market.	

Key Points

- The companies, with high fixed cost components in their capital, have high beta. All the manufacturing, airline industries generally have high beta due to their high fixed cost component in their capital. Whereas IT companies have low beta as their lower fixed cost component is low.
- The companies with high debt component also have high beta.
- Companies that deal in discretionary products have high beta whereas the companies from FMCG sector or which deals in basic necessity products have low beta.

Limitations of CAPM

CAPM Model has following limitations:

- 1) CAPM is based on unrealistic assumptions.
 - a) It is very difficult to find risk free security. We consider government security as risk free security but inflationcan create uncertainty about it.
 - b) Lending and borrowing rates are never equal.
 - c) Investors may not hold always highly diversified portfolio
- 2) Beta does not remain stable over time
- 3) It is difficult to test validity of CAPM.

Mathematical formulation of beta coefficient (β)

Relationship between beta, co-variance, variance and correlation co- efficient

$$\beta = \frac{\text{Co-Variance between Security and Merket Index}}{\text{Variance of Market Index}}$$

$$\beta = \frac{\text{Cov}(R_i R_m)}{\text{Var}(R_m)} (Equ. 1)$$

 $Cov (R_i R_m) = \rho_{im} * \sigma_i * \sigma_m$

Where,

 ρ_{im} =Correlation coefficient between security i and market portfolio m

 σ_i = Standard deviation of security i

 σ_m = Standard deviation of market portfolio m.

 $Var(\mathbf{R}_{m}) = \sigma_{m}^{2}$

After putting values in Equ. (1)

$$\beta = \frac{\rho_{im} * \sigma_i * \sigma_m}{\sigma_{m^2}}$$
$$\beta = \frac{\rho_{im} * \sigma_i}{\sigma_m}$$

The above equation shows the relationship between beta of security i, Correlation coefficient between security m and market portfolio, standard deviation of security i and standard deviation of market portfolio m.

Beta in terms of co-variance and variance

$$\beta = \frac{\sum P(R_i - \overline{R}_i)(R_m - \overline{R}_m)}{\sum P(R_m - \overline{R}_m)^2}$$

Where,

 $\sum P(R_i - \overline{R}_i)(R_m - \overline{R}_m) = Covar(R_iR_m)$

 $\sum P(R_m - \overline{R}_m)^2 = Var(R_iR_m)$

 R_i = Return from security i

 R_m = Return from market portfolio m

P = Probability associated with returns

SECURITY MARKET LINE (SML)

SML is a line drawn in E(R) and β space. It shows a linear relation between a security's expected return and its β . The expected return from all the securities are assumed to be lie on the security market line. Security lying above SML is <u>under-priced</u> while security below SML is <u>over-priced</u>. The equation of SML is:

$$E(R_i) = R_F + (E(R_M) - R_F)\beta_i$$



Security Market Line (SML) and Valuation of Stock

The following matrix represents the position of stock with respect to SML and their expected value

Samaria	Position of Security on	Noture of Security	
Scenario	SML	Nature of Security	
Ι	Security lies above SML	Undervalue or Underprice	
II	Security lies below SML	Overvalue or Overprice	

Characteristic Market Line: It is defined as a line that best fits the points which represents the returns on the assets and the market.

Excess return of security over risk free return Characteristic line



The equation of CML is:

 $(R_i-R_f) = \alpha_i + \beta_i(R_m-R_f)$

 α_i = It represents the return of security when the market return is zero.

The following table shows the impact of value of alpha on investors decision and price of security

Value of Alpha	Impact on	Investors	Impact	on	Price	of
	Decision		Security			
Positive (+)	Buy Security			Increa	ase	
Negative (-)	Sell Security			Decre	ase	

Difference between Security Market Line and Capital Market Line

S. No.	Security Market Line	Capital Market Line	
	It represents the relationship	It represents the relationship	
1	between expected return of stock	between expected return of	
	and beta	portfolio andstandard deviation	
2	Risk is measured by calculating beta.	Risk is measured by calculating standard deviation	
3	SML indicates only systematic risk.	CML indicates total risk	

2.12. ARBITRAGE PRICING THEORY

Arbitrage is the process of buying an asset at a lower price and then selling it at a higher price. Arbitrage pricing theory was introduced by American economist, Stephen Ross in 1967.

APT is a multi-factor technical model based on the relationship between a financial asset's expected return and its risk. This theory provides a relationship between expected return of an asset to the return from the risk free asset and a series of other common factors which systematically enhance or detract from expected result. The APT model shows how the changes in macroeconomic factors affect an asset's returns. These variables are inflation, interest rates, exchange rates, etc.

For any individual stock there are two sources of risk.

a) Risk that stems from the pervasive macroeconomic factors which cannot be eliminated by diversification.

b) Risk arising from possible events that are unique to the company.

Diversification does eliminate unique risk, and diversified investors can therefore ignore it when deciding whether to buy or sell a stock. The expected risk premium on a stock is affected by factor or macroeconomic risk; it is not affected by unique risk.

Arbitrage pricing theory is combination of two risk factors:

a) **Predictable return:** - Predictable return is represented by β_{i0} .

It is also known as R_f(risk free asset on zero beta return).

- β_{i0} = Expected return on asset I if all the indexes or factors have return of zero (Risk free asset)
- b) **Unpredictable return: -** It arises from future information regarding to a specific firm and various macro economic factors. Some of these macro- economic factors are :
 - i) Market portfolio
 - ii) Growth rate in industrial production
 - iii) Change in expected inflation
 - iv) Change in market risk premium
 - v) Change in real rate of return
 - vi) Change in oil price

Unpredictable return can be represented by β_{ij}

i= Security

j = Macro - economic factor

Interpretation

If $\beta_{ij} = 3\%$ it means for every 1% change in factor j, security i 's return is expected to change by 3%

Mathematical representation of APT

Arbitrage pricing theory states that the expected risk premium on a stock should depend on the expected risk premium associated with each factor and the stock's sensitivity to each of the factors (β_{i1} , β_{i2} , β_{i3} etc.).

$\mathbf{E}(\mathbf{R}_{i}) = \beta_{i0} + \beta_{i1}\mathbf{I}_{1} + \beta_{i2}\mathbf{I}_{2} + \dots + \beta_{im}\mathbf{I}_{m} + \varepsilon_{j}$

I_i= Value of ith index

 ε_j = Random error term for asset i with mean of zero and variance of $\sigma^2_{\varepsilon_j}$

Assumptions

- 1) There are various factors that give rise to return on securities and relation between security returns and these factors is linear.
- 2) Investors have homogeneous expectations and expected utility of wealth maximizes.
- 3) There are no market frictions like transaction costs, taxes or restrictions on short selling.
- 4) Overtime, error term is expected to have a mean value of zero.
- 5) Investors agree on number and identify the factors that are important systematically in pricing assets.
- 6) There are no riskless arbitrage profit opportunities means that two or more securities or portfolio that have same pay off to their investors are same and must sell at same price.

Steps of calculating APT

While applying Arbitrage pricing theory, following steps should be considered:

- 1. Identify the macroeconomic factors
- 2. Identify the risk premium for each macroeconomic factor
- 3. Estimate the factor sensitivities(β_i)

2.13. DIFFERENCE BETWEEN CAPM AND APT

САРМ	APT
Systematic risk of an asset is defined as the	systematic risk is defined as the co-
co- variability of the asset with market	variability of several economic factors
portfolio.	including market portfolio
CAPM requires the economy to be in	APT requires the economy has no arbitrage
equilibrium	opportunities.
Rejection of CAPM does not mean that we	Rejection of APT means we reject CAPM
reject APT.	also

Illustration 1- Calculate the beta when the required rate of return is 12%, the return from risk free assets is5% and the return from stock market is 14%?Also tell about the nature of security as per beta.

Solution: -

Given: $R_e = 12\%$ $R_f = 5\%$ $R_m = 14\%$

To find: - $\beta = ?$

By formula: - $R_e = R_f + \beta(R_m - R_f)$

$$\beta = \frac{R_e - R_f}{R_m - R_f}$$

Putting values in above formula

$$\beta = \frac{12-5}{14-5} = \frac{7}{9}$$

$$\beta = 0.77$$

As beta is 0.77. It is lesser than 1. So the security is a defensive security.

Illustration 2–Mr. Prakash is planning to invest INR 1,00,000 in security X. But before investing, he is curious to know the expected return from security. You, portfolio manager, provide him the following information about security and market.

The risk free rate is 6 %, required rate of return on the market portfolio is 12% and beta is 1.2. What required return of security X the person would get?

Solution: -

Given: - $\beta = 1.8$ $R_f = 9\%$ $R_m = 15\%$ To find: - $R_e = ?$ By formula: - $Re = R_f + \beta(R_m - R_f)$ Putting values in above formula $R_e = 6 + 1.2 (12 - 6)$ $R_e = 6 + 7.2$ $R_e = 13.2$

The expected return form the security X is 13.2%

Illustration 3 –Mr. Sharma wants to invest in Stock A. Before investing in stock, he is curious to know its beta. He comes to your office. You, as a financial advisor, are asked to provide him the value of beta. The other information about the stock is given below.

The standard deviation of return of security A is 12 and of market portfolio is 9. The correlation co-efficient between market and security is 0.15.

Solution: -

Given:- $\sigma_A = 12$ $\sigma_m = 9$ $\rho_{Am} = -0.15$

To find: - $\beta = ?$

By Formula: -

$$\beta = \frac{\rho_{Am} * \sigma_A * \sigma_m}{\sigma_{m^2}}$$

Putting values in above formula

$$\beta = \frac{12*9*(-0.15)}{9^2}$$
$$\beta = -0.2$$

The beta is negative when the market index return and security return have inverse relationship.

Illustration 4 –Mr Akash provided following information about security X and Y to his assistant, Mr. Rohan and asked him to calculate the covariance between these two securities. The statistics provided by the Mr. Akash were-

The correlation coefficient between X and Y is 0.6. The standard deviation of X and Y are 0.15 and 0.40 respectively.

Mr. Rohan gave covariance as 0.750 that was wrong according to Mr. Akash. According to you what should be the covariance between stocks X and Y?

Solution: -

Given: - $\sigma_x = 0.15$ $\sigma_y = 0.40$ $\rho_{xy} = 0.6$

To find: - Cov $_{xy} = ?$

By formula: -

Cov _{xy} = $\sigma_y * \sigma_x * \rho_{xy}$

Putting values in above formula

 $Cov_{xy} = 0.15*0.40*0.6$

 $Cov_{xy} = 0.036$

The calculation done by Mr. Rohan was wrong.

Illustration 5 – A person wanted to know about the risk involved in security X with respect to the market and about the nature of security. He got the information from his friend about security but that was incomplete. His friend did not provide information about beta. The information provided by hid friend was following:

The covariance of the return from a stock X with the return from the market is 6.51 and the variance of the market portfolio is 5.73.

If you are a financial advisor, then according to your experience what should be the risk involved in security. Also tell about the nature of security?

Solution: -

Given: - $Cov_{xm} = 6.51$

 $Var_m = 5.73$

To find: - $\beta = ?$

By Formula: -

$$\beta = \frac{\text{Cov}_{xm}}{\text{Var}_m}$$

Putting values in above formula

$$\beta = \frac{6.51}{5.73}$$

 $\beta = 1.14$

The security is aggressive security as the value of beta is more than 1. The risk level involves in the security is more than market index risk.

Illustration 6 – A financial advisory firm wants to calculate correlation coefficient between security return and market index return so that they can provide authentic information to their clients. The statistics regarding market are as follows-

The beta of a security X is 1.45. The variance of the security's return is 17.65. The market return has the following probability distribution:

Projected Market Return	Probability (Pi)
(R_m)	
11%	25%
14%	38%
10%	37%

What should the correlation coefficient between market return and security return?

Solution: -

Given: - $\beta = 1.45$ Var_x = 17.65%

To find: - $\rho = ?$

Solution: -

Expected return from market = $\sum P_i * R_m = 0.25 * 0.11 + 0.38 * 0.14 + 0.37 * 0.10$

$$= 0.1177 = 11.77\%$$

Risk for the market: -

$$(\sigma_m)^2 = \sum P_i (R_m - R_m)^2$$

Putting values in above formula

$$\begin{split} (\sigma_m)^2 &= 0.25(11\text{-}11.77)^2 + 0.38(14\text{-}11.77)^2 + 0.37(10\text{-}11.77)^2 \\ (\sigma_m)^2 &= (0.1482 + 1.8897 + 1.1591) \\ (\sigma_m)^2 &= 3.197 \\ \sigma_m &= 1.78\% \\ Var_x &= 17.65\% \\ \sigma_x &= 4.20\% \end{split}$$
 Using formula:

 $\beta = \frac{\sigma_m * \sigma_x * \rho_{mx}}{\sigma_{m^2}}$

$$\rho_{mx} = \frac{\beta * \rho_{m^2}}{\sigma_m * \sigma_x}$$
$$\rho_{mx} = \frac{\beta * \rho_m}{\sigma_x}$$

Putting Values:

 $\rho_{mx} = \frac{1.45 \times 1.78}{4.20}$ $\rho_{mx} = \frac{2.581}{4.20}$

 ρ_{mx} = 0.614

Illustration 7–What would be the value of security if the security has expected return of 12%, expected rate of return on the portfolio is 10% and risk free rate of return is 8.5%.

Solution -

Given - $K_e = 18\%$ $R_m = 15\%$ $R_f = 0.06\%$ To find $-\beta = ?$ Solution -

Formula - $\mathbf{K}_{e} = \mathbf{R}_{f} + \beta(\mathbf{R}_{m}-\mathbf{R}_{f})$

Putting values in the above formula

 $0.12 = 0.085 + \beta^*(0.10 - 0.085)$ $\beta = \frac{0.12 - 0.085}{0.10 - 0.085}$

 $\beta = \frac{0.035}{0.015}$

β=2.33

Illustration 8- The following data explore the information about portfolio A and B. The information about the return of portfolio and the risk involved in them is given.

Factors / Portfolio	Portfolio A	Portfolio B
Return (%)	9	12
Beta(Systematic Risk)	1	1

One factor arbitrage pricing model is $E(r_i) = 5+6\beta_{i1}$. How you will use the arbitraging opportunities in portfolio to get profit.

Solution

Put the value of beta in equation $E(r_i) = 5+6\beta_{i1}$ and we will get expected return of security A and security B.

Portfolio	Actual Return	Expected Return by arbitrage formula
		$E(r_i) = 5 + 6\beta_{i1}$
А	9	11
В	12	11

As risk (β) involved in both the securities is same. So we will analyze the securities on the basis of return.

Portfolio B gives higher actual return (12%) than expected return (11%). So we adopt long strategy for portfolio B means we will buy portfolio B. Portfolio A gives lesser return (9%) as expected return (11%). So we should go for short strategy for portfolio A means we will sell portfolio A.

Let's assume we are investing Rs.	100,000 in arbitraging.	The pay offwould be as follows:
-----------------------------------	-------------------------	---------------------------------

Portfolio	Investment	Return	Risk (Beta)
А	+100,000	-9,000	1.00
В	-100,000	+1,2000	1.00
Net Profit		+3000	

We will get net profit of Rs. 3000 through arbitraging process.

Illustration 9– The statistics about three portfolios X, Y and Z are given. The statistics represents return and risk involved in each portfolio. The statistics are as following-

Portfolio	Return (%)	Beta
Х	10.00	1.20
Y	8.00	1.80
Z	6.50	0.87

The one factor arbitraging pricing model is E $(r_i) = 4+3.5\beta_{i1}$. Can be learn any arbitrage profit from these portfolios? Comment.

Solution: - On the basis of the single factor arbitraging pricing model, the expected return from the three portfolios should be as follows:

Portfolio	Actual Return	Expected Return(%)
		By arbitrage model
		$E(r_i) = (4+3.5\beta_{i1})$
Х	10.00	8.2
Y	8.00	10.3
Z	6.50	7.04

The actual returns from all the portfolios differ from their expected return. On the basis of this difference we can use arbitraging techniques to earn profit. The actual return from portfolio X is more than expected (10.00 > 8.20). So we can earn arbitrage profit from portfolio X. We should adopt long strategy for portfolio X and short strategy for portfolio Y and portfolio Z.

Make a new portfolio which consist proportion of portfolio Y and portfolio Z on which we will adopt short strategy. We called new portfolio as portfolio D. Beta for new portfolio D is 1.20 (It is beta of portfolio on which we are going long)

Now to find the weightage of Y ad Z in new portfolio D

Let's assume

Weightage of investment in portfolio Y = aWeightage of investment in portfolio Z = 1-a

$$1.80(a) +0.87(1-a) = 1.20$$

$$1.80a +0.87 - 0.87a = 1.20$$

$$0.87 + 0.93a = 1.20$$

$$0.93a = 1.20 - 0.87$$

$$0.93a = 0.33$$

$$a = \frac{0.33}{0.93}$$

$$a = 0.35$$

Weightage of investment invested in portfolio Y = 35%

Weightage of investment invested in portfolio Z = 65%

Suppose we invest Rs.100,000 in portfolio D.

Return on Portfolio D = Investment (Beta of first portfolio* Weightage of first portfolio + Beta of second portfolio * Weightage of second portfolio)/100

Return on Portfolio D = $\frac{1,00,000(8.00*0.35+6.50*0.65)}{100}$

Return on Portfolio D = 7025.0

Now the pay off would be as follows:

Portfolio	Investment	Return	Risk(beta)
D	+100,000	-7025.00	1.20
X	-100,000	10,000.00	1.20
Net Profit		+2975.00	

The above results shows that by adopting long strategy for portfolio X as actual return is more than expected return and short strategy for portfolio D (It consists original portfolio Y and Portfolio Z) as actual return on both the portfolios is lesser than expected return, we can earn an arbitrage profit of Rs. 2975.00 while investing Rs. 100,000.

2.14. RISK MEASUREMENT TECHNIQUES

Standard Deviation

Standard deviation is used to measure the stand-alone risk. It is represented by sigma (σ). The value of standard deviation is directly proportion to the risk associated to the stock. Higher is the value of standard deviation, higher is the risk in the stock and vice versa.

Steps to calculate the standard deviation

Step I - Calculate the expected rate of return

Expected rate of return $(\hat{r}) = \sum_{i=1}^{n} P_i r_i$

Step II - Calculate the Variance

The variance of the stock return is the expected squared deviation from the expected return.

Variance
$$(\sigma^2) = \sum_{i=1}^n (r_i - \hat{r})^2 P_i$$

Step III - Calculate Standard Deviation

Standard Deviation (σ) = $\sqrt{Variance}$

Standard Deviation (
$$\sigma$$
) = $\sqrt{\sum_{i=1}^{n} (r_i - \hat{r})^2 P_i}$

Where,

 r_i = possible return P_i = Probability of getting possible return

Risk Adjusted Discount Rate

The rate established by adding an expected risk premium to risk free rate in order to determine the net present value of risky investment.

Risk adjusted discount rate = Risk free rate + Risk premium

$$= R_f + \beta(R_m - R_f)$$

The following table shows the relationship between Risk adjusted discount rate, NPV and project risk.

Value of Risk Adjusted	Value of NPV	Degree of risk in
Discount Rate		Project
High	Low	High
Low	High	Low

Advantages

Risk adjusted discount rate has following advantages:

- 1) It is simple and easy to understand.
- 2) It incorporates risk aversion attitude towards uncertainty.
- 3) It helps in quantifying the risk.

Limitations

The main limitation while applying risk adjusted discount rate

- 1) It is not easy to get risk adjusted discount rate.
- 2) It is based on the assumption that investors are risk averse but there are investors who are risk seekers.

Illustration 9 - A firm XYZ is planning to invest in a new venture with an initial investment of Rs. 200000. It is expected to generate cash through 1st,2nd, 3rd and 4^{rth} year is Rs. 70,000, Rs 75,000, Rs. 65000and Rs. 60,000. Calculate NPV of project if risk adjusted discount rate is 15%.

Solution: -

$$NPV = \frac{70000}{(1.15)^1} + \frac{75000}{(1.15)^2} + \frac{65000}{(1.15)^3} + \frac{60000}{(1.15)^4} - 2,00000$$
$$NPV = (60869.56 + 56710.77 + 42738.55 + 34305.19) - 2,00,000$$

NPV = 194624.07 - 2,00,000

NPV = -5375.893

NPV is negative. So we will not accept the project.

Certainty Equivalent Factor

Certainty equivalent factor adjusts the cash flows for risks and then discount these certain cash flow at the risk free rate. Certainty equivalent factor is the forecasting of cash flow with a correction factor. This correction factor is known as certainty equivalent coefficient. Certainty equivalent coefficient's value ranges between 0 to1. Certainty equivalent coefficient is inversely proportional to risk. Lower the value of certainty equivalent coefficient more is the risk and vice versa.

Mathematical representation of certainty equivalent factor

NPV
$$= \frac{CF_1 * b}{(1+r)^1} + \frac{CF_2 * b}{(1+r)^2} + \dots + \frac{CF_n * b}{(1+r)^n} - C_o$$

Where

b = Certainty equivalent co-efficient b = Certain net cash flow / Risky net cash flow r = Risk free rate $C_0 = Initial$ investment $CF_i = Cash$ flow every year

Illustration 11 - The initial investment of a project is Rs. 10,000 the cash flow through 1st, 2nd, 3rd and 4th year is Rs.4,500, Rs. 5700, Rs. 6000, and Rs 6100 respectively. The associated certainty equivalent factors are $\alpha_0 = 1$, $\alpha_1 = 0.90$, $\alpha_2 = 0.70$, $\alpha_3 = 0.50$, $\alpha_4 = 0.40$. Risk free discount rate is 10%. Calculate NPV.

Sol: -

 $NPV = \frac{4500*0.90}{(1.10)^1} + \frac{5700*0.70}{(1.10)^2} + \frac{6000*0.50}{(1.10)^3} + \frac{6100*0.40}{(1.10)^4} - 10,000$ NPV = [3681.8 + 3297.5 + 2253.9 + 1666.5] - 10,000NPV = 10899.7 - 10,000NPV = 899.7

NPV is positive. We will accept the project.

Numerical Problems for Practice

- 1. What is the relationship between the market risk of a security and the rate of return that investors demand of that security?
- 2. Security A has an expected return of 7%, a standard deviation of returns of 35%, a correlation coefficient with the market of -0.3, and a beta coefficient of -1.5. Security B has an expected return of 12%, a standard deviation of returns of 10%, a correlation with the market of 0.7, and a beta coefficient of 1.0. Which security is riskier? Why?
- 3. If a company's beta were to double, would its expected return double? Justify your answer.
- 4. Assume that the risk-free rate is 6% and that the expected return on the market is 13%. What is the required rate of return on a stock that has a beta of 0.7?
- 5. What is the equilibrium price of a share whose
 - a) Beta = 1.5
 - b) Growth rate = 10 %,
 - c) Risk free return = 7%
 - d) Market return is 20%
 - e) Dividend per share is Rs 5
 - The market price of share of Hyundai Ltd and Maruti Ltd. Are Rs 200 and Rs 260 respectively. The total annual expected return under different economic conditions are given below –

Economic	Probability	Hyundai Ltd.	Maruti Ltd.
Conditions		(Expected Return)	(Expected
			Return)
Boom	0.25	20%	15%
Normal	0.45	10%	8%
Recession	0.20	-2.5%	-5%
Depression	0.10	-15%	-20%

Calculate the overall expected return and standard deviation for both the companies?

- 7. Calculate beta of security which has risk free rate of return 7%, Market return 11%, and expected return 14.2%.
- 8. Calculate the expected return from security whose information is given below:

- a) Interest rate at government bonds = 8%
- b) Return from market = 13%
- c) Beta = 0.75
- 9. Calculate the NPV of a project whose initial investment is Rs 4,00,000. The discount rate is 11%. The cash inflow and certainty equivalent factor for the project is given below in the table:

Year	Cash Inflow	Certainty Equivalent Factor
1 st	1,10,000	0.98
2^{nd}	99,000	0.92
3 rd	92,000	0.89
4 th	87,000	0.84
5 th	82,000	0.81

2.15. KNOW YOUR UNDERSTANDING OF CONCEPTS

True or False

- 1. Stocks of small companies have done better than predicted by the CAPM.
- 2. Stocks with high ratios of book value to market price have done better than predicted by the CAPM.
- 3. On average, stock returns have been positively related to beta.
- 4. The market rate of return cannot be an APT factor.
- 5. Each APT factor must have a positive risk premium associated with it; otherwise the model is inconsistent
- 6. The CAPM predicts that a security with a beta of 0 will offer a zero expected return
- 7. Investors demand higher expected rates of return on stocks with more variable rates of return

2.16 QUESTIONS FOR PRACTICE

1. Arts and Crafts, Inc., will pay a dividend of \$5 per share in 1 year. It sells at \$50 a share, and firms in the same industry provide an expected rate of return of 14 percent. What must be the expected growth rate of the company's dividends?

- 2. A stock sells for \$40. The next dividend will be \$4 per share. If the rate of return earned on reinvested funds is 15 percent and the company reinvests 40 percent of earnings in the firm, what must be the discount rate?
- 3. Are stock prices affected more by long-term or short-term performance? Explain?
- 4. Ewald Company's current stock price is \$36, and its last dividend was \$2.40. In view of Ewald's strong financial position and its consequent low risk, its required rate of return is only 12%. If dividends are expected to grow at a constant rate g in the future, and if rs is expected to remain at 12%, then what is Ewald's expected stock price 5 years from now?
- 5. Nick's Enchiladas Incorporated has preferred stock outstanding that pays a dividend of \$5 at the end of each year. The preferred sells for \$50 a share. What is the stock's required rate of return?
- 6. A MNC company had paid dividend at Rs 4per share last year. The growth of the dividend from the company is estimated to be 5% per annum. The required rate of return of the equity investors is 18.5%. What should be estimated market price of the equity share?
- 7. A pharmaceutical company has been growing at a rate of 15% per year currently. The company is expected to grow at this rate for another 3 years after that it is expected to grow at normal rate of 8%. The required rate of return on the shares of the investment in 12%. The dividend paid per share last year was Rs 8. As a financial advisor, suggest what should be the price at which investors should buy the shares of company.
- 8. Two investors are evaluating General Electric's stock for possible purchase. They agree on the expected value of D1 and also on the expected future dividend growth rate. Further, they agree on the risk of the stock. However, one investor normally holds stocks for 2 years and the other normally holds stocks for 10 years. On the basis of the type of analysis done in this chapter, they should both be willing to pay the same price for General Electric's stock. True or false? Explain.
- 9. Explain various factors that affect the value of shares?
- 10. Discuss various factors that affect the return on the share.

MCQs

- 1. If coupon rate is equal to market interest rate then bond will be sold on
 - a) At par
 - b) At discount
 - c) At premium

- 2. Bonds which are offered below its face value is classified as
 - a) Premium bond
 - b) Discount bond
 - c) Coupon issued bond
- 3. Bonds issued by corporations and exposed to default risk are known as
 - a) Corporation bond
 - b) Default bond
 - c) Zero risk bond
- 4. An annual interest payment divided by current price of bond is considered as
 - a) Current yield
 - b) Maturity yield
 - c) Return yield

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SEMESTER II

COURSE: FINANCIAL MANAGEMENT

UNIT 3 – COST OF CAPITAL

STRUCTURE

- 3.1 Concept of cost of capital
- **3.2 Define cost of capital**
- **3.3** Importance of cost of capital
- 3.4 Classification of cost of capital
- 3.5 Computation of cost of capital
- 3.6 Cost of Debt
 - 3.6.1 Debt issued at par
 - 3.6.2 Debt issued at premium or discount
 - 3.6.3 Cost of Redeemable Debt
- **3.7** Cost of Preference capital
 - **3.7.1 Perpetual Preference capital**
 - **3.7.2 Redeemable Preference shares**

3.8 Cost of Equity capital

- 3.8.1 Dividend Yield / Dividend Price Approach
- **3.8.2 Earning Yield Approach**
- **3.8.3 Realised Yield Approach**
- 3.8.4 Capital Asset Pricing Modal
- 3.9 Cost of Retained Earnings
- 3.10 Weighted Average Cost of Capital
- 3.11 Test Your Understanding

3.1 CONCEPT OF COST OF CAPITAL

There is a bulk of finance literature to describe this concept. Numerous studies have shown that Cost of capital is the rate of return that a firm must earn on its project investments to maintain its market value and attract funds. It is the required rate of return on its investments which belongs to equity, debt and retained earnings. If a firm fails to earn a return at the expected rate, the market value of the shares will fall and it will result in a decrease of overall prosperity of the shareholders. Famous theorist, John J. Hampton described cost of capital as "the rate of return the firm required from investment in order to increase the value of the firm in the market place". Solomon Ezra stated that "Cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditure" According to James C. van Horne, Cost of capital is "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". Another theorist, William and Donaldson explained that "Cost of capital may be defined as the rate that must be earned on the net proceeds to provide the cost elements of the burden at the time, they are due".

3.2 DEFINE COST OF CAPITAL

The term cost of capital refers to the minimum rate of return a firm must earn on its investments. This is in consonance with the firm's overall objective of wealth maximisation. Cost of capital is a complex, controversial but significant concept in financial management. The following definitions give clarity about the cost of capital. The cost of capital may be defined as "the rate of return the firm requires from investment in order to increase the value of the firm in the marketplace."

James C. Van Horne: The cost of capital is "a cut-off rate for the allocation of capital to investments of projects. It is the rate of return on a project that will leave unchanged the market price of the stock.

" Solomon Ezra: "Cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditure. " It is clear from the above definitions that the cost of capital is that minimum rate of return which a firm is expected to earn on its investments so that the market value of its shares is maintained.

We can also conclude from the above definitions that there are three basic aspects of the concept of cost of capital:

- Not a cost as such: In fact the cost of capital is not a cost as such, it is the rate of return that a firm requires to earn from its projects.
- It is the minimum rate of return: A firm's cost of capital is that minimum rate of return which will at least maintain the market value of the shares.
- It comprises three components:

ke = r + b + f o,

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where, k = cost of capital;
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ro= return at zero risk level;

b = premium for business risk, which refers to the variability in operating profit (EBIT) due to change in sales.

f = premium for financial risk which is related to the pattern of capital structure.

3.3 IMPORTANCE OF COST OF CAPITAL

- The cost of capital is very important in financial management and plays a crucial role in the following areas:
- Capital budgeting decisions: The cost of capital is used for discounting cash flows under Net Present Value method for evaluating investment proposals. So, it is very useful in capital budgeting decisions.
- Capital structure decisions: An optimal capital structure is that structure at which the value of the firm is maximum and cost of capital is the lowest. So, cost of capital is crucial in designing optimal capital structure.
- Evaluation of Financial Performance: Cost of capital is used to evaluate the financial performance of top management. The actual profitability is compared to the expected and actual cost of capital of funds and if profit is greater than the cost of capital the performance may be said to be satisfactory.
- Other financial decisions: Cost of capital is also useful in making such other financial decisions as dividend policy, capitalisation of profits, making the rights issue, etc.

3.4 Classification of Cost of Capital

There is no fixed base of classification of cost of capital. It varies according to need, process and purpose. It may be classified as follows:

• Explicit Cost and Implicit Cost: Explicit cost of any source of finance is the discount rate which equates the present value of cash inflows with the present value of cash outflows. It is the internal rate of return. Implicit cost also known as the opportunity cost is the cost ·, fthe opportunity foregone in order to take up a particular project. For example, the implicit cost of retained earnings is the earnings of return available to shareholders by investing the funds elsewhere.

- Average Cost and Marginal Cost: The average cost is the weighted average of the costs of each component of funds. After ascertaining costs of each source of capital, appropriate weights are assigned to each component of capital. The marginal cost of capital is the weighted average cost of new funds raised by the firms.
- Future Cost and Historical Cost: In financial decision making, the relevant costs are future costs. Future cost i.e expected cost of funds to finance the projects is ascertained with the help of historical costs.
- Specific Cost and Combined Cost: The costs of individual components of capital are specific costs of capital. The combined cost of capital is the average cost of capital as it is inclusive of cost of capital from all sources. In capital budgeting decisions, combined cost of capital is used for accepting / rejecting the proposals.

3.5 COMPUTATION OF COST OF CAPITAL

There are four basic sources of long-term funds for a business firm:

(i) Long-term Debt and Debentures (ii) Preferences share capital, (iii) Equity share capital, (iv) Retained Earnings. Through all of these sources may not be tapped by the firm for funding its activities, each firm will have some of these sources in its capital structure. The specific cost of each source of funds is the after-tax cost of financing. It can be before-tax, provided the basis is the same for all the sources of finance being considered for calculating the cost of capital. The procedure for determining the costs of debt, preferences and equity capital as well as retained earnings is discussed in the following sub-sections.

3.6 COST OF DEBT

Debt may be perpetual or redeemable debt Moreover, it may be issued at par, at premium or at discount. The computation of cost of debt in each case is explained below.

3.6.1 Debt issued at par: The computation of cost of debt issued at par is comparatively an easy task. It is the explicit interest rate adjusted further for the tax liability of the company. It may be computed according to the following formula:

Kd = (1-T)R

Where,

Kd = Cost of debt;

T = Marginal tax rate;

R = Debenture interest rate.

The tax is deducted out of the interest payable, because interest is treated as an expense while computing the firm's income for tax purposes. However, the tax adjusted rate of interest should be used only in those cases where the "earning of the firm before interest and tax" (EBIT) is equal to or exceed the interest. In case, EBIT is in negative, the cost of debt should be calculated before adjusting the interest rate for tax.

For example, if a company has issued 10% debentures and the tax rate is 50%, the cost of debt will be (1 - .5) 10 = 5%

3.6.2 Debt issued at premium or discount: In case the debentures are issued at premium or discount, the cost of debt should be calculated on the basis of net proceeds realized on account of issue of such debentures or bonds. Such cost may further be adjusted keeping in view the tax applicable to the company. Cost of debt can be calculated according to the following formula:

Kd = I(1-T)/NP

Where,

Kd = Cost of debt after tax.

I = Annual interest payment.

NP = Net proceeds of loans or debentures.

T = Tax rate.

Example

A company issue 10% irredeemable debentures of Rs. 10,000. The company is in 50% tax bracket. Calculate cost of debt capital at par, at 10% discount and at 10% premium.

Solution :

Cost of debt at par = 1000/10,000*(1 - .50)

= 5%

Cost of debt issued at 10% discount =1000/9000 * (1 - .50)

= 5.55%

Cost of debt issued at 10% premium= 1000/11000* (1 - .50)

= 4.55%

3.6.3 Cost of redeemable debts

For computing cost of redeemable debts the period of redemption is considered. The cost of long term debt is the investor's yield to maturity adjusted by the firm's tax rate plus distribution cost. The question of yield to maturity arises only when the loan is taken either at discount or at premium. The formula for cost of debt will be

Cost of Redeemable Debt: Usually the debt is issued to be redeemed after a certain period during the lifetime of the firm. Such a debt issue is known as Redeemable Debt. The cost of Redeemable debt may be computed as:

Before Tax Cost of Debt= $I + 1/n(P-NP) \div 1/2(P+NP)$

I = interest; P = proceeds at par;

NP = net proceeds; n = No. of years in which debt is to be redeemed

ii) After tax cost of debt = Before - tax cost of debt x (1 - t)

Example

A company issues 10,000, 10% Debentures of Rs.10 each and realises Rs.95,000 after allowing 5% commission to brokers. The debentures are redeemed after 10 years. Calculate the effective cost of debt before tax.

Solution:

Before tax cost of debt= $10000+1/10(1,00,000-95,000) \div 1/2(1,00,000+95,000)$

= 10,000+500/97,500 =10.77%

3.7 Cost of Preference Capital

The preference share represents a special type of ownership interest in the firm. Preference shareholders must receive their stated dividends prior to the distribution of any earnings to the equity shareholders. In this respect preference shares are very much like bonds or debentures with fixed interest payment. The cost of preference shares can be estimated by dividing the preference dividend per share by the current price per share, as the dividend can be considered a continuous level payment.

3.7.1 Perpetual preference Capital :

i) If issued at par: Kp = D/P

K = Cost of preference capital p

D = Annual preference dividend

P = Proceeds at par value

ii) If issued at premium or discount:

K=p D/NP Where NP = net proceeds.

Example

XY company issues 2000, 10% preference shares of Rs 100 each at Rs 95 each. Calculate the cost of preference shares.

Solution

Kp = D/P

=(100×10%)÷95

=10.53%

3.7.2 Redeemable preference shares:

It is calculated with the following formula:

Kp=D+(MV-NP)/N÷(MV+NP)/2

Where,

KD = Cost of preference capital

D = Annual preference dividend

MV = Maturity value of preference shares

NP = Net proceeds of preference shares

Example

XY company issues 2000, 10% preference shares of Rs 100 each at Rs 95 each. Calculate the cost of preference shares. And preference dividend is redeemable in 10 years.

 $Kp=D+(MV-NP)/N \div (MV+NP)/2$

- = 10+(100-95)/10+(100+95)/2
- = 10.50/97.50

= 10.77%

3.8 COST OF EQUITY CAPITAL

Cost of equity capital represent the expectations of equity shareholders from a company. Based on investors behaviour and expectations, the cost of equity capital can be determined by any of the following approach



3.8.1. Dividend Yield / Dividend Price Approach:

The approach is based on the thinking that what the investors expect when they put their savings in the company. It means that the investor arrives at the market price for a share by capitalising the expected dividend at a normal rate of return. Though this approach is simple but it suffers from two serious weakness these are

It ignores the earnings on companys retained earnings, which increases the rate of dividend in equity share.

It ignores the fact that price rise of shares may be due to the retained earnings also and not on account of only high rate of dividend.

Ke= Dividend per share/ Market price per share

Example:

A company issues 10,000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute cost of equity capital.

Solution:

Ke = D/NP =20/110 ×100 = 18.18%

3.8.2. Earnings Yield Approach:

The E/P ratio assumes that shareholders capitalise a stream of uncharged earnings by the capitalisation rate of E/P ratio in order to evaluate their holdings. The advocates of this approach, however, differ on the earnings figure and market price.

This approach also has three main limitations

All earnings are not distributed among the shareholders in the form of dividend

Earnings per share cannot be assumed to be constant as this approach emphasis,

Share price does not remain constant because investments in retained earnings result in market price of share

Ke= Earnings per share / Market price per share

Example

XYZ Ltd is planning for an expenditure of Rs, 120 lakhs for its expansion programme. No. of existing

equity shares are 20 lakhs and the market value of equity share is Rs. 60. It has net earnings of Rs. 180 lakhs.

Solution:

Cost of existing equity (K) = EPS/MP EPS = 1,80,00,000 / 20,00,000 = 9 Ke= 9 /60 = 0.15

3.8.3. Realised Yield Approach:

In case where future dividend and the sale price are uncertain, it is very difficult to estimate the rate of return on investment. Under this approach the realised yield is discounted at the present value factor and then compared with the value of an investment.

Yt = Dt + Pt / Pt-1

Where, Yt = yield for the year t

Dt= Dividend per share at the end of the year t

Pt= Price per share at the end of the year t

Pt-1= Price per share at the beginning

3.8.4 Capital Asset Pricing Model:

This method requires three pieces of information to help determine the required rate of return on a stock or how much a stock should earn to justify its risk. The information includes, the risk free rate currently in the economy, the return on the market and the stocks Beta. With these inputs cost of retained earnings is calculated as

Kr = Rf + B(Rm - Rf)

Where,

Rf = risk free rate

B= Beta

Rm = Market rate of return

Rf= risk free rate

3.9 COST OF RETAINED EARNINGS

Cost of retained earnings or reserves are generally taken as the same as cost of equity. This is because if earnings are paid out as a dividend without being retained and simultaneously a light

issue is made, the investors would be subscribing to the issue based on some expected return. This is taken as the indicator of the cost of reserves or retained earnings.

3.10 WEIGHTED AVERAGE COST OF CAPITAL:

It is the average of the costs of various sources of financing. It is also known as composite or overall or average cost of capital.

After computing the cost of individual sources of finance, the weighted average cost of capital is calculated by putting weights in the proportion of the various sources of funds to the total.

Weighted average cost of capital is computed by using either of the following two types ofweights:

1) Market value 2) Book Value

Market value weights are sometimes preferred to the book value weights as the market value represents the true value of the investors. However, market value weights suffer from the following limitations:

i) market values are subject to frequent fluctuations .:

ii) equity capital gets more importance, with the use of market value weights.

Average cost of capital is computed as follows:

 $Kw = \Sigma xw / \Sigma W$

Where,

Kw = weighted average cost of capital

x = cost of specific source of finance

w = weights (proportions of specific sources of finance in the total)

The following steps are involved in the computation of weighted average cost of capital:

i) multiply the cost of each source with the corresponding weight.

ii) add all these weighted costs so that weighted average cost of capital is obtained.

3.11 TEST YOUR UNDERSTANDING

1. How do we evaluate the committed dividend on preference shares that needs to be furnished by the company?
- A. By calculating the value of Kp which is possible through division of the selling price for each preference share. Here, the constant dividend per share acts as the divisor.
- B. Dividing the price for each preference share and then calculating the risk premium.
- C. Evaluating the value of Kp and then adding the economic growth rate.
- D. None of these

Answer. Option (A)

2. Why do we always see that the price of share capital in equity is always more than the overall debt amount?

- A. This is because equity stakes are not readily sellable in the open market.
- B. Equity shares are not meant for providing a constant dividend rate.
- C. Debts are relatively safer than equity stakes.
- D. There is a generalized opinion that equity offers lower face value compared to that debenture on the majority of occasions.

Answer. Option (C)

3. What is meant by the cost of capital of a company?

- A. It is the equity shares of the company that will provide variable rates of dividend over a set period.
- B. It is a metric that is inversely proportional to the overall pile of debts.
- C. It is the return on investment recorded against each fixed asset owned by the company.
- D. Cost of capital of a company is a stat that represents the internal return rates.

Answer. Option (C)

4. Choose the factor(s) that can be internally controlled by a company to govern the cost of capital incurred over its assets.

- A. Capital structure targets
- B. Periodic debt service charges
- C. Policies designed specifically for investors
- D. None of the above options.

Answer. Option (D)

5. Can you point out the statistic that is needless while calculating the price of cashable preference shares?

- A. Costs incurred by the firm while issuing new stocks, also referred to as the floatation costs.
- B. EPS or earnings generated in the form of profit dividend per share.
- C. Cost deduction or discount
- D. Past risk premium amount.

Answer. Option (B)

6. How to describe marginal cost?

- A. Marginal cost can be described as the extra cost incurred due to the upbringing of an additional capital unit.
- B. Marginal cost is the extra capital re-allocations that are sanctioned by the firm for securing funds for successful operations.
- C. Weighted average cost that is intended to improve the financial stability of a brand.
- D. All of the above.

Answer. Option (A)

7. Please identify which of the below-mentioned premium(s) is/are responsible for the gap between the present yield or output of treasury bonds & the estimated ROI on common stock.

- A. Expected premium of the subtracted value obtained through dividend ratio and the difference cited in the long-run growth rate that is assessed for growth portfolios.
- B. Past risk premium it is obtained by subtracting an investor's return estimates upon an equity investment from the risk-free return rates.
- C. Current risk premium
- D. Both options (B) and (C).

Answer. Option (C)

8. When we hear the term 'cost of capital' we reflect this opinion – "Minimum forecasted return on investment that has to be earned". Choose the correct option that justifies this statement.

- A. The statement is false.
- B. It is applicable in some exceptional cases.
- C. It is a universally accepted truth in the field of accountancy.
- D. The statement does not make any sense to the readers.

Answer. Option (C)

- 9. Which of the following statements is not applicable in relation to 'cost of capital'?
 - A. Rates of interest are determined successfully when we know the 'cost of capital.
 - B. Cost of capital forecasts the dividend rates of each investor.
 - C. Cut-off rates can be chalked out by the top-level managers.
 - D. Cost of capital is helpful to some extent in extending the money lending permissions that are required to own capital.

Answer. Option (C)

10. In regards to the cost of capital, please figure out the incorrect proposition from the list given below.

- A. The retained profit margin does not include any of the company's expenditures.
- B. Composite cost is defined as the additional value obtained by summing the price of equity and overall debts.
- C. As per traditional accounting theory, the cost of capital always gets related to the debtequity mix.
- D. none.

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Answer. Option (D)
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- 11. Critically examine the different approaches for computing cost of equity.
- 12.. What is weighted average cost of capital? Explain how it is computed.
- 13. Define the following:
- i) Explicit Cost iii) Average Cost
- ii) Future Cost iv) Marginal Cost

14. Bombay Cotton Mills Limited makes a rights issue at Rs.5 per share of one new share for every four shares held. Before the issue, there were 10 million shares outstanding and the share price was Rs 6. Based on the above information you are required to compute

- a. The total amount of new money raised
- b. How many value of one rights are required to buy one new share?
- c. What is the value of one right?

Solution: a) Right issue price = 5 No of right shares issued =100lakhs x (1/4) = 25 lakh Additional funds raised=25 x 5=125 lakhs b) No of rights required to buy one share=4 rights

c) Value of one right= $[6 - (4 \times 6) + (1 \times 5)] = 0.205$

15 . Assuming that the firm pays tax at 50% rate, compute the after - tax cost of capital in the following

cases:

i) a 8.5% preference share sold at par

ii) a perpetual bond sold at par, coupon rate of interest being 7 per cent

iii) a ten-year 8 per cent, Rs. 1000 per bond sold at Rs. 950 less 4 per cent underwriting commission.

iv) a Preference share sold at Rs. 100 with 9 per cent dividend, redeemable at Rs. 110 in five years.

I v) a common share selling at a current market price of Rs. 120 and paying a current dividend of Rs. 9 per

share which is expected to grow at a rate of 8 per cent.

vi) a common share of a company is selling for Rs. 50. The earnings per share is Rs. 7.50, of which sixty

per cent is paid in dividends. The company reinvests retained earnings at a rate of 10 per cent.

(Hint: growth rate (g) = br; where b = retention ratio and r = return on reinvestment).

[Ans : i) 8.5%; ii) 3.5% iii) 4.36%: iv) 10.5% v) 16.1% vi) 13%]

16. Aries Limited wishes to raise additional finance of Rs10 lacs for meeting its investment plans. It has Rs 2,10,000 in the form of retained earnings available for investment purposes. The following are the further details:

1. Debt/equity mix 30% / 70%

2. Cost of debt upto Rs.1,80,00010% (before tax) beyond 1,80,000 16% (before tax)

3. Earnings per share Rs.4

4. Dividend payout 50% of earnings

- 5. Expected growth rate in dividend 10%
- 6. Current market price per share Rs.44

76

7. Tax rate

You are required to: a) To determine the pattern for raising the additional finance. b) To determine the post-tax average cost of additional debt. c) To determine the cost of retained earnings and cost of equity, and d) Compute the overall weighted average after tax cost of additional finance.

3.12 FURTHER READINGS

•Prasanna Chandra (2011). Financial Management: Theory and Practice, Tata McGraw-Hill Publishing Company Limited, New Delhi, Eighth edition.

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SEMESTER II

COURSE: FINANCIAL MANAGEMENT

UNIT 4 – CAPITAL BUDGETING I

STRUCTURE

- 4.1 Introduction
- 4.2 Meaning
- 4.3 Importance of Capital Budgeting
- 4.4 Process of Capital Budgeting
- 4.5 Need of Capital Budgeting
- 4.6 Significance of Capital Budgeting
- 4.7 Capital Budgeting Decisions
- 4.8 Limitations of Capital Budgeting
- 4.9 Techniques of Capital Budgeting Decisions
- 4.10 Test your understanding

4.1 Introduction

In competitive business environment in order to sustain in the competition organization continuously needs to expand its business to new dimensions. For this it has to go for expansion, replacement and renewal of its capital assets. For this organization needs to deploy long term capital and it has to decide in which of the alternative they should fund. This initiates the concept of capital Budgeting.

One of the most important decisions for a financial manager is investment decision. Investment decision are of two type-

- Short term investment decision
- Long term investment decision.

Capital budgeting is primarily concerned with sizable investments in long-term assets. These assets may be tangible items such as property, plant or equipment or intangible ones such as new technology, patents or trademarks. Investments in processes such as research, design, development and testing – through which new technology and new products are created – may also be viewed as investments in intangible assets.

Irrespective of whether the investments are in tangible or intangible assets, a capital investment project can be distinguished from recurrent expenditures by two features. One is that such projects are significantly large. The other is that they are generally long-lived projects with their benefits or cash flows spreading over many years. Sizable, long-term investments in tangible or intangible assets have long-term consequences. An investment today will determine the firm's strategic position many years hence. These investments also have a considerable impact on the organization's future cash flows and the risk associated with those cash flows. Capital budgeting decisions thus have a long range impact on the firm's performance and they are critical to the firm's success or failure.

4.2 MEANING OF CAPITAL BUDGETING

Capital budgeting decision may be defined as "Firms decisions to invest its current funds most efficiently in long term activities in anticipation of an expected flow of future benefits over a series of year. The firm's capital budgeting decisions will include addition, disposition, modification and replacement of fixed assets".

Definition:

Charles T. Horngrain elaborated that, "Capital Budgeting is long-term planning for making and financing proposed capital outlays."

According to Richards and Greenlaw, "The capital budgeting generally refers to acquiring inputs and long-run returns."

G. C. Philipattos stated that "Capital budgeting is concerned with the allocation of the firm's scarce financial resources among the available market opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project; with the immediate and subsequent stream of expenditures for it."

According to Joel Dean, "Capital Budgeting is a kind of thinking that is necessary to design and carry through the systematic programme for investing stockholders' money. The idea of capital budgeting has an immense importance in project selection as it supports in planning capital required for completing long-term projects. Selection of a project is a major investment decision for an organization.

The capital budgeting process can be successful if company determines the total capital expenditure for a project that is expected to generate returns over a particular period of time. sof return yielded from it. Some of the popular techniques are net present value, internal rate of return, payback period, sensitivity analysis, and decision tree analysis.

4.3 IMPORTANCE OF CAPITAL BUDGETING

- 1. Long term goals: For the growth & prosperity of the business, long-term goals are very important for any organization. Every investment carries risk and uncertainty. And the longer the investment period, the more is the risk and uncertainty. A wrong decision can be disastrous for the long-term survival of the firm. Capital budgeting has had its effect over a long-time span. It also affects companies' future costs & growth. It assists the management in understanding the complications and challenges of long-term proposals.
- 2. Involvement of a Large Number of Funds: Capital Investment requires a large number of funds. As the companies have limited resources, the management has to make wise & correct investment decisions. The wrong decision would harm the sustainability of the business. The large investment includes the purchase of an asset and rebuilding or replacing existing equipment.
- **3. Irreversible Decision:** Capital investment decisions are generally irreversible as they require large funds. It isn't easy to find the market for that asset. The only way remains with the company is to scrap the asset & incur heavy losses. A good project can turn bad if there is no control over the costs.
- 4. Monitoring & Controlling the Expenditure: The capital budget carefully identifies the necessary expenditure and R&D required for an investment project. Since a good project can turn bad if expenditures aren't carefully controlled or monitored, this step is a crucial benefit of capital budgeting.
- **5. Transfer of Information:** The time that project starts off as an idea, it is accepted or rejected; numerous decisions have to be made at various levels of authority. The capital budgeting process facilitates the transfer of information to appropriate decision-makers within a company.
- **6. Difficulties of Investment Decision:** Long-term investment decisions are difficult because it extends several years beyond the current period. Uncertainty indicates a higher

degree of risk. Management loses its flexibility and liquidity of funds in making investment decisions, so it must thoroughly consider each proposal. This is because management has an assurance that capital budgeting will assist them in making better decisions. And these decisions would eventually help to maximize the shareholders' wealth.

7. Maximization of Wealth: Long-term investment decision of the organization helps in safeguarding the interest of the shareholder in the organization. If the organization has invested in a planned manner, the shareholder would also be keen to invest in that organization. This helps in the maximization of the wealth of the organization. Any expansion is fundamentally related to further sales and future profitability of the firm, and asset acquisition decisions are based on capital budgeting.

4.4 PROCESS OF CAPITAL BUDGETING:

In capital budgeting process, main points to be borne in mind how much money will be needed of implementing immediate plans, how much money is available for its completion and how are the available funds going to be assigned to various capital projects under consideration. the financial policy and risk policy of the management should be clear in mind before proceeding to the capital budgeting process. The following procedure may be adopted in preparing capital budget.

- **1. Organization of investment proposal**: The first step in capital budgeting process is the conception of a profit-making idea. The proposals may come from rank and file worker of any department or from any line officer. The department head collects all the proposals and reviews them in the light of financial and risk policies of the organization in or to send them to the capital expenditure planning committee for consideration.
- **2.** Screening of proposals: In large organizations, a capital expenditure planning committee is established for the screening of various proposals received by it from the heads of various departments and the line officers of the company. From the heads of various departments and the line officers of the company the committee screens the various proposals within the long-range policy-frame work of the organization. It is to be ascertained by the committee whether the proposals are within the criterion of the firm, or they do no lead to department imbalances or they are profitable.

- **3. Evaluation of projects**: The next step in capital budgeting process is to evaluate the different proposals in term of the cost of capital the expected returns from alternative investment opportunities and the life of the assets with any of the following evaluation techniques
 - Degree of urgency method (Accounting rate of return method)
 - Pay-back method
 - Discounted cash flow method
- **4. Establishing priorities:** After proper screening of the proposals, uneconomic or unprofitable proposals are dropped. The profitable projects or in other words accepted projects are then put in priority. It facilitates their acquisition or construction according to the sources available and avoids unnecessary and costly delay and serious and cot-overruns. Generally, priority is fixed in the following order.

Current and incomplete projects are given first priority.

- Safety projects and projects necessary to carry on the legislative requirements.
- Projects of maintaining the present efficiency of the firm
- Projects for supplementing the income
- Projects for the expansion of new product.

5. Final approval: - proposals finally recommended by the committee are sent to the top management along with the detailed report, both of the capital expenditure and of the sources of funds to meet them. The management affirms its final seal to proposals taking in view the urgency, profitability of the projects and the available financial resources. Projects are then sent to the budget committee for incorporating them in the capital budget.

6 Evaluation: - Last but not the least important step in capital budgeting process is an evaluation of the program after it has been fully implemented. Budget proposals and the net investment in the projects are compared periodically and on the basis of such evaluation, the budget figures may be reviewer and presented in a more realistic way

4.5 Need of Capital Budgeting Decision

The selection of the most profitable project of capital investment is the key function of Financial Manager. The decisions taken by the management in this area affect the operations

of the firm for many years. Capital budgeting decisions may be generally needed for the following purposes:

a) Expansion; b) Replacement; c) Diversification; d) Buy or lease and e) Research and Development.

- a) Expansion: The firm requires additional funds to invest in fixed assets when it intends to expand the production facilities in view of the increase in demand for their product in near future. Accordingly, the current assets will increase. In case of expansion the existing infrastructure like plant, machinery and other fixed assets is inadequate, to carry out the increased production volume. Thus the firm needs funds for such project. This will include not only expenditure on fixed assets (infrastructure) but also an increase in working capital (current assets).
- **b**) **Replacement**: The machines and equipment used in production may either wear out or may be rendered obsolete due to new technology. The productive capacity and competitive ability of the firm may be adversely affected. The firm needs funds or modernisation of a certain machines or for renovation of the entire plant etc., to make them more efficient and productive. Modernization and renovation will be a substitute for total replacement, where renovation or modernization is not desirable or feasible, funds will be needed for replacement.
- c) Diversification: If the management of the firm decided to diversify its production into other lines by adding a new line to its original line, the process of diversification would require large funds for long-term investment. For example, ITC and Philips company for their diversification.
- d) Buy or Lease: This is a most important decision area in Financial Management whether the firm acquire the desired equipment and building on lease or buy it". If the asset is acquired on lease, there have to be made a series of annual or monthly rental payments. If the asset is purchased, there will be a large initial commitment of funds, but not further payments. The decision making area is which course of action will be better to follow? The costs and benefits of the two alternative methods should be matched and compared to arrive at a conclusion.
- e) Research and Development: The existing production and operations can be improved by the application of new and more sophisticated production and operations management techniques. New technology can be borrowed or developed in the laboratories. There is a

greater need of funds for continuous research and development of new technology for future benefits or returns from such investments.

4.6 SIGNIFICANCE OF CAPITAL BUDGETING

- Capital budgeting is an essential tool in financial management
- Capital budgeting provides a wide scope for financial managers to evaluate different projects in terms of their viability to be taken up for investments
- It helps in exposing the risk and uncertainty of different projects
- It helps in keeping a check on over or under investments
- The management is provided with an effective control on cost of capital expenditure projects
- Ultimately the fate of a business is decided on how optimally the available resources are used

4.7 CAPITAL BUDGETING DECISIONS:

The crux of capital budgeting is profit maximization. There are two ways to it; either increase the revenues or reduce the costs. The increase in revenues can be achieved by expansion of operations by adding a new product line. Reducing costs means representing obsolete return on assets.

Accept / Reject decision – If a proposal is accepted, the firm invests in it and if rejected the firm does not invest. Generally, proposals that yield a rate of return greater than a certain required rate of return or cost of capital are accepted and the others are rejected. All independent projects are accepted. Independent projects that do not compete with one another in such a way that acceptance gives a fair possibility of acceptance of another.

Mutually exclusive project decision – Mutually exclusive projects compete with other projects in such a way that the acceptance of one will exclude the acceptance of the other projects. Only one may be chosen. Mutually exclusive investment decisions gain importance when more than one proposal is acceptable under the accept / reject decision. The acceptance of the best alternative eliminates the other alternatives.

Capital rationing decision – In a situation where the firm has unlimited funds, capital budgeting becomes a very simple process. In that, independent investment proposals yielding a return greater than some predetermined level are accepted. But actual business has a different

picture. They have fixed capital budget with large number of investment proposals competing for it. Capital rationing refers to the situation where the firm has more acceptable investments requiring a greater amount of finance than that is available with the firm. Ranking of the investment project is employed on the basis of some predetermined criterion such as the rate of return. The project with highest return is ranked first and the acceptable projects are ranked thereafter.

4.8 LIMITATIONS OF CAPITAL BUDGETING

- **Irreversible Decisions:** The major limitation with capital budgeting is that the decisions taken through this process are long-term and irreversible in nature. Decisions have an impact on the long-term durability of the company and require the utmost care while taking them. Any wrong capital budgeting decision would have an adverse effect on profitability and continuity of business.
- **Rely On Assumptions and Estimations:** Capital budgeting techniques rely on different assumptions and estimations for analysing investment projects. Annual cash flow and life of project estimated is not always true and may increase or decrease than the anticipated values. Decisions taken on the basis of these untrue estimations may lead businesses to losses.
- **Higher Risk:** Capital budgeting decisions are riskier in nature as it involves a large amount of capital expenditure. These decisions require the utmost care as it affects the success or failure of every business. Any wrong decisions regarding allotment of funds may lead the business to substantial losses or eventually cause a complete shutdown.
- Uncertainty: This process is dependent upon futuristic data which is uncertain for analysing the investment proposals. Capital budgeting anticipates the future cash inflows and outflows of the project for determining its profitability. The future is always uncertain and data may prove untrue which leads to wrong decisions.
- **Ignores Non-Financial Aspects:** Capital budgeting technique considers only financial aspects and ignores all non-financial aspects while analysing the investment plans. Non-financial factors have an efficient role in the success and profitability of the project. The real profitability of the project cannot be determined by ignoring these factors.
- Scope for Manipulation: At times, an experienced manager may deliberately inflate his expenses and try to reduce the revenue targets to be set in the budget. This way, he can easily get an opportunity to get the favourable variances against the budgeted numbers,

that is, by incurring lower costs than budgeted cost and achieving higher revenue than the budgeted revenue. This misleads the stakeholders and demotivates the employees.

4.9 Techniques of Evaluating Capital Investment Proposals

There are numerous appraisal methods which may be suggested to assess the capital investment proposals. Most widely accepted methods are grouped into the following categories:

I. Traditional Methods:

Traditional methods are further divided into the following:

- (1) Pay-back period method or Pay-out method.
- (2) Improvement of Traditional Approach to Pay-back Period Method.
- (a) Post Pay-back profitability Method.
- (b) Discounted Pay-back Period Method.
- (c) Reciprocal Pay-back Period Method.
- (3) Rate of Return Method or Accounting Rate of Return Method.
- II. Time Adjusted Method or Discounted Cash Flow Method

Time Adjusted Method further classified into:

- i. Net Present Value Method.
- ii. Internal Rate of Return Method.
- iii. Profitability Index Method.

Some selection rules for both methods are as follows:

Non-discounting Criteria	Accept	Reject
Payback Period (PBP)	PBP < Target period	PBP > Target period

Accounting Rate of Return (ARR)	ARR > Target Rate	ARR < Target Rate
Non-discounting Criteria	Accept	Reject
Net Present Value (NPV)	NPV > 0	NPV < 0
Internal Rate of Return (IRR)	IRR > Cost of capital	IRR < Cost of capital
Benefit- Cost Ratio (BCR)	BCR > 1	BCR < 1

4.10 TEST YOUR UNDERSTANDING

Q:1 Capital planning is the interaction –

- A. embraced to investigate how to make accessible extra money to the business.
- B. By which the firm chooses how much cash flow to put resources into business
- C. by which the firm concludes which long-haul ventures to make.
- D. This helps make an ace financial plan for the association.

Answer: (C) by which the firm concludes which long-haul ventures to make.

Q:2 The choice to acknowledge or dismiss a capital planning project relies upon -

- A. An investigation of the incomes produced by the venture
- B. Cost of capital puts resources into business/project.
- C. Both (A) and (B)
- D. Neither (A) nor (B)

Answer: (C) Both (A) and (B).

Q:3 Capital budgeting choices are dissected with the assistance of weighted normal and for this reason –

- A. Asset valuation is utilised
- B. Cost of capital is utilised

- C. The common stock worth is utilised
- D. Component cost is utilised

Answer: B. Cost of capital is utilised.

Q:4 What is the distinction between economic profit and accounting profit?

- A. Accounting profit depends on current acknowledged bookkeeping rules, while economic profit depends on income.
- B. Economic profit covers the benefit of the firm's existence, while accounting profit covers the latest accounting time frame.
- C. Economic benefit incorporates a charge for all suppliers of capital, while accounting profit incorporates just a charge for the obligation.
- D. Accounting profit depends on current acknowledged bookkeeping rules, while economic profit depends on income.
- E. All of the above are right.

Answer: Economic profit incorporates a charge for all suppliers of capital, while accounting profit incorporates just a charge for the obligation.

Q:5 The investment proposition with the best relative risk would have:

- A. Highest coefficient of variety of net present worth.
- B. The highest standard deviation of net present worth.
- C. Lowest open-door misfortune.
- D. Highest anticipated worth of net present worth.

Answer: A. Highest coefficient of variety of net present worth.

Q:6Which of the following is not true about Capital Budgeting?

- A. Capital Budgeting decisions have an influence on the future stability of an organization.
- B. Capital Budgeting decisions include investments to expand the business
- C. Capital Budgeting decisions are of an irreversible nature
- D. Sunk cost is a part of Capital Budgeting

Answer: D Sunk cost is a part of Capital Budgeting

Q:7_____ is a project whose cash flows are not affected by the acceptance or rejection of other projects.

A. Risk-free project

- B. Low-cost project
- C. Independent project
- D. None of the above

Answer: C Independent project

Q:8 Which of the following would be the best example of a capital budgeting decision?

- A. Purchasing new machinery to replace an existing one
- B. Transferring money to your creditor's account
- C. Payment of electricity bill for your factory
- D. None of the above

Answer: A Purchasing new machinery to replace an existing one

Q:9 Which of the following decisions affects the size of assets, the profitability and competitiveness of a firm?

- A. Dividend decision
- B. Working capital decision
- C. Capital Budgeting decision
- D. None of the above

Answer: C Capital Budgeting decision

Q:10Which of the following is not incorporated within the capital budgeting decision for a company?

- A. The rate of cash discount
- B. Time value of money
- C. The required rate of return
- D. None of the above

Answer: A The rate of cash discount

Fill in the Blanks

1. Capital budgeting decision are based on _____. (a)Incremental profit, b) incremental capital, c) incremental cash flows)

Ans (c)

2. Capital budgeting deals with _____. (a)Long term decision, b) short term decisions, c) both)

Ans (a)

3._____ cost is not relevant cost in capital budgeting (a) Opportunity b) Sunk cost c) real cost) Ans (b)

4._____ cost is relevant cost in capital budgeting (a) Opportunity b) Sunk cost c) real cost) Ans (a)

5. _____not used in capital budgeting (a) NPV, b) time value of money c) Sensitivity analysis)

Ans (c)

SELF-EXAMINATION QUESTIONS

- 1. What do you mean by Capital Budgeting? Explain its importance.
- 2. Discuss the importance of capital budgeting process for a corporate house.

FURTHER READINGS

- Prasanna Chandra (2011). Financial Management: Theory and Practice, Tata McGraw-Hill Publishing Company Limited, New Delhi, Eighth edition.
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SEMESTER II

COURSE: FINANCIAL MANAGEMENT

Unit 4A – Capital Budgeting II

STRUCTURE

4A.1 Introduction

4A.2 Capital budgeting techniques under certainty

- 4A.2.1 Non-Discounted Cash Flow Criteria
 - (a) Pay Back Period (PBP)
 - (b) Accounting (or) Average rate of return method (ARR)
- 4A.2.2 Discounted Cash Flow Criteria
 - A. Net present value method (NPV)
 - **B.** Internal Rate of Return Method (IRR)
 - C. Probability Index Method (PI)

4A.3. Comparison of NPV and IRR:

4A.4 Test your understanding

4A.1 INTRODUCTION

Any investment decision depends upon the decision rule that is applied under circumstances. However, the decision rule itself considers the following inputs. The effectiveness of the decision rule depends on how these three factors have been properly assessed. Estimation of cash flows requires immense understanding of the project before it is implemented; particularly macro and micro view of the economy, polity and the company. Project life is very important, otherwise it will change the entire perspective of the project. So great care is required to be observed for estimating the project life. Cost of capital is being considered as discounting factor which has undergone a change over the years. Cost of capital has different connotations in different economic philosophies. Particularly, India has undergone a change in its economic ideology from a closed- economy to open-economy. Hence the determination of cost of capital would carry greatest impact on the investment evaluation. This chapter is focusing on various techniques available for evaluating capital budgeting projects. I shall discuss all investment evaluation criteria from its economic viability point of view and how it can help in maximizing shareholders' wealth. We shall also look for the following general virtues in each technique.

1. It should consider all cash flows to determine the true profitability of the project.

- 2. It should provide for an objective and unambiguous way of separating good projects from bad projects.
- 3. It should help ranking of projects according to its true profitability.
- 4. It should recognize the fact that bigger cash flows are preferable to smaller ones and early cash flows are preferable to later ones.
- 5. It should help to choose among mutually exclusive projects that project which maximizes the shareholders' wealth.
- 6. It should be a criterion which is applicable to any conceivable investment project independent of others.

A number of capital budgeting techniques are used in practice. They may be grouped in the following two categories: -

- I. Capital budgeting techniques under certainty; and
- II. Capital budgeting techniques under uncertainty

4A.2 CAPITAL BUDGETING TECHNIQUES UNDER CERTAINTY

Capital budgeting techniques (Investment appraisal criteria) under certainty can also be divided into the following two groups:

4A.2.1 Non-Discounted Cash Flow Criteria: -

- (a) Pay Back Period (PBP)
- (b) Accounting Rate of Return (ARR)

4A.2.2 Discounted Cash Flow Criteria: -

- (a) Net Present Value (NPV)
- (b) Internal Rate of Return (IRR)

(c) Profitability Index (PI)

4A.2.1Non-Discounted Cash Flow Criteria:

These are also known as traditional techniques:

(a) Pay Back Period (PBP):

These methods are based on the principles to determine the desirability of an investment project on the basis of its useful life and expected returns. These methods depend upon the accounting information available from the books of accounts of the company. These will not take into account the concept of 'time value of money', which is a significant factor to determine the desirability of a project in terms of present value.

Pay-back period method is the most popular and widely recognized traditional method of evaluating the investment proposals. It can be defined, as 'the number of years required to recover the original cash out lay invested in a project

According to Weston & Brigham, "The payback period is the number of years it takes the firm to recover its original investment by net returns before depreciation, but after taxes".

According to James. C. Vanhorne, "The payback period is the number of years required to recover initial cash investment.

Payback period = *cash outlay* (*OR*)*Original cost of project /annual cash inflo*w

Merits:

1. It is one of the earliest methods of evaluating the investment projects.

- 2. It is simple to understand and to compute.
- 3. It dose not involve any cost for computation of the payback period
- 4. It is one of the widely used methods in small scale industry sector
- 5. It can be computed on the basis of accounting information available from the books.

Demerits

1. This method fails to take into account the cash flows received by the company after the payback period.

2. It doesn't take into account the interest factor involved in an investment outlay.

3. It doesn't take into account the interest factor involved in an investment outlay

4. It is not consistent with the objective of maximizing the market value of the company's share.

5. It fails to consider the pattern of cash inflows i. e., the magnitude and timing of cash inflows.

Example

if an investment of Rs. 100000 in a machine is expected to generate cash inflow of Rs. 20,000 p.a. for 10 years.

Its PBP will be calculated using following formula:

PBP= Initial Investment /Constant Annual Cash inflow

100000/20000=5 years

Example

A firm requires an initial cash outflow of Rs. 20,000 and the annual cash inflows for 5 years are Rs. 6000, Rs. 8000, Rs. 5000, Rs. 4000 and Rs. 4000 respectively. Calculate PBP. Here, When we cumulate the cash flows for the first three years, Rs. 19,000 is recovered. In the fourth year Rs. 4000 cash flow is generated by the project but we need to recover only Rs. 12 months = 3×1000 so the time required recovering Rs. 1000 will be (Rs.1000/Rs.4000) months. Thus, the PBP is 3 years and 3 months (3.25 years).

Decision Rule:

The PBP can be used as a decision criterion to select investment proposal.

- If the PBP is less than the maximum acceptable payback period, accept the project.
- If the PBP is greater than the maximum acceptable payback period, reject the project.

This technique can be used to compare actual pay back with a standard pay back set up by the management in terms of the maximum period during which the initial investment must be recovered. The standard PBP is determined by management subjectively on the basis of a number of factors such as the type of project, the perceived risk of the project etc. PBP can be even used for ranking mutually exclusive projects. The projects may be ranked according to the length of PBP and the project with the shortest PBP will be selected.

B. Accounting (or) Average rate of return method (ARR):

It is an accounting method, which uses the accounting information repeated by the financial statements to measure the probability of an investment proposal. It can be determined by

dividing the average income after taxes by the average investment i.e., the average book value after depreciation.

According to 'Soloman', accounting rate of return on an investment can be calculated as the ratio of accounting net income to the initial investment, i.e.,

$ARR=\textit{Average net income after taxes/ average investment} \times 100$

Average income after taxes= Total income after taxes/ no. of year

Average investment =*total investment*/ 2

On the basis of this method, the company can select all those projects who's ARR is higher than the minimum rate established by the company. It can reject the projects with an ARR lower than the expected rate of return. This method can also help the management to rank the proposal on the basis of ARR. A highest rank will be given to a project with highest ARR, where as a lowest rank to a project with lowest ARR.

Example

A project requires an investment of Rs. 10,00,000. The plant & machinery required under the project will have a scrap value of Rs. 80,000 at the end of its useful life of 5 years. The profits after tax and depreciation are estimated to be as follows:

Year	1	2	3	4	5
PAT (Rs)	50000	75000	125000	130000	80000

We shall calculate ARR using above formula.

 $ARR = (50000 + 75000 + 125000 + 130000 + 80000) \div 5/(10,00,000 + 80,000) \div 2 = 17.04\%$

Decision Rule:

The ARR can be used as a decision criterion to select investment proposal.

- If the ARR is higher than the minimum rate established by the management, accept the project.
- If the ARR is less than the minimum rate established by the management, reject the project.

The ranking method can also be used to select or reject the proposal using ARR. It will rank a project number one if it has highest ARR and lowest rank would be given to the project with lowest ARR

Merits

1. It is very simple to understand and calculate.

- 2. It can be readily computed with the help of the available accounting data.
- 3. It uses the entire stream of earning to calculate the ARR.

Demerits:

- 1. It is not based on cash flows generated by a project.
- 2. This method does not consider the objective of wealth maximization
- 3. IT ignores the length of the project's useful life.
- 4. It does not take into account the fact that the profits can be re-invested

4A.2.2 Discounted cash flow methods:

The traditional method does not take into consideration the time value of money. They give equal weight age to the present and future flow of incomes. The DCF methods are based on the concept that a rupee earned today is more worth than a rupee earned tomorrow. These methods take into consideration the profitability and also time value of money

A. Net present value method (NPV)

The NPV takes into consideration the time value of money. The cash flows of different years and valued differently and made comparable in terms of present values for these the net cash inflows of various period are discounted using required rate of return which is predetermined.

According to Ezra Solomon, "It is a present value of future returns, discounted at the required rate of return minus the present value of the cost of the investment."

NPV is the difference between the present value of cash inflows of a project and the initial cost of the project.

According the NPV technique, only one project will be selected whose NPV is positive or above zero. If a project(s) NPV is less than 'Zero'. It gives negative NPV hence. It must be

rejected. If there are more than one project with positive NPV's the project is selected whose NPV is the highest. The formula for NPV is NPV= Present value of cash inflows – investment.

NPV= c1/1+k+c2/(1+k)+c3/(1+k)+cn/(1+K)

Co- investment

C1, C2, C3... Cn= cash inflows in different years.

K= Cost of the Capital (or) Discounting rate

D= Years.

Example

Calculate NPV for a Project X initially costing Rs. 250000. It has 10% cost of capital. It generates following cash flows:

Year	Cash flow	PV @10%	
1	90000	0.909	81810
2	80000	0.826	66080
3	70000	0.75	52570
4	60000	0.683	40980
5	50000	0.621	31050
		PV	272490
	Less	NCO	250000
		NPV (Rs)	22490

As the project has positive NPV, i.e. present value of cash inflows is greater than the cash outlays, it should be accepted.

Decision Rule:

The present value method can be used as an accept-reject criterion. The present value of the future cash streams or inflows would be compared with present value of outlays. The present value outlays are the same as the initial investment.

If the NPV is greater than 0, accept the project.

If the NPV is less than 0, reject the project.

Symbolically, accept-reject criterion can be shown as below: $PV > C \rightarrow$

Accept [NPV > 0]

 $PV < C \rightarrow Reject [NPV < 0]$

Where, PV is present value of inflows and C is the outlays

This method can be used to select between mutually exclusive projects also. Using NPV the project with the highest positive NPV would be ranked first and that project would be selected. The market value of the firm's share would increase if projects with positive NPVs are accepted.

Merits:

1. It recognizes the time value of money.

2. It is based on the entire cash flows generated during the useful life of the asset

3. It is consistent with the objective of maximization of wealth of the owners.

4. The ranking of projects is independent of the discount rate used for determining the present value.

Demerits:

1. It is different to understand and use.

2. The NPV is calculated by using the cost of capital as a discount rate. But the concept of cost of capital. If self is difficult to understood and determine.

3. It does not give solutions when the comparable projects are involved in different amounts of investment.

4. It does not give correct answer to a question whether alternative projects or limited funds are available with unequal lines.

Use:

NPV is very much in use capital budgeting practice being a true profitability measure

B. Internal Rate of Return Method (IRR)

This technique is also known as yield on investment, marginal productivity of capital, marginal efficiency of capital, rate of return, and time-adjusted rate of return and so on. It also considers the time value of money by discounting the cash flow streams, like NPV. While computing the

required rate of return and finding out present value of cash flows-inflows as well as outflows are considered. But the IRR depends entirely on the initial outlay and the cash proceeds of the projects which are being evaluated for acceptance or rejection. It is, therefore, appropriately referred to as internal rate of return. The IRR is usually the rate of return that a project earns.

The internal rate of return (IRR) is the discount rate that equates the NPV of an investment opportunity with Rs.0 (because the present value of cash inflows equals the initial investment). It is the compound annual rate of return that the firm will earn if it invests in the project and receives the given cash inflows.1

IRR= L+ *P*1–*Q*/*P*1–*p*2 × *D*

L-Lower discount rate

P1 - Present value of cash inflows at lower rate.

P2 - Present value of cash inflows at higher rate.

Q- Actual investment D- Difference in Discount rates.

Decision Rule:

When IRR is used to make accept-reject decisions, the decision criteria are as follows:

If the IRR is greater than the cost of capital, accept the project. (r>k)

If the IRR is less than the cost of capital, reject the project. (r < k)

Merits:

1. It consider the time value of money

2. It takes into account the cash flows over the entire useful life of the asset.

3. It has a psychological appear to the user because when the highest rate of return projects is selected, it satisfies the investors in terms of the rate of return an capital

4. It always suggests accepting to projects with maximum rate of return.

5. It is inconformity with the firm's objective of maximum owner's welfare.

Demerits:

1. It is very difficult to understand and use.

2. It involves a very complicated computational work.

3. It may not give unique answer in all situations.

C. Probability Index Method (PI)

Profitability Index (PI) or Benefit-cost ratio (B/C) is similar to the NPV approach. PI approach measures the present value of returns per rupee invested. It is observed in shortcoming of NPV that, being an absolute measure, it is not a reliable method to evaluate projects requiring different initial investments. The PI method provides solution to this kind of problem.

It is a relative measure and can be defined as the ratio which is obtained by dividing the present value of future cash inflows by the present value of cash outlays.

Probability Index = **Present value of future** /cash inflow investment

Decision Rule:

Using the PI ratio,

Accept the project when PI>1

Reject the 1<project when PI

May or may not accept when PI=1, the firm is indifferent to the project.

Merits:

1. It requires less computational work then IRR method

2. It helps to accept / reject investment proposal on the basis of value of the index.

3. It is useful to rank the proposals on the basis of the highest/lowest value of the index.

4. It is useful to tank the proposals on the basis of the highest/lowest value of the index.

5. It takes into consideration the entire stream of cash flows generated during the useful life of the asset.

Demerits:

1. It is somewhat difficult to understand

2. Some people may feel no limitation for index number due to several limitations involved in their competitions

3. It is very difficult to understand the analytical part of the decision on the basis of probability index.

4A.3. COMPARISON OF NPV AND IRR:

On a purely theoretical basis, NPV is the better approach because:

- NPV measures how much wealth a project creates (or loses if the NPV is negative) for its shareholders.
- Certain mathematical properties may provide a project to have multiple¬ IRRs—more than one IRR resulting from a capital budgeting project with a nonconventional cash flow pattern; the maximum number of IRRs for a project is equal to the number of sign changes in its cash flows.

Though NPV method is theoretically superiority to IRR method, however, financial managers prefer to use the IRR approach as often as the NPV method because of the preference to know the rates of return.

4A.4 TEST YOUR UNDERSTANDING

Fill in the blanks

1. Traditional methods of appraising capital expenditure proposals include ______ method and ______.

Answer: Payback Period and Average Rate of Return

2. _____ method does not take in to consideration the entire operating life of the project.

Answer: Payback Method

3. The ______ method satisfies all the attributes of a good measure of appraisal as it considers total benefits and timing of benefits.

Answer: Discounted cash flow

4. The ______ of a project is the sum of the present values of all the cash flows of the project.

Answer: Net Present Value

5. ______ is the discount rate that equates the present values of cash inflows with the initial investment associated with a project.

Answer: Internal rate of Return

6. _____ method of capital budgeting is most useful for the selection of mutually exclusive projects.

Answer: Discounted Cash flow

Answer: Accounting Profit

8. _____ is calculated by dividing average annual profit after tax by average investment and multiplying by hundred.

Answer: Average Rate of Return

9. _____ considers the exact amount of time required for a firm to recover its initial investment in a project as calculated from cash flows

Answer: Pay back Method

10. The main feature of Discounted Cash Flow method is that it takes into consideration the ______ value of money.

Answer: Time

State True or False

- 1. Investment criteria fall into two categories; discounting criteria and non-discounting criteria.
- 2. A project is worthwhile if its NPV is greater than zero.
- 3. The IRR of a project is the discount rate which makes its NPV equal to zero.
- 4. The payback period is the length of time required to recover the initial outlay on the project.

5. The accounting rate of return is the ratio between average profit and average book value of the investment.

6. NPV method is the best method of evaluating long term investment proposals.

7. Two mutually exclusive projects -X & Y have been evaluated. Project X has an NPV of `8 lakh and IRR of 16%. Project Y has NPV `7 lakh but IRR 18%. In this case project X should be selected.

8. In the case of Independent Investment Proposals, IRR and NPV method provides the same result.

9. If the NPV is negative, it shows that the project is not financially viable.

10. For capital budgeting the data regarding cash flows must be after tax.

Answers: All statements are true

Exercise

- 1. What is Capital Budgeting?
- Precision instruments is considering two mutually exclusive Projects X and Y. The following details are made available to you: (Rs Lakhs)

Particulars	Project X	ProjectY
Project Cost	700	700
Cash Inflow :Year1	100	400
Year2	200	400
Year3	300	200
Year4	450	100
Year5	600	100
Total	1650	1300

Assume no residual values at the end of the fifth year. The firm's cost of capital is 10%. Required, in respect of each of the two projects: i) Net present value, using 10% discounting, ii) Internal rate of return iii) profitability Index.

Answer:

		Project X	Project Y
i.)	NPV	46.35 lakhs	365.5 lakhs
ii.)	IRR	27.21%	37.633%
iii.)	PI	1.659	1.522

3. XYZ Ltd. has decided to diversity its production and wants to invest its surplus funds on the most profitable project. It has under consideration only two projects. 'A' and 'B'. The cost of project 'A' is `100 lakhs and that of 'B' is `150 lakhs. Both projects are expected to have a life of 8 years only and at the end of this period 'A' will have a salvage value of `4 lakhs and 'B' `14 lakhs. The running expenses of 'A' will be `35 lakhs per year and that of 'B' `20 lakhs per year. In either case the company expects a rate of return of 10%. The company's tax rate is 50%. Depreciation is charged on straight line basis. Which project should the company take up? Note: Present value of annuity of Re. 1 for eight years at 10% is 5.335 and present value of Re.1 received at the end of the eighth year is 0.467.

Answer: NPV of Project A = 19.238 lakhs; Project B = 27.258 lakhs

- 4. What are the techniques of Capital Budgeting?
- 5. Indo Plastics Ltd. is a manufacturer of high-quality plastic products, Rasik, President, is considering computerizing the company's ordering, inventory and billing procedures. He estimates that the annual savings from computerization include a reduction of 4 clerical employees with annual salaries of ` 50,000 each, ` 30,000 from reduced production delays caused by raw materials inventory problems ` 25,000 from lost sales due to inventory stock outs and ` 18,000 associated with timely billing procedures. The purchase price of the system is ` 2,50,000 and installation costs are ` 50,000. These outlays will be capitalized (depreciated) on a straight-line basis to a zero books salvage value which is also its market annual salaries of ` 80,000 per person. Also, annual maintenance and operating (cash) expenses of ` 22,000 are estimated to be required. The company's tax rate is 40% and its required rate of return (cost of capital) for this project is 12%.

You are required to:

i) Evaluate the project using NPV method.

- ii) Evaluate the project using PI method
- iii) Calculate the Project's payback period.
- Note:

a) Present value of annuity of Re. 1 at 12% rate of discount for 5 years is 3.605

b) Present value of Re.1 at 12% rate of discount, received at the end of 5 years is 0.567.

Answe: i) NPV = (16,647) ii) PI = 0.945 iii) Payback period = 3 years 9.8 month

FURTHER READINGS

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 5: SOURCES OF LONG-TERM FINANCE

STRUCTURE

- **5.1 Introduction**
- **5.2 Types of Long-Term Financing**
- **5.3 Different Sources of Long-Term Finance**
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 - c. Industrial Development Bank of India (IDBI)
 - d. Industrial Investment Bank of India (IIBI)
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 - h. Other Financial Institutions
 - (i) Life Insurance Corporation of India (LIC)
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 - (iv) Export and Import Bank of India (EXIM Bank)
 - (v) Venture Capital Institutions
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(vii) NON-BANKING FINANCIAL COMPANIES (NBFCS)

5.4 Mutual Funds

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- **5.6 Foreign Sources**
 - a. External Commercial Borrowings
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 - d. Non-resident Indians (NRIs):
- **5.7 Retained Earnings**
- 5.8 Let's Sum Up
- 5.9 Test your knowledge

5.1 INTRODUCTION

Business is concerned with the production and distribution of goods and services for the satisfaction of needs of society. For carrying out various activities, business requires money. Finance, therefore, is called the life blood of any business. The requirements of funds by business to carry out its various activities is called business finance.

A business cannot function unless sufficient funds are made available to it. The initial capital funded by the entrepreneur is not always sufficient to take care of all financial requirements of the business. A business person, therefore, has to look for different other sources from where the need for funds can be met. A clear assessment of the financial needs and the identification of various sources of finance, therefore, is an important aspect of running a business organisation.

The need for funds arises from the stage when an entrepreneur makes a decision to start a business. Some funds are needed immediately say for the purchase of plant and machinery, furniture, and other fixed assets. Similarly, some funds are required for day-to-day operations, say to purchase raw materials, pay salaries to employees, etc. Also, when the business expands, it needs funds.

The financial needs of a business can be categorised as follows:

- (a) Fixed capital requirements
- (b) Working capital requirements

Sources of finance for business are equity, debt, debentures, retained earnings, term loans, working capital loans, letter of credit, euro issue, venture funding, etc. These sources of funds are used in different situations. They are categorized on time period, ownership and control, and their source of generation. It is ideal to assess each source of capital before opting for it. Sources of capital are the most explorable area, especially for the entrepreneurs who are about to start a new business. It is perhaps the most challenging part of all the efforts. There are various capital sources we can classify on the basis of different parameters. Knowing that there are many substitutes to finance or capital a company can choose from. Choosing the right source and the right mix of finance is a crucial challenge for every finance manager. Selecting the right source of finance involves an in-depth analysis of each source of fund. For analysing and comparing the sources, it needs an understanding of all the characteristics of the financing sources. There are many characteristics on the basis of which sources of finance are classified. On the basis of a time period, sources are classified as long-term, medium-term, and shortterm. Ownership and control classify sources of finance into owned and borrowed capital. Internal sources and external sources are the two sources of generation of capital. All the sources have different features to suit different types of requirements. Let's recognize them in a bit of depth.


Figure No 1

5.2 TYPES OF LONG-TERM FINANCING:

In case of proprietary and partnership concerns, the funds may be raised either from personal sources or borrowings from banks, friends etc. In case of company form of organisation, the different sources of business finance are categorised below.

According to Time Period: Sources of financing in a business are categorized on the time period for which the money is required. The time period is commonly categorized into the following three:

LONG TERM SOURCES OF FINANCE / FUNDS	MEDIUM TERM SOURCES OF FINANCE / FUNDS	SHORT TERM SOURCES OF FINANCE / FUNDS
Share Capital or Equity Shares	Preference Capital or Preference Shares	Trade Credit
Preference Capital or Preference Shares	Debenture / Bonds	Factoring Services
Retained Earnings or Internal Accruals	Lease Finance	Bill Discounting etc.
Debenture / Bonds	Hire Purchase Finance	Advances received from customers
Term Loans from Financial Institutes, Government, and Commercial Banks	Medium Term Loans from Financial Institutes, Government, and Commercial Banks	Short Term Loans like Working Capital Loans from Commercial Banks
Venture Funding		Fixed Deposits (<1 Year)
Asset Securitization		Receivables and Payables
International Financing by way of Euro Issues, Euro Equity, Foreign Currency Loans, ADR, GDR etc.		



5.3 DIFFERENT SOURCES OF LONG-TERM FINANCE

The sources of long-term finance refer to the organizations or agencies from, or through which finance for a long period can be attained. As stated earlier, in case of sole proprietary concerns and partnership firms, long-term funds are generally provided by the owners themselves and by the retained profits. But, in case of companies whose financial requirement is slightly large, the following are the sources from, or through which long-term funds are raised. (a) Capital Market (b) Special Financial Institutions (c) Mutual Funds (d) Leasing Companies (e) Foreign Sources (f) Retained Earnings.

5.3.1 CAPITAL MARKET

Capital market refers to the organisation and the mechanism through which the companies, other institutions and the government raise long-term funds. So, it establishes that all long-term borrowings from banks and financial institutions, borrowings from foreign markets and raising of capital by issuing various securities such as shares debentures, bonds, etc. For trading of securities there are two different segments in capital market. One is primary market and the other is, secondary market. The primary market deals with new/fresh issue of securities and is, therefore, known as new issue market. The secondary market on the other hand, provides a place for purchase and sale of existing securities and is known as stock market or stock exchange. The new issue market primarily consists of the arrangements, which facilitate the obtaining of long-term finance by the companies in the form of shares, debentures and bonds. The companies generally issue those securities at the initial stages of their formation and so also later on for development and/or innovation of their activities. However, the selling of securities is not an easy task, as the companies have to fulfil various legal requirements and decide upon the suitable timing and the method of issue. Hence, they seek assistance of various intermediaries such as merchant bankers, underwriters, stock brokers etc. to look after all these aspects. All these intermediaries form an integral part of the primary market. The secondary market (stock exchange) is an association or organisation or a body of individuals established for the purpose of assisting, regulating and controlling the business of buying, selling and dealing in securities. It may be noted that it is called a secondary market because only the securities already issued can be traded on the floor of the stock exchange. This market is open only to its members, most of whom are brokers acting as agents of the buyers and sellers of securities. The main functions of this market lie in providing liquidity (ready encashment) to securities and safety in dealings. It is because of the accessibility of such facilities that people are prepared to invest in securities.

5.3.2 SPECIAL FINANCIAL INSTITUTIONS (SFI)

A number of special financial institutions have been set up by the Central and State Governments to provide long-term finance to the business organisations. They also offer support services in launching of the new enterprises and so also for development and modernisation of existing enterprises. Some of the important ones are Industrial Finance Corporation of India (IFCI), Industrial Investment Bank of India (IIBI), Industrial Credit and Investment Corporation of India (ICICI), Industrial Development Bank of India (IDBI), Infrastructure Development Finance Company Ltd. (IDFC), Small Industries Development Bank of India (SIDBI), State Industrial Development Corporations (SIDCs), and State Financial Corporations (SFCs), etc. Since these institutions provide developmental finance, they are also known as **Development Banks** or **Development Financial Institutions (DFI)**. Besides these development banks there are a few other financial institutions such as life Insurance Corporation of India (LIC), General Insurance Corporation of India (GIC) and Unit Trust of India (UTI) which provide long-term finance to companies and subscribe to their share and debentures. The main functions of these institutions are:

- i. To grant loans for a longer period to industrial establishment;
- ii. To help the establishment of business units that require large amount of funds and have long gestation period;
- iii. To provide support for the speedy development of the economy in general and backward sections in particular;
- iv. To offer specialized services operating in the areas of promotion, project assistance, technical assistance services and training and development of entrepreneurs and
- v. To provide technical and professional management services and help in identification, evaluation and execution of new projects. Let us have a brief idea about some of the Special Financial Institutions.

a. Industrial Finance Corporation of India (IFCI): It is the oldest SFI set up in 1948 with the primary objective of providing long-term and medium-term finance to large industrial enterprises. It provides financial assistance for setting up of new industrial enterprises and for expansion or diversification of activities. It also provides support to modernisation and renovation of plant and equipment in existing industrial units. It can grant loan or subscribe to debentures issued by companies repayable in not more than 25 years. It can also guarantee loans raised from other sources or debentures issued to the public, and take up underwriting of the public issue of shares and debentures by companies. For ensuring greater flexibility to meet the needs of the changing financial system IFCI now stands transformed to IFCI Ltd. with effect from 1 June 1993.

b. Industrial Credit and Investment Corporation of India (ICICI): It was set pup in 1955 for providing long-term loans to companies for a period upto 15 years and subscribe to their shares and debentures. However, the proprietary and partnership firms were also entitled to secure loans from ICICI. Like IFCI, the ICICI also assurances loans raised by companies from other sources besides underwriting their issue of shares and debentures. Foreign currency loans can also be secured by companies from ICICI. In the context of the emerging competitive

scenario in the finance sector, ICICI has merged with ICICI Bank Ltd., with effect from 3 May 2002. Consequent upon the merger, the ICICI group's financing and banking operations have been integrated into a single full-service banking company.

c. Industrial Development Bank of India (IDBI): It was set up in 1964 as a subsidiary of Reserve Bank of India for providing financial assistance to all types of industrial enterprises without any restriction on the type of finance and the amount of funds. It could also refinance loans granted by other financial institutions and offer guarantees for the loans raised from the capital market or scheduled banks. It also discounts and rediscounts the commercial bills of exchange and undertakes underwriting of the public issues. IDBI, like ICICI, has also transformed into a commercial bank and has been retitled as IDBI Ltd. with effect from 1 October 2004 with IDBI Bank merged into it.

d. Industrial Investment Bank of India (IIBI): The erstwhile Industrial Reconstruction Bank of India (IRBI), an institution which was set up for rehabilitation of small units has been reconstituted in 1997 as Industrial Investment Bank of India. It is a full-fledged all-purpose development bank with adequate operational flexibility and autonomy. After the reconstruction its focus has changed from rehabilitation finance to development banking.

e. Small Industries Development Bank of India (SIDBI): It was set up in 1990 as a principal financial institution for the promotion, financing and development of small-scale industrial enterprises. It is an apex institution of all the banks providing credit facility to small-scale industries in our country. It offers refinancing of bills, rediscounting of bills, and several other support services to Small Scale Industries (SSI). It undertakes a wide range of promotional and development activities for improving the inherent strength of SSI units and creating avenues for the economic development of the rural poor.

f. State Financial Corporations (SFCs): In order to provide financial assistance to all types of industrial enterprises (proprietary and partnership firms as well as companies) most of the states of our country have set up SFCs. The primary objective of these corporations is to accelerate the pace of industrial development in their respective states. SFCs provide finance in the form of long-term loans or through subscription of debentures, offer guarantee to loans raised from other sources and take up underwriting of public issues of shares and debentures made by companies. However, they cannot directly subscribe to the shares issued by the companies. The SFC (Amendment) Act, 2000 has provided superior flexibility to SFCs to manage with the changing economic and financial environment of the country.

g. State Industrial Development Corporations (SIDCs): These corporations were set up in 1960s and early 1970s by most state governments for promotion and development of medium and large-scale industries in their respective states. In addition to providing financial assistance to industrial units, they also undertake a variety of promotional activities. They also implement the various incentive schemes of the central and state governments.

h. Other Financial Institutions: Apart from the above special financial institutions, there are a few other organizations, which act as important source of long-term finance. These are:

- (i) Life Insurance Corporation of India (LIC): It was set up in 1956 on nationalisation of life insurance business in India. Primarily it carries on the business of life insurance and organizes the funds in accordance with national priorities and objectives. It invests mainly in government securities and shares, debentures and bonds of companies. It also extends financial assistance to banks and other institutions for social development and infrastructure facilities. It also underwrites new issues of shares and grant loans to the corporate sectors. Its performance with regard to assistance to corporate sector has been significant both in terms of sanctions and disbursements.
- (ii) General Insurance Corporation of India (GIC): It was established in 1973 on nationalization of general insurance business in India. Like LIC, its investment priority is socially oriented sectors of the economy, and invests its funds in government securities and shares and debentures of companies. It also provides term loans and underwriting facility to new and existing industrial undertakings.
- (iii) Unit Trust of India (UTI): It was set up in 1964 as an investment trust with capital of Rs. 5 crores subscribed by Reserve Bank of India, LIC, State Bank of India and other financial institutions. It has been playing an important prole in mobilizing the savings of the community through sale of units under various schemes (most well-known being US-64 and master shares) and channelising them into corporate investments. It has also been extending financial assistance to the companies by way of term loans, bills rediscounting, equipment leasing and hire purchase financing.
- (iv) Export and Import Bank of India (EXIM Bank): The Export and Import Bank of India was set up in January, 1982 to take over the operations of international finance wing of the IDBI and act as an apex institution in the field of financing foreign trade. The main functions of the Bank are:
 - a) financing of export and import of goods and services;
 - b) granting deferred payment credit for medium- and long-term duration;

- c) providing loans to Indian parties to enable them to contribute to share capital of joint ventures in foreign countries and;
- d) extending refinance facilities to commercial banks in respect of export credit. Recently it has introduced production equipment finance programme under which it provides rupee term finance to export oriented units for acquisition of equipment. Apart from these, the Exim Bank also undertakes merchant banking and development banking functions as considered necessary to finance promotional activities and providing counselling services to persons engaged in export-import business.

(v) Venture Capital Institutions: Venture Capital is a form of equity finance designed especially for funding high risk and high reward projects of young entrepreneurs. It helps them to turn their research and development projects into commercial ventures by providing them the initial capital and managerial assistance. The initial capital is provided in the form of equity participation through direct purchase of the shares and debentures of the enterprise set up for the purpose. The institutions providing venture capital also actively contribute in the management of the entrepreneurs' business. By actively involving and supporting the enterprises, they are able to protect and enhance the value of their investment. The development of venture capital institutions is of recent origin in India. The concept was formally introduced in 1986-87 when the Government announced the creation of a venture fund to be operated by IDBI. It was followed by ICICI, IFCI and two public sector banks (State Bank of India and Canara Bank) who set up separate companies for the purpose. Some state governmentcontrolled development financial institutions viz., Gujarat Industrial Investment Corporation and Andhra Pradesh State Corporation also promoted their venture capital companies. In 1992-93, SIDBI also set up a venture capital fund for providing financial assistance for innovative ventures in small-scale sector.

(vi) BANKS: The commercial banks usually provide short-term finance to business firms in the form of loans and advances, cash credit, overdraft etc. But now-a-days, most of the commercial banks have also started term lending (long and medium term) and providing need-based finance of different time periods to firms of all sizes. Consistent with the policy of liberalization, the banks have been allowed to evolve their own methods of evaluating the financial needs of the borrowers and extend them the term loans for larger size and longer periods. Some of the banks have also started their industrial branches to finance exclusively to industrial enterprises. Thus, the commercial banks also now act as an important source of medium term and long-term finance for the business. You know that a large number of

cooperative banks are now functioning in our country. These banks have the license from the RBI to operate like commercial banks. They also occasionally provide long-term finances to small and medium scale cooperative industrial units like Sugar factories, food-processing units etc.

(vii) NON-BANKING FINANCIAL COMPANIES (NBFCS): You must have heard about various housing finance companies, investment companies, vehicle finance companies etc. operating in private sectors different parts of our country. These companies are classifying under Non-Banking Financial Companies, because they accomplish the twin functions of accepting deposits from the public and providing loans. However, they are not regarded as banking companies as they do not carry on the normal banking activities. They raise funds from the public by offering attractive rate of interest and give loans mainly to the wholesale and retail traders, small-scale industries and self-employed persons. The loans granted by these finance companies pare generally unsecured and the interest charged by them ranges between 24 to 36 percent per annum. Besides giving loans and advances, the NBFCs also have purchase and discount hundis, undertaken merchant banking, housing finance, lease financing, hire purchase business etc. In our country, NBFCs have emerged as an important financial intermediary due to simplified loan sanction procedure, attractive rate of return on deposits, flexibility and timeliness in meeting the credit needs of the customers.

5.4 MUTUAL FUNDS

Mutual fund refers to a fund established in the form of a trust by a sponsor to raise money through one or more schemes for investing in securities. It is a special type of investment institution, which acts as an investment intermediary that collects or pools the savings of a large number of investors and invests them in a fairly large and well diversified portfolio of sound investments. This minimizes their risk and ensures good returns to the investors. Thus, they act as an investment agency for small investors and a good source for long-term finance for the business.

Features of Mutual Funds:

The essential features of mutual funds are as follows:

- i. It is a trust into which a number of investors invest their money in the form of units to form a large pool of funds.
- ii. ii. The amount is invested in securities by the managers of the fund.

- iii. The amount is invested in different securities of reputed companies to ensure definite and regular income. Thus, it helps in minimizing the risk.
- iv. The mutual fund schemes often have the advantages of high return, easy liquidity, safety and tax benefits to the investors.
- v. The net income received on the investments of the fund is distributed over the units held.
- vi. The managers of the fund are obliged to redeem the units on demand or on the expiry of a specified period.

Types of Mutual Funds: Keeping in view the investment objectives of the investors the mutual funds usually have a large variety of schemes such as equity fund, debt fund, balanced fund, growth fund, income fund, liquid fund, tax saver fund, index fund and so on. These schemes pare broadly classified into two categories as follows:

(a) **Open Ended Funds:** These funds have no fixed amount and period. Such fund continuously offers units for sale and is ready to buy back the units surrendered. In other words, investors are free to buy from, or sell to, the trust any number of units at any point of time at prices which are linked to the net asset value (NAV) of the units.

(b) Close Ended Funds: In case of these funds, subscriptions from the investors are collected during a specified time period and have a fixed amount. Not only that, the investors cannot cash their units till the specified maturity date. However, to provide liquidity, these are listed on the stock exchange and the investors can purchase and sell through the brokers at the market price without any difficulty. It may be noted that Unit Trust of India was the first mutual fund started in India as early as 1964. Later, LIC, GIC and some nationalised banks also launched their mutual funds with high degree of success. However, during post liberalisation era, many private sector mutual funds have entered the fray. To mention a few, these are: Birla Sun Life, HDFC, HSBC, ICICI Prudential, DSP Merrill Lynch, DBS Chola Mutual Fund.

5.5 LEASING COMPANIES

Leasing arrangement as a method of long-term finance is also a source which number of entities explore for financing. This method has become quite common among the manufacturing companies. Leasing facility is generally provided through the mediation of leasing companies who buy the required plant and machinery from its manufacturer and lease it to the company that needs it for a specified period on payment of an annual rent. For this purpose, a proper lease agreement is made between the lessor (leasing company) and lessee (the company hiring

the asset). Such agreement usually provides for the purchase of the machinery by the lessee at the end of the lease period at a mutually agreed and specified price. It may be noted that the ownership remains with the leasing company during the lease period. Sometimes, a company, to meet its financial requirements, may sell its own existing fixed asset (machinery or building) to a leasing company at the current market price on the condition that the leasing company shall lease the asset back to selling company for a specified period. Such an arrangement is known as 'Sell and Lease Back'. The company in such arrangement gets the funds without having to part with the possession of the asset involved which it continues to use on payment of annual rent for the lease. It may be noted that in any type of leasing agreement, the lease rent includes an element of interest besides the expenses and profits of the leasing company. In fact, the leasing company must earn a reasonable return on its investment in lease asset. The leasing business in India was started, in seventies when the first leasing company of India was promoted by Chitambaram Group in 1973 in Chennai. The Twentieth Century Finance Company and four other finance companies joined the fray during eighties. Now their number is very large and leasing has emerged as an important source. It is very helpful for the small and medium sized undertakings, which have limited financial resources.

5.6 FOREIGN SOURCES

Foreign Sources also play an important part in meeting the long-term financial needs of the business in India. These usually take the form of

- a) external commercial borrowings;
- b) foreign investments and;
- c) deposits from NRIs.

Let us have a brief idea about these sources.

a) External Commercial Borrowings: These include loans obtained at concessional rates of interest with long maturity period and commercial borrowings. The major sources of concessional loans have been the International Monetary Fund (IMF), Aid India Consortium (AIC), Asian Development Bank (ADB), World Bank (International Bank for Reconstruction and Development) and International Financial Corporation. The World Bank grants loans for specific industrial projects of high priority and given either directly to an industrial concern or through a government agency. The International Finance Corporation, an affiliate of the World Bank, grants loans to industrial units for a period of 8 to 10 years. Such loans do not require government guarantee. As for the external commercial borrowings, their major sources have been the export credit agencies like US Exim Bank, the Japanese Exim Bank, Export Credit and Guarantee Corporation of U.K. and other government and multilateral agencies. The external commercial borrowings are permitted by the government as an important source of finance for Indian firms for the expansion investments.

- b) Foreign Investments: The foreign investments in our country are generally done in the form of foreign direct investment (FDI) or through foreign collaborations. The foreign direct investment usually refers to the subscription by the foreigners to shares and debentures of the Indian Companies. This is also known as portfolio investment and covers their subscription to ADRs, GDRs and FCCBs (Foreign Currency Convertible Bonds). On the other hand, some companies are formed with the specified purpose of operating in India or the multinationals can set up their subsidiary or branch in India. As for the foreign collaborations, these can be of financial collaborations involving foreign company's participation in equity capital of an existing or new undertaking. The technical collaborations are by way of supply of technical knowledge, patents and machineries. To start with, the technical collaborations had been the more popular form in the past. But during the post liberalisation phase, shift from technical collaborations to financial collaborations is noticed in our country. It may be noted that the government has been very successful in attracting more foreign investment in the post liberalisation era. It is because the Government of India now permits automatic approval of foreign investment up to 51% equity in industries and a special board (Foreign Investment Promotion Board) has been set up to process cases not covered by automatic approvals. The main advantage of foreign investment is that generally the foreign investor also brings with him the technical expertise and the modern machinery. The disadvantage however, is that a large part of profits is transferred to the foreign investors
- c) Foreign Currency Convertible Bond (FCCB) A foreign currency convertible bond (FCCB) is a type of convertible bond issued in a currency different than the issuer's domestic currency. In other words, the money being raised by the issuing company is in the form of foreign currency. A convertible bond is a mix between a debt and equity instrument. It acts like a bond by making regular coupon and principal payments, but these bonds also give the bondholder the option to convert the bond into stock A foreign currency convertible bond (FCCB) is a type of bond that is issued in a currency other than the issuer's home currency. Convertible bonds fall in the middle of debt and equity

financial instruments, both acting as a bond but allowing investors to convert the bond into stock. These kinds of bonds are often listed by large, multinational companies with offices around the world, seeking to raise money in foreign currencies A foreign currency convertible bond (FCCB) is a convertible bond that is issued in a foreign currency, which means the principal repayment and periodic coupon payments will be made in a foreign currency. For example, an American listed company that issues a bond in India in rupees has, in effect, issued an FCCB. Foreign currency convertible bonds are typically issued by multinational companies operating in a global space and looking to raise capital in foreign currencies. FCCB investors are usually hedge fund arbitrators and foreign nationals. These bonds can be issued along with a call option (whereby the right of redemption lies with the bond issuer) or put option (whereby the right of redemption lies with bondholder). The European Central Bank (ECB) is the central bank of the European Union and the Eurozone currency union. The ECB coordinates Eurozone monetary policy, including setting target interest rates and controlling the supply of the euro common currency. The ECB's primary mandate is price stability; it targets 2% inflation over the medium term as a buffer against the risk of destabilizing deflation. ECB decisions on monetary policy and banking supervision are made by the ECB Governing Council comprising six executive board members and a monthly rotation of national central bank governors.

d) Non-resident Indians (NRIs): You are aware that the persons of Indian origin (PIO) living abroad commonly known as Non-Resident Indians (NRIs) constitute an important source of long-term finance for industries in India. The most common form of their contribution is in the form of deposits under Foreign Currency Non- Resident Account (FCNRA) and Non-Resident (External) Rupee Account (NRERA). It is worth noting that the share of NRI deposits in the total foreign capital flows (net) was 26.7% during the year 2001-02. However, like external borrowing, NRI deposits are high-cost source of external finance and are fair weather friends. Hence, too much dependence on NRI deposits is not a right policy. It may be noted that they are also permitted to subscribe to the shares and debentures of the companies in India, and have the option of selling them and take back the amount. This constitutes an integral part of foreign direct investment

5.7 RETAINED EARNINGS

You know that retained earnings refer to the undistributed profits of companies which is usually kept in the form of general reserve. Primarily, it is a hedge against low profits in future and is used for the issue of bonus shares by the company. But, in effect, it acts as an important source of long-term finance for the companies with Zero cost of capital. The retained profits can be used for expansion and modernization programmes by the companies. The amount of retained earnings is determined by the quantum of profits, the dividend pay-out policy followed by the management, the legal provisions for dividend payment, and the rate of corporate taxes etc. It is an internal source, which does not involve any cost of floatation and the uncertainties of external financing. In fact, it is regarded as the most dependable source of long-term finance. It also strengthens the firm's equity base, which enables to borrow at better terms and conditions. The main drawbacks of this source are (a) it is fully dependent on the accuracy of profits; and (b) possibility of reckless use of funds by the management.

5.8 LET'S SUM UP

Business is concerned with the production and distribution of goods and services for the satisfaction of needs of society. For carrying out various activities, business requires money. Finance, is called the life blood of any business. The financial needs of a business can be categorised as follows: (a) Fixed capital requirements (b) Working capital requirements. Sources of finance for business are equity, debt, debentures, retained earnings, term loans, working capital loans, letter of credit, euro issue, venture funding, etc. in case of companies whose financial requirement is slightly large, the following are the sources from, or through which long-term funds are raised. (a) Capital Market (b) Special Financial Institutions (c) Mutual Funds (d) Leasing Companies (e) Foreign Sources (f) Retained Earnings.

Capital market refers to the organisation and the mechanism through which the companies, other institutions and the government raise long-term funds. For trading of securities there are two different segments in capital market. One is primary market and the other is, secondary market. A number of special financial institutions have been set up by the Central and State Governments to provide long-term finance to the business organisations. Mutual fund refers to a fund established in the form of a trust by a sponsor to raise money through one or more schemes for investing in securities. It is a special type of investment institution, which acts as an investment intermediary that collects or pools the savings of a large number of investors and invests them in a fairly large and well diversified portfolio of sound investments. Leasing arrangement as a method of long-term finance is also a source which number of entities explore for financing. Leasing facility is generally provided through the mediation of leasing companies who buy the required plant and machinery from its manufacturer and lease it to the company that needs it for a specified period on payment of an annual rent. Foreign Sources also play an important part in meeting the long-term financial needs of the business in India.

These usually take the form of i) external commercial borrowings; ii) foreign investments and; iii) deposits from NRIs. Retained earnings refer to the undistributed profits of companies which is usually kept in the form of general reserve. In effect, it acts as an important source of longterm finance for the companies with Zero cost of capital.

5.9 TEST YOUR KNOWLEDGE:

- Q1. What is long term finance. Write its sources?
- Q2. What is foreign investment?
- Q3. What is FCCB and ECB?
- Q4. Write a short note on retain earnings.
- Q5. Write a short note on leasing companies.
- Q6. Types of Mutual Fund.
- Q7. How the banks contribute in long term financing?
- Q8. Discuss Various Special Financial Institute (SFI) providing long term finance.
- Q9. Write a detailed note on Capital Market for availing funds for long term finance.
- Q10. Discuss about other Financial Institution for providing long term finance.

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT VI CAPITAL MARKET

STRUCTURE

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6.15 WEAKNESS OF INDIAN STOCK MARKETS

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6.1 INTRODUCTION

A good capital market is a vital pre-requisite for industrial and commercial growth of a country. Credit is usually, required and supplied on short-term and long- term basis. The long-term capital needs are met by the capital market. Capital market is a significant coordinating and directing mechanism for free and balanced flow of financial resource into the economic system functioning in a country. The growth of a good capital market in a country is dependent upon the availability of savings, proper organisation of its essential units and the entrepreneurship qualities of its people. A capital market is a market for raising medium- and long-term funds. It includes all organisations, institutions and instruments that provide long term and medium-term funds. It does not include the instruments or institutions which provides finance for small period (upto one year). The common instrument used in capital market are shares, debentures, bonds, funds, public deposits etc.

6.2 DEFINITION

According to V.K. Bhalla "Capital market can be defined as the mechanism which channelizes savings into investment or productive use. Capital market allocate the resources amongst alternative uses. It intermediates flow of savings of those who save a part of their income from those who wants to invest it in productive assets".

Capital market is a market where buyers and sellers engage in trade of financial securities like bonds, stocks, etc. The buying/selling is undertaken by participants such as individuals and institutions.

6.3 OBJECTIVES AND IMPORTANCE

Ensures best possible direction and balance between the flow of savings on the one hand and the flow of investment leading to capital formation on the other;

Direct the flow of saving into most gainful channels and thereby confirm optimum utilisation of financial resources.

The mobilisation or concentration of national savings for economic development.

The mobilisation and introduction of foreign capital and investment to augment the deficit in the required financial resources so as maintain the probable rate of economic growth.

6.4 NATURE OR FEATURES OF CAPITAL MARKET

1. Link between savers and investment opportunities.

- 2. Deals in long term investment.
- 3. Utilises intermediaries.
- 4. Determinant of capital formation.
- 5. Government rules and regulations.

6.5 FUNCTIONS OF CAPITAL MARKET

- 1. Mobilisation of financial resources on a nation-wide scale.
- 2. Securing the foreign capital.
- 3. Effective distribution of the mobilised financial resources.
- 4. Enables quick assessment of instrument- both equity and debt.
- 5. Provides risk capital in the form of equity or quasi-equity to entrepreneurs.

6.6 DIFFERENCE BETWEEN MONEY MARKET AND CAPITAL MARKET

Money Market	Capital Market	
Definition		
A random course of financial institutions, bill brokers, money dealers, banks, etc., wherein dealing on short-term financial tools are being settled is referred to as Money Market.	A kind of financial market where the company or government securities are generated and patronised with the intention of establishing long-term finance to coincide with the capital necessary is called Capital Market.	
Market Nature		
Money markets are informal in nature.	Capital markets are formal in nature.	
Instruments involved		

Commercial Papers, Treasury Certificate of Deposit, Bills, Trade Credit, etc.	Bonds,Debentures,Shares,AssetSecuritisation,RetainedEarnings,EuroIssues, etc.		
Investor Types			
Commercialbanks,non-financialinstitutions, central bank, chit funds, etc.	Stockbrokers, insurance companies, Commercial banks, underwriters, public etc.		
Market Liquidity			
Money markets are highly liquid.	Capital markets are comparatively less liquid.		
Risk Involved			
Money markets have low risk.	Capital markets are riskier in comparison to money markets.		
Maturity of Instruments			
Instruments mature within a year.	Instruments take longer time to attain maturity		
Purpose served			
To achieve short term credit requirements of the trade.	To achieve long term credit requirements of the trade.		
Functions served			
Increasing liquidity of funds in the economy	Stabilising economy by increase in savings		
Return on investment achieved			
ROI is usually low in money market	ROI is comparatively high in capital market		

6.7 IMPORTANCE\ROLE OF CAPITAL MARKET

- 1. Economic Growth: Capital Markets help to speed up the process of economic growth. It reflects the common condition of the economy. The capital Market helps in the proper distribution of resources from the people who have surplus capital to the people who are in need of capital. So, we can say that it helps in the development of industry and trade of both public and private sectors leading to balanced economic growth in the country.
- 2. Promotes Saving Habits: After the development of Capital Markets, the taxation system, and the banking institutions provide services and provisions to the investors to save more. In the lack of Capital Markets, they might have invested in unproductive assets like land or gold or might have indulged in needless spending.
- **3. Stable and Systematic Security prices:** Apart from the utilization of funds, Capital Markets help to stabilize the prices of stocks. Decline in speculative activities and providing capital to borrowers at a lower interest rate help in the stabilization of the security prices.
- 4. Availability of Funds: Investments are made in Capital Markets on a continuous basis. Both the buyers and sellers work together and trade their capital and assets through an online platform. Stock Exchanges like NSE and BSE provide the platform for this "The stock market is the story of cycles and of the human behavior that is responsible for overreactions in both directions."- Seth Klarman

6.8 MAIN COMPONENTS OF CAPITAL MARKETS

The components are:

- 1. New Issue Market /Primary Market
- 2. Government securities
- 3. Secondary Market
- 4. Financial Institutions

1. New Issue Market /Primary Market:

Primary Market: The primary market mainly deals with new securities that are issued in the stock market for the first time. Thus it is also known as the new issue market. The main function of the primary market is to simplify the transfer of the newly issued shared from the companies to the public and institutions. The main investors in this type of market are financial institutions, banks, HNIs and public etc.

The corporate securities that are dealt in primary market can be classified under two categories:

- 1. Ownership Securities or Capital Stock, and
- 2. Creditorship Securities or Debt Capital.



2. Government Securities/Gilt Edge Securities:

What are Gilt-Edged Securities? The term 'gilt' is of British origin. The bonds and securities issued by the Bank of England on behalf of his/her majesty's treasury were called 'gilt-edged securities as their paper certificates had a gilt edge. Gilt-edged securities in India are government securities as they are risk-free like British Government securities. In the US these types of securities are called US Treasury securities.

Types of government securities which are issued:

Central Government

State Government

Semi State Government

Public Sector Corporation

Gilt-edged securities are issued by the Central Government so the investment under these funds is considered to be less risky than corporate bonds and it offers better returns than direct investment

3. Secondary Market: It is the market where the trading of the securities actually takes place, thus it is also mentioned as the stock market. Here the buying and selling of securities take place, the existing investors sell the securities and new investors buy the securities.

Stock Exchanges like NSE and BSE also provide the platform for this types of trading.



4. Financial Institutions:

Special Financial institutions are the most active essential of the Indian capital market. Such organisations provide medium and long-term loans on easy instalments to big business houses Such institutions help in encouraging new companies; expansion and development of existing companies and meeting the financial requirement of companies during economic depression. The need for establishing financial institutions was felt in many countries immediately after the Second World War in order to re-establish their war-shattered economies. In underdeveloped countries, the need for such institutions was much more due to a large number of organisational and financial difficulties inherent in the process of industrialisation.

After independence, a number of financial institutions have been set up at all India and regional levels for accelerating the growth of industries by providing financial and other assistance.

The following are the main special institutions that are most active constituents of the Indian capital market:

- i. The Industrial Finance Corporation of India (I.F.C.I.)
- ii. The Industrial Credit and Investment Corporation of India (I.C.I.C.I.)
- iii. The Refinance Corporation of India (R.F.C.)
- iv. State Financial Development Corporations (S.F.Cs.)
- v. National Industrial Development Corporation (N.I.D.C.)

- vi. State Industrial Development Corporation (S.I.D. Cs)
- vii. National Small Industries Corporation (N.S.I.C)
- viii. Industrial Development Bank of India (1.D.B.I.)
- ix. Unit Trust of India (U.T.I.)
- x. Life Insurance Corporation of India (L.I.C.)
- xi. Nationalised Commercial Banks (N.C Bs)
- xii. Merchant Banking Institutions (M.B.Is.)
- xiii. National Industrial Reconstruction Corporation of India (N.I.R.C.)
- xiv. The Credit Guarantee Corporation of India (C.G.C.)

Commercial Banks and the Capital Market:

Commercial banks are also vital constituents of capital market but their operations in India have been mainly restricted to the purchase and sale of government securities. However, in recent years, commercial banks have also been increasingly participating in term lending through subscribing to the shares and debentures of special financial institutions. Many commercial banks have also set up separate merchant banking divisions and their financial subsidiaries to provide a range of financial services.

6.9 STOCK EXCHANGE

Definition of stock exchange: Pyle. "Security exchanges are market places where securities that have been listed thereon may Stock exchanges allow trading in securities both to the genuine investors and speculators.

Securities Contract (Regulation) Act, 1956. "Stock exchange means anybody of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling in securities."

Characteristics of Stock Exchanges:

- i. It is a place where securities are purchased and sold.
- ii. A stock exchange is an association of persons whether incorporated or not.

- iii. The trading in a stock exchange is strictly regulated and rules and regulations prescribed for various transactions.
- iv. Both genuine investors and speculators buy and sell shares.
- v. The securities of corporations, trusts, governments, municipal corporations etc. are allowed to be dealt at stock exchanges.

Listing of Securities:

Listing of securities means authorization to quote shares and debentures officially on the trading floor of the stock exchange. Every security issued by companies cannot be traded at a stock exchange. The stock exchanges fix certain rules, regulations and standards which the company must fulfil before getting the securities listed.

Objectives of Listing:

The main objectives of listing of securities are:

- i. To confirm proper supervision and control of dealings in securities.
- ii. To safeguard the interests of shareholders and the investors.
- iii. To avoid concentration of economic power.
- iv. To assure marketing facilities for the securities.
- v. To ensure liquidity of securities.
- vi. To regulate dealings in securities.
- vii. To require promoters to have a reasonable stake in the company.

Advantages of Listing:

Following are some of the advantages of listing securities:

- **i. Publicity of Securities:** The listed securities get wide publicity in papers etc. The rates of securities are regularly quoted for the benefit of investors. The names of companies are also mentioned along with the rates and the investors become familiar with the securities.
- **ii. Protection of Investors' Interest:** The securities are traded according to certain rules and regulations. The listed companies have to provide full information about assets, liabilities other related information to the stock exchange. The investors' interests can be protected while disclosing full information about the companies. They can make their own decisions

by analysing financial statements and related information of those companies whose securities they want to purchase.

- **iii. Ensures Liquidity:** The listed securities have a ready market at stock exchange. A large number of buyers and sellers are always present at exchanges to trade in securities. The prices offered for securities are also as per demand and supply of the securities.
- **iv. Better Goodwill:** The securities listed in exchanges have better goodwill in the market. The securities are rated high in the market and banks accept such securities as collateral securities.
- v. Screen Based Trading: Screen Based Trading has been a major development in the secondary market in India. It has transformed the character of the entire Indian stock market. Under this system of trading, the computer screen replaces the trading ring and distant participants can trade with each other through computer network.

A large number of participants distributed widely over the country, can trade simultaneously at high speeds. This system permits the market participants to have a full view of the market which increases their confidence and helps to establish greater transparency.

NSE and OTCEI have set up these computerized exchanges.

Some of the benefits of screen-based trading include:

- i. By using very small terminals of NSE the members can trade with each other with much more ease and comfort sitting at their door steps.
- ii. It provides full information to the investors about the market.
- iii. It enables members all over the country to trade with each other simultaneously.
- iv. It has avoided the need of the people to assemble on the floor of the stock exchange for trading.
- v. It ensures greater transparency and has increased the confidence of the people.

6.10 FUNCTIONARIES OF STOCK EXCHANGE:

Functionaries of stock exchanges refer to those persons or individuals or institutions who perform the functions of a Stock Exchange and who are the registered members of the exchange.

The following are the various types of functionaries who function at the stock exchange:

i. Jobbers:

Jobbers are security merchants dealing in shares, and debentures as independent operators. They buy and sell securities on their own behalf and try to earn through price changes. Jobbers cannot deal on behalf of public and are barred from taking commission.

They directly deal with brokers who in turn make transactions on behalf of public. Jobbers generally quote two prices one at which he is prepared to purchase and the other at which he is prepared to sell a particular security.

The difference between the two prices is the Jobber's profit which is technically known as Jobber's turn. For example, a jobber may quote the equity shares of XYZ Agro at Rs. 95-Rs. 96. This implies that a Jobber is prepared to purchase these shares at Rs. 95 each and sell at Rs. 96 each. The difference between these two prices is Jobber's profit or the Jobber's turn.

ii. Brokers:

Brokers are commission agents, who act as intermediaries between buyers and sellers of securities. They do not purchase or sell securities on their own behalf. They bring together buyers and sellers and help them in making a deal. Brokers charge commission from both the parties for their service.

Brokers are experts in estimating trends of prices and can effectively advise their client in reaching a fruitful gain. Brokers get orders from investing public and execute the orders through Jobbers and they are entitled to a prescribed scale of brokerage. The investors who do not know the technicalities of stock exchanges are greatly benefited by the expertise of brokers.

iii. Tarawaniwalas:

The members of Bombay Stock Exchange have unofficially divided themselves into two categories:

- (i) Brokers and
- (ii) Tarawaniwalas.

The latter act both as Jobbers and brokers. A tarawaniwala makes transactions on his own behalf like a Jobber but he may also act as a broker on behalf of the public. They indulge in malpractices to earn profits like rigging the prices of a particular scrip. They may sell their own securities to their clients when prices are higher and vice-versa. The distinction between Jobbers of London Exchange and Tarawaniwalas of Bombay Stock Exchange is that the former are not brokers whereas the latter may act both as brokers and Jobbers.

6.11 TYPES OF SPECULATORS:

There are four types of speculators who are active on stock exchanges in India. They are known as Bull, Bear, Stag and Lame Duck. These names have been derived from the animal world to bring out the nature and working of speculators.

i. Bull: A Bull or Tejiwala is an operator who expects a rise in prices of securities in the future. In anticipation of price rise he makes purchases of shares and other securities with the intention to sell at higher prices in future. He being a speculator has no intention of taking delivery of securities but deals only in differences of prices. Such a speculator is called a bull because of resemblance of his behaviour with the bull. A bull tends to throw his victims up in the air. Similarly, a bull speculator tries to raise the prices of securities by placing big purchase orders.

ii. Bear: A Bear or Mandiwala speculator expects prices to fall in future and sells securities at present with a view to purchase them at lower prices in future. A bear does not have securities at present but sells them at prices in anticipation that he will supply them by purchasing at lower prices in future.

If the prices move down as per the expectations of the bear he will earn profits out of these transactions. Just as a bear presses its victims down to the ground, the bear speculator tends to force down the prices of different securities. When the bear operator starts selling the securities, the bearish pressure gradually forces down the prices.

A bear does not take delivery of securities but takes the difference if prices fall down. In case prices rise then he will have to pay the difference between the prices at which he purchased the securities and the prevailing price on the date of delivery.

A market is said to be bearish when it is dominated by the bear speculators. On the other hand, there is a strong expectation of fall in prices. Pessimism prevails in a bearish market. In case the prices are not falling as expected by the bears then they may start speculator rumours to pressurise prices downwards. It is known as bear raid.

iii. Stag: A stag is a cautious speculator in the stock exchange. He applies for shares in new companies and expects to sell them at a premium if he gets an allotment. He selects those companies whose shares are in more demand and are likely to carry a premium. He sells the shares before being called to pay the allotment money.

A Stag does not indulge in purchase and sale of shares in the market like a bull and bear. He relies only on the allotment of securities to him. He applies for large number of shares so that he gets some allotment even if there is heavy over subscription.

iv. Lame Duck: When a bear finds it difficult to fulfil his commitment, he is called struggling like a lame duck. A bear speculator contracts to sell securities at a later date. On the appointed time he is not able to get the securities as the holders are not willing to part with them. In such situations he feels cornered. Moreover, the buyer is not willing to carry over the transactions.

6.12 STOCK EXCHANGES IN INDIA:

Despite the fact that unorganised stock market existed in Calcutta since 1830, the first organised stock exchange was set up at Bombay in 1877 under the name of 'Native Stock and Share Brokers Association'. The next stock exchange which emerged in the country was 'Ahmedabad Share and Stock Brokers Association' which was founded in 1894. The third stock exchange was set up at Calcutta in the year 1908.

Though some more stock exchanges were set up before independence but there was no All-India Legislation to regulate their working. Every stock exchange followed its own method of working. To correct this situation and to regulate the working of stock exchanges in the country, the Securities Contract (Regulation) Act was passed in 1956. There were only nine recognised stock exchanges in the country up till 1981-82.

At present, there are 7 recognised stock exchanges in the country including, Over the Counter Exchange and National Stock Exchange which have also started functioning in our country.

Securities Contracts (Regulation) Act, 1956:

i. Recognition of Stock Exchanges:

The securities can be traded only at Stock Exchanges recognized by Central Government of India in pursuance of the provisions of Securities Contracts (Regulation) Act.

Before giving recognition, the Government must satisfy that:

- (a) The rules and bye-laws of the applicant stock exchange ensure fair dealing and protect the interests of genuine investors.
- (b) It is willing to comply with any conditions that way be imposed by Central Government from time to time.
- (c) It is in the interest of trade and public to grant such recognition to the stock exchange.

ii. Control of Central Government:

Under the Act Central Government has been given wide powers to control the working of stock exchanges, some of the controlling powers are:

- (a) Every stock exchange has to submit to the government periodical returns of their affairs.
- (b) Government may call upon the exchange or members to furnish such information or explanations regarding the affairs of the exchange or transactions of the members as may be required.
- (c) Government can appoint persons to enquire into the affairs of the exchange and submit the report in a specified period.
- (d) It can regulate the working hours of the exchange.
- (e) In the event of any emergency it can suspend the working of an exchange upto a period of seven days.

iii. Controlling Speculation:

Government can curb speculative activities of an exchange.

Some regulations in this direction are:

- (a) Banning Option dealings in securities.
- (b) Curb trading (trading outside the exchange) has been declared illegal.
- (c) Life of blank transfer has been restricted to two months.

6.13 SEBI'S ROLE IN A STOCK EXCHANGE:

Securities and Exchange Board of India has been set up under the SEBI Act, 1992 to protect the interest of investors in securities and to promote the development of and regulate the securities market and for matters connected there with or incidental thereto.

SEBI'S Power in Relation to Stock Exchange:

The SEBI ordinance has given it the following powers:

- (i) It may call periodical return from stock exchanges.
- (ii) It has the power to prescribe maintenance of certain documents by the stock exchange.
- (iii) SEBI may call upon the exchange or any member to furnish explanation or information relating to the affairs of the stock exchange or any members.
- (iv) It has power to approve bye-laws of the stock exchange for regulation and control of the contracts.
- (v) It can amend bye-laws of stock exchange.
- (vi) In certain areas it can licence the dealers in securities.
- (vii) It can compel a public company to list its shares.

Superseding Governing Body of Stock Exchange:

If Central Government is of the opinion that the governing body of any recognised stock exchange should be superseded, then it may give a written notice specifying the reasons for such action. After giving opportunity to the governing body it may supersede it and appoint person or persons to exercise and perform all the powers and duties of governing body.

Since beginning, SEBI has been working on various matters for improving the working of stock market so that interests of investors are protected. These measures include broad basing the stock market with more exchanges and their possible integration, an improvement in the system of trading and settlement procedures, registration of brokers and their associates, greater transparency in the trading activities of brokers and curbing of inside trading by companies and their managements.

SEBI has supported an over-the-counter market for the listing of smaller companies. The registration of all mutual funds, existing as well as new, has been made essential. Code of advertisements has already been issued to the mutual funds regarding their honesty and fairness to disclose the risk factors involved in their funds.

SEBI has also declared that traders are to be moved to a settlement on delivery basis. The settlement period on exchanges has been shortened. The management structure of the stock exchanges, which have been subject to criticism in the past on account of its broker dominated nature, is now having been changed with representation from non-broker members also.

Further, Stock exchanges are now required to appoint a non-broker professional as an executive director, who remains accountable to SEBI for implementing stock exchanges.

Thus, we can conclude that SEBI is playing an active role in the promotion and regulation of stock exchanges in India. The carry forward system introduced by SEBI is not as liberal as 'badla' used to be.

6.14 FACTORS THAT AFFECT STOCK PRICES:

- news releases on earnings and profits, and future estimated earnings.
- announcement of dividends.
- introduction of a new product or a product recall.
- securing a new large contract.
- employee layoffs.
- anticipated takeover or merger.
- a change of management.
- accounting errors or scandals.

6.15 WEAKNESS OF INDIAN STOCK MARKETS:

- 1. Unethical practices: Many unethical practices are widespread in Indian Stock Market. Prices of shares are falsely increased before rights issues by circular trading. Innocent members of public who buy such shares find the prices of such shares plummeting greatly and lose their money.
- 2. **Misinformation**: Funds are raised from investors assuring investment in projects yielding high returns. But some promoters turn away the money to <u>speculative pursuits</u> and other personal purposes. Investors who invest their money in such companies eventually lose their money.
- 3. Absence of Genuine Investors: A very small amount of purchases and sales made in a stock exchange are by honest investors. Speculators constitute a major portion of the market. Many of the transactions are carried out by speculators who plan to derive profits from short term fluctuations in prices of securities. This is evident from the fact that majority of the transactions are of the carry-forward type.

- 4. **Fake shares**: Scams including fake share certificates are quite frequent. Investors who purchase shares unluckily may get such fake certificates. They would not be able to locate the seller and their complete investment in such fake shares would be a loss.
- 5. **Insider trading**: Insider Trading is a usual happening in many stock exchanges. Insiders who come to know confidential information use it either to buy or sell shares and make a swift profit at the detriment of common shareholders. However, many rules and regulations have been articulated to curb insider trading, it is a ongoing occurrence.
- 6. Unofficial transactions: Unofficial markets exist along with the regular stock exchange. Trading takes place in these unofficial stock exchanges after trading hours of the regular stock exchange. Unofficial buying and selling dealings are entered into in these unofficial stock exchanges (kerb trading and dabba trading) even before an issue opens up for subscription. Though transaction in such unofficial stock exchanges are prohibited, they continue to exist.
- 7. Prevalence of Price Rigging: Price rigging is a common evil afflicting the stock markets in India. Corporations which plan to issue securities falsely try to increase the share prices, to make their issue alluring as well as assist them to price their issue at a high premium. Promoters enter into a secret arrangement with the brokers.
- 8. Thin trading: Nevertheless, a number of companies are listed in stock exchange, many are not traded. Trading is confined to only around 25% of the shares listed on a stock exchange. Consequently, the investors have limited choice and many shares lack liquidity.
- 9. Excessive Speculation: There is too much speculation in some shares, which falsely results in increasing or decreasing the prices. Increase or fall in prices do not have any correlation with the fundamental strengths or weakness of the company. Many small investors are ignorant of this fact. They purchase shares grounded on price movements and ultimately suffer losses.
- 10. **Underdeveloped debt market**: The debt market in India has not been grown to the required extent. There is very little liquidity in the debt markets.
- 11. **Payment crisis**: Market players indulge in excessive speculation and trading to profit from the increase and decrease in prices. When movement (increase/decrease) in the security prices is divergent to their potentials they are not able to settle the transaction (pay cash for securities bought).

- 12. **Poor liquidity**: The main objective of listing shares in a stock exchange is to afford liquidity. But in India, out of over 6,400 companies which are listed, 90 percent of trading is restricted to only 200 to 250 actively traded scrips. There is high unpredictability (fluctuations) in case of actively traded scrips and low liquidity in the others.
- 13. **Inadequate instruments**: The markets are dominated by equity. Convertible debentures issues are very rare. Preference Shares which would be preferred by fixed return seeking investors are almost non-existent.
- 14. **Influence of Financial Institutions**: The equity markets are controlled by big players such as mutual funds. pension funds and insurance companies. Any buying or sale by them considerably effects the market prices as they buy and sell in bulk quantities. The share prices, hence do not reflect the fundamentals.
- 15. Domination of FII's: Foreign institutional investors have come to play a major role in the Indian markets. They have pumped in billions of dollars and buy and sell in large quantities. Any purchase by FII's in a specific stock considerably pushes up its prices and any sales results in a steep fall in prices. FII's invest and take out their money based on global developments. Any large scale exit by FII's would trigger a downfall in the Indian markets.
- 16. **Odd lots**: Odd lots suffer from poor liquidity. The number of odd lot dealers is very less and odd lots have to be sold at a lower price.
- 17. **Delay in admitting securities**: There is high delay in admitting securities for trading. Sometimes it goes beyond 60 or even 70 days. Therefore, liquidity of investments is affected.
- 18. **Poor services**: The number of brokers is less and many brokers provide very poor service to investors. There are more than 50,000 sub-brokers and they are totally unregulated. There are many examples of sub brokers committing fraudulent acts and investors losing money.
- 19. **Broker defaults**: Due to excess speculation in specific shares, broker fail to pay. Such defaults destabilize stock exchanges and results in payment crisis.

6.16 THE REFORMS OF CAPITAL MARKETS IN INDIA:

- **Primary Market Reforms in India** A number of measures has been taken in India especially since 1991 to develop primary market in India. These measures are discussed below:
- 1) Abolition of Controller of Capital Issues: The Capital Issues (Control) Act, 1947 governed capital issues in India. The capital issues control was administered by the

Controller of Capital Issues (CCI). The Narasimham Committee (1991) had recommended the abolition of CCI and wanted SEBI to protect investors and take over the regulatory function of CCI. Thus, government replaced the Capital Issues (Control) Act and abolished the post of CCI. Companies are allowed to approach the capital market without prior government permission subject to getting their offer documents cleared by SEBI.

- 2) Securities and Exchange Board of India (SEBI): SEBI was set up as a non-statutory body in 1988 and was made a statutory body in January 1992. SEBI has introduced various guidelines for capital issues in the primary market
- 3) Disclosure Standards: Companies are required to disclose all material facts and specific risk factors associated with their projects. SEBI has also introduced a code of advertisement for public issues for ensuring fair and truthful disclosures
- 4) Freedom of Determine the Par Value of Shares: The requirement to issue shares at a par value of Rs.10 and Rs.100 was withdrawn. SEBI has allowed the companies to determine the par value of shares issued by them. SEBI has allowed issues of IPOs through "book building" process.
- 5) Underwriting Optional: To reduce the cost of issue, underwriting by the issuer is made optional. It is subject to the condition that if an issue was not underwritten and was not able to collect 90% of the amount offered to the public, the entire amount collected would be refunded to the investors.
- 6) FIIs Permitted to Operate in the Indian Market: Foreign institutional investors such as mutual funds and pension funds are allowed to invest in equity shares as well as in debt market, including dated government securities and treasury bills.
- 7) Accessing Global Funds Market: Indian companies are allowed to aces global finance market and benefit from the lower cost of funds. They have been permitted to raise resources through issue of American Depository Receipts (ADRs), Global Depository Receipts (GDRs), Foreign Currency Convertible Bonds (FCCBs) and External Commercial Borrowings (ECBs). Indian companies can list their securities on foreign stock exchanges through ADR. /GDR issues.
- 8) Intermediaries under the Purview of SEBI: Merchant bankers, and other intermediaries such as mutual funds including UTI, portfolio managers, registrars to an issue, share transfer agents, underwriters, debenture trustees, bankers to an issue, custodian of securities, and venture capital funds have been brought under the purview of SEBI.

9) Credit Rating Agencies: Various credit rating agencies such as Credit Rating Information Services of India Ltd. (CRISIL – 1988), Investment Information and Credit Rating Agency of India Ltd. (ICRA – 1991). Credit Analysis and Research Ltd. (CARE – 1993) and so on were set up to meet the emerging needs of capital market.

SECONDARY MARKET REFORMS

- A number of measures have been taken by the government and SEBI for the growth of secondary capital market in India. The important reforms or measures are explained below.
- 1. Setting up of National Stock Exchange (NSE): NSE was set up in November 1992 and started its operations in 1994. It is sponsored by the IDBI and co-sponsored by other development finance institutions, LIC, GIC, Commercial banks and other financial institutions.
- 2. Over the Counter Exchange of India (OTCEI): It was set in 1992. It was promoted by a consortium of leading financial institutions of India including UTI, ICICI, IDBI, IFCI, LIC and others. It is an electronic national stock exchange listing an entirely new set of companies which will not be listed on other stock exchanges.
- 3. Disclosure and Investor Protection (DIP) Guidelines for New Issues: In order to remove inadequacies and systematic deficiencies, to protect the interests of investors and for the orderly growth and development of the securities market, the SEBI has put in place DIP guidelines to govern the new issue activities. Companies issuing capital in the primary market are now required to disclose all material facts and specify risk factors with their projects.
- 4. Screen Based Trading: The Indian stock exchanges were modernized in the 90s, with Computerised Screen Based Trading System (SBTS). It electronically matches orders on a strict price / time priority. It cuts down time, cost, risk of error and fraud, and therefore leads to improved operational efficiency.
- 5. Depository System: A major reform in the Indian Stock Market has been the introduction of depository system and scrip less trading mechanism since 1996. Before this, the trading system was based on physical transfer of securities. A depository is an organization which holds the securities of shareholders in electronic form, transfers securities between account holders, facilitates transfer of ownership without handling securities and facilitates their safekeeping.

- 6. Rolling Settlement: Rolling settlement is an important measure to enhance the efficiency and integrity of the securities market. Under rolling settlement all trades executed on a trading day are settled after certain days.
- 7. The National Securities Clearing Corporation Ltd. (NSCL): The NSCL was set up in 1996. It has started guaranteeing all trades in NSE since July 1996. The NSCL is responsible for post-trade activities of the NSE. Clearing and settlement of trades and risk management are its central functions.
- 8. Trading in Central Government Securities: In order to encourage wider participation of all classes of investors, including retail investors, across the country, trading in government securities has been introduced from January 2003. Trading in government securities can be carried out through a nationwide, anonymous, order-driver, screen-based trading system of stock exchanges in the same way in which trading takes place in equities.
- **9. Mutual Funds:** Emergency of diversified mutual funds is one of the most important development of Indian capital market. Their main function is to mobilize the savings of general public and invest them in stock market securities. Mutual funds are an important avenue through which households participate in the securities market.

6.17 MAJOR STOCK EXCHANGES IN INDIA:

Most of the trading in the Indian stock market takes place on its **two stock exchanges**: The Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The BSE has been in existence since 1875. The NSE, on the other hand, was founded in 1992 and started trading in 1994.

- The National Stock Exchange of India Limited (NSE) is a financial exchange in India that provides automated trading facilities across the nation.
- NSE trading is driven by market orders, and the buyers and sellers remain anonymous.
- The NSE offers trading and investment in debt, equity, equity derivatives, mutual funds, IPOs, currencies, and exchange traded funds (ETFs)

NSE Functions

• To establish a trading facility for debt, equity, and other asset classes accessible to investors across the nation.

- To act as a communication network providing investors an equal opportunity to participate in the trading system.
- To meet the global standards set for financial exchange markets.
- To provide a shorter trade settlement period and enable the book-entry settlement system

Bombay Stock Exchange – Introduction

- BSE is Asia's oldest stock exchange, founded in 1875 by eight local stockbrokers and located on Dalal Street, Mumbai.
- BSE received a temporary permit from the Government of Bombay in 1927 and a permanent permit from the Government of India on August 31, 1957.
- As on Jan 2022, with a **market capitalization** of **\$ 3.7 trillion**, it is the 9th largest stock market in the world, with over 5,000 listed companies.
- The iconic building, called **Phiroze Jeejeebhoy Towers**, on **Dalal Street** in Mumbai, Maharashtra, has acquired a figurative trademark under the Trademark Law of 1999
- BSE is known for its electronic trading systems that enable fast and efficient transaction execution.
- The BSE allows investors to trade stocks, currencies, bonds, derivatives, and investment trusts.
- The BSE also offers other important services for capital market transactions such as risk management, clearing, settlement, and investor training.

6.18 LET US SUM UP

A good capital market is a vital pre-requisite for industrial and commercial growth of a country. Credit is usually, required and supplied on short-term and long- term basis. The long term capital needs are met by the capital market. Capital market is a significant coordinating and directing mechanism for free and balanced flow of financial resource into the economic system functioning in a country. The major function of capital markets includes 1. Mobilisation of financial resources on a nation-wide scale. 2. Securing the foreign capital. There is a difference between money market and capital markets. Capital markets play important role in regards to the Economic Growth, **Promotes Saving Habits, Stable and Systematic Security prices and Availability of Funds.** The components of capital markets are 1. New Issue Market /Primary
Market, **2.** Government securities /Gilt Edge Securities, **3.** Secondary Market and 4. Financial Institutions.

NSE and OTCEI have set up these computerized exchanges. By using very small terminals of NSE the members can trade with each other with much more ease and comfort sitting at their door steps. It enables members all over the country to trade with each other simultaneously. The various types of functionaries who function at the stock exchange are i. Jobbers, ii. Brokers, and iii. Tarawaniwalas. There are four types of speculators who are active on stock exchanges in India namely i. Bull, ii. Bear, iii. Stag and iv. Lame Duck. Securities and Exchange Board of India has been set up under the SEBI Act, 1992 to protect the interest of investors in securities and to promote the development of and regulate the securities market and for matters connected there with or incidental thereto. There is number weakness in Indian stock market like Unethical practices, Absence of Genuine Investors, Insider trading, Unofficial transactions, Thin trading, Payment crisis, Poor liquidity, Domination of FII's and Broker defaults. A number of measures has been taken in India especially since 1991 to develop and reform primary and secondary market in India. NSE and BSE are the major stocks in India. Major volume markets are done at NSE.

6.19 CHECK YOUR KNOWLEDGE

- Q1 Difference between money market and capital market.
- Q2 Write the components of capital market.
- Q3 Short note on stock exchange.
- Q4 Examine the capital market reforms introduced in India.
- Q5 What are the role of capital markets to country's economic growth?
- Q6 Who are the functionaries of stock exchange?
- Q7 What are the power of SEBI in relation to governing the stock exchanges?
- Q8 Explain the weaknesses of the Indian Stock markets?
- Q9 What are the major stock exchanges in India?
- Q10 Write down the recent reforms done in regards to the secondary markets in India?

M.COM

SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 7 – LEASE FINANCING AND PROJECT FINANCING

STRUCTURE

- 7.0 Objectives
- 7.1 Introduction to Leasing and Project Financing
- 7.2 Meaning and definition of leasing
- 7.3 Elements of Leases
- 7.4 Types of Leases
- 7.5 Financial Lease Process
- 7.6 Contents of Lease Agreement
- 7.7 test your understanding (A)
- 7.8 Advantages of Leasing
- 7.9 Disadvantages of Lease Finance
- 7.10 Lease Financial Institutions in India
- 7.11 Accounting and Tax aspects of leases
- 7.12 Regulatory aspect of Leasing
- 7.13 Instalment Buying, Hire Purchase and Leasing
- 7.14 Test your understanding (B)
- 7.15 Project Financing in India and its features
- 7.16 Benefits of project financing
- 7.17 Growth of Project Finance
- 7.18 Test your understanding(C)
- 7.19 Let us sum up
- 7.20 Key terms

7.21 Review questions

7.22 Further readings

7.0 OBJECTIVES

After studying the Unit, students will be able to

- Understand Meaning and Elements of Leasing and Project Finance.
- Explain the important types of leasing.
- Distinguish between Finance lease and operating lease
- Explain the process of finance lease.
- Know the lease finance institutions in India
- Understand accounting and tax aspects of leasing.
- Identify features and growth of project finance.

7.1 INTRODUCTION TO LEASING AND PROJECT FINANCING

Leasing and project financing are two of the most important types of special finance. Lease financing is a popular and frequent asset-based finance option that offers an alternative to loan financing. A lease is a contract in which one party, the lessor (owner), agrees to allow another party, the lessee, to use an asset in exchange for periodic rental payments. Fixed assets are often owned by businesses and reported on their balance sheets, but it is the usage of these assets that matters, not their ownership. The purchase of facilities and equipment is one option, but leasing them is also an option. Leasing was traditionally connected with real estate—land and buildings—before the 1950s. Today, however, practically any fixed asset may be leased, and leasing arrangements account for more than 30% of all new capital equipment purchases in US. Between 1983 and 2000, global leasing grew at a CAGR of 10.35%, and between 2000 and 2014, it grew at a CAGR of 5.04%.

Project finance is a financing framework in which the project's assets and cash flows secure and pay the project's debt. A typical project finance system entails no recourse to the promoter's existing business except that the promoter undertakes to set up the project as planned and invest agreed capital, including estimated cost overrun. As a result, the structure pushes the promoter to take on bigger initiatives in comparison to the current firm size.

7.2 MEANING AND DEFINITION OF LEASING

As owners, companies traditionally acquire productive assets. Internal or external financing may be used to purchase assets. The modern corporate world is growing increasingly complicated. In order to prosper in this circumstance, businesses must strive for steady development. All of this must be accomplished through growth, diversity, and modernization. All of the aforementioned will necessitate a significant expenditure. As a result, the corporation is compelled to seek alternate sources of funding for the project. Leasing has arisen as a new type of capital asset finance.

Leasing is a two-way agreement between two people. The leasing firm is known as the lessor, while the user is known as the lessee. The former agrees to purchase capital equipment for the latter's use for a certain length of time in exchange for a rent payment. The rent is set in advance and is due at regular periods.

Lease, according to the Dictionary of Business & Management, is a type of contract that transfers the use or occupancy of land, space, building, or equipment in exchange for payment, typically in the form of rent.

According to James C. Van Horne, a lease is a contract in which the owner of an asset (lessor) offers to another person (lessee) the exclusive right to use the asset in exchange for the payment of rent.

7.3 ELEMENTS OF LEASES

Leasing is a prominent and crucial aspect of asset-based finance. It is made up of the following fundamental components:

- 1. **Two Parties**: In a lease financing arrangement, there are fundamentally two parties: the asset owner and the asset user.
- **2. Lesser:** The owner of the assets being leased is Lesser. Individual partnerships, joint stock companies, corporations, and financial organisations are examples of lessors.
- **3.** Lessee: A lessee is the person who receives the assets' service under a lease arrangement. Firms or corporations can be leased assets.
- **4. Lease broker:** A lease broker acts as a liaison between the lessee and the lessee's owner. He works as a middleman in the leasing negotiations. Foreign banks' merchant banking

departments, Indian banking subsidiaries, and private foreign banks all function as leasing brokers.

5. Lease assets include plant, machinery, equipment, land, automobiles, factories, and buildings, among other things.

7.4 TYPES OF LEASES

Leasing takes following forms: (1) operating leases, (2) financial, or capital leases, (3) saleand-leaseback arrangements, (4) combination leases, (5) direct leases, and (6) leveraged leases.

1. **Operating Leases:** An operating lease is a contract that allows the lessor, as the owner, to keep legal ownership of an asset while allowing the lessee to use it for economic purposes for a certain amount of time before returning it to the lessor. The lessor retains ownership of the asset at the conclusion of the lease period. In most cases, operating leases cover both finance and maintenance. Computers and office copying machines, as well as autos, trucks, and aeroplanes, are the principal types of equipment used in operational leases, according to IBM. In most operational leases, the lessor is responsible for maintaining and servicing the leased equipment, and the cost of this service is factored into the lease payments.

Another distinguishing feature of operational leases is that they are not completely amortised. In other words, the required rental payments under the lease arrangement are insufficient for the lessor to recoup the whole cost of the item. The lease contract, on the other hand, is designed for a much shorter term than the asset's estimated economic life, so the lessor may expect to recoup all expenditures either through subsequent renewal payments, by releasing the asset to another lessee, or by selling the asset.

The last aspect of operational leases is that they frequently include a cancellation provision that allows the lessee to terminate the lease and return the asset before the basic lease agreement expires. This is significant to the lessee since it implies the asset can be returned if it is deemed outdated by technical advancements or no longer required due to a change in the lessee's company.

Financial Leases: Financial leases, also known as capital leases, differ from operational leases in that they (1) do not usually include maintenance, (2) are not usually cancellable, (3) are usually for a term that approximates the asset's useful life, and (4) are completely amortised.

The lessee picks the precise item required and then negotiates the price and delivery terms with the manufacturer in a normal financial lease. The lessee then arranges for a leasing company (lessor) to purchase the equipment from the manufacturer, while also signing a lease arrangement with the lessor.

A financial lease's terms ask for the lessor's investment to be fully amortised, as well as a lease rate of return that is near to what the lessee would have paid on a secured term loan. For example, if a radiology group practise had to pay 10% for a term loan to purchase an X-ray machine, the lessor would factor in a 10% return on the lease. A financial lease has a striking resemblance to borrowing. A secured loan arrangement often involves the lender receiving a series of equal payments that are just enough to pay off the loan and give a stipulated rate of return on the outstanding loan balance. The lease payments in a financial lease price to the lessor plus a stipulated return on the lessor's investment. Ownership of the leased asset passes from the lessor to the lessee at the end of a financial lease.

Difference between Finance Lease and Operating Lease

Operating and financing leases both allow a business to rent and use an asset. The primary distinction is that under a financing lease, the lessee transfers ownership of the asset to the lessee. The lessee does not receive the benefits of ownership rights for accounting reasons under an operational lease.

On a balance sheet, instalment payments for assets leased under an operating agreement are recorded as rent expenditure. They're accounted for in financial statements as part of the cost of goods sold or operational expenditures. In contrast to a finance lease, where the payments for the leased asset are reported as amortisation and interest expenditure, this is not the case.

Lessees in operational leases are not responsible for the same risks that lessees in financing leases are. The lessee of an operational lease is merely renting the asset and has only the right to utilise it. This means that the lessor is responsible for all of the asset's risks and advantages. The lessor is also liable for all maintenance and repair expenditures as well as interest charges.

3. **Sales and Leaseback:** A sale and leaseback is a sort of financial lease that may be negotiated by a user who already owns an asset. It is commonly used with real estate. The user sells the asset to a third party while also signing a lease agreement for a fixed amount of time and on

certain terms. In a sale-and-leaseback deal, a company that owns land, buildings, or equipment sells the property to another company while also agreeing to lease it back for a set amount of time and on particular conditions. An insurance company, a commercial bank, a specialist leasing business, the finance arm of an industrial corporation, a limited partnership, or an individual investor might be the capital provider. A sale-and-leaseback agreement can be used instead of a mortgage.

It's worth noting that the seller receives the buyer's purchasing price right away. The sellerlessee keeps use of the property at the same time. The lease payment plan follows the same pattern as borrowing. The lease payments are set up in the same way in a sale-and-leaseback agreement; the payments are just enough to repay the whole purchase price to the investor, plus a stipulated return on the lessor's investment.

The fundamental distinction between sale-and-leaseback agreements and finance leases is that the leased equipment is used rather than new, and the lessor purchases it from the user-lessee rather than a manufacturer or distributor. As a result, a sale-and-leaseback is a unique financial lease. In other words, a sale and lease back lease is one in which the lessee sells an asset for cash to a prospective leaser and then leases the item back to the same leaser for a defined length of time. It might be in a financial leasing or operating leasing company. It is one of the most practical leasing solutions for enhancing a company's financial liquidity.

- 4. Combination Leases: Many lessors now provide leases with a number of options. As a result, in practise, leases sometimes do not fall neatly into either the operating or financial lease categories, but rather incorporate aspects of both. Combination leases are the name for these types of leases. To illustrate, cancellation provisions are most commonly linked with operational leases, but they are also included in many finance leases nowadays. In financial leases, however, these clauses usually incorporate prepayment provisions, which require the lessee to make penalty payments sufficient to allow the lessor to recover the leased property's unamortized cost.
- 5. **Direct lease:** A direct lease is one in which the owner of the assets and the users of the assets have a direct relationship. Direct leases can be dipartite (two parties in the lease) or tripartite (three parties in the lease). (In the lease, there are three parties.)
- 6. Leveraged lease: This sort of lease is used to buy assets and equipment with a high degree of capital expenditure. There are three parties engaged in this lease: the lessee, the lender, and the leaser. The leaser operates as an equity participant in the leverage lease, contributing a portion of the total cost of the assets while the lender provides the majority.

7.5 FINANCE LEASE PROCESS

A finance lease requires the following steps:

- 1. The lessee selects an asset that they require for a business.
- 2. The lessor, usually a finance company, purchases the asset.
- 3. The lessor and lessee enter into a legal contract in which the lessee will have use of the asset during the agreed upon lease.
- 4. The lessee makes a series of payments for the use of the asset.
- 5. The lessor recovers the cost of the asset plus interest.
- 6. At the end of the lease agreement, the lessee has the option to acquire ownership of the asset.

7.6 CONTENTS OF LEASE AGREEMENT

As we know lease is an agreement between two parties, let us see some of its important contents.

- 1. Description of lessor, lessee & the equipment.
- 2. Price, time & place of rental payment.
- 3. Time & place of equipment delivery.
- 4. Insurance to be taken by lessee on behalf of lessor.
- 5. Option of lease renewal.
- 6. Arbitration procedure in the extent of dispute.

7.7 TEST YOUR UNDERSTANDING (A)

1. Define the term leasing.

.....

2. State three features of leasing.

.....

3. Explain any two types of leases.

.....

4. Fill up the Blanks.

- a. Financial lease is also calledlease.
- b. Operating lease is forduration than financial lease.
- c. The lessee selects an asset that they require for a
- d. The assets may be plant, machinery, equipment, land, automobile, factory, building etc.

(Answers: (a) Capital, (b) Shorter, (c) business and (d) leased.

7.8 ADVANTAGES OF LEASING

Lease financing is one of the modern sources of finance, which plays a major role in the part of the asset-based financing of the company. It has the following important advantages.

1. Financing of fixed asset

Lease finance helps to mobilize finance for large investment in land and building, plant and machinery and other fixed equipments, which are used in the business concern.

2. Assets based finance

Leasing provides finance facilities to procure assets and equipment for the company. Hence, it plays a important and additional source of finance.

3. Convenient

Leasing finance is convenient to the use of fixed assets without purchasing. This type of finance is suitable where the company uses the assets only for a particular period or particular purpose. The company need not spend or invest huge amount for the acquiring of the assets or fixed equipment.

4. Low rate of interest

Lease rent is fixed by the lease agreement and it is based on the assets which are used by the business concern. Lease rent may be less when compared to the rate of interest payable to the fixed interest leasing finance like debt or loan finance.

5. Simplicity

Lease formalities and arrangement of lease finance facilities are very simple and easy. If the leaser agrees to use the assets or fixed equipments by the lessee, the leasing arrangement is mostly finished.

6. Transaction cost

When the company mobilizes finance through debt or equity, they have to pay some amount as transaction cost. But in case of leasing finance, transaction cost or floating cost is very less when compared to other sources of finance.

7. Reduce risk

Leasing finance reduces the financial risk of the lessee. Hence, he need not buy the assets and if there is any price change in the assets, it will not affect the lessee.

8. Better alternative

Now a days, most of the commercial banks and financial institutions are providing lease finance to the industrial concern. Some of them have specialised lease finance company. They are established to provide faster and speedy arrangement of lease finance.

7.9 DISADVANTAGES OF LEASE FINANCE

- 1) It is not suitable for project finance.
- 2) Certain benefits may not be available. For e.g., subsidy etc
- 3) The value of real asset like land, building may rise at that time the lessee losses capital gain.
- 4) Cost of lease finance is generally higher than debt finance
- If lessee decides to stop or discontinue the business, under lease he has to pay heavy penalties to do so.
- 6) In case of default lesser would suffer

7.10 EVOLUTION OF LEASE FINANCE INSTITUTIONS IN INDIA

Leasing in India originated in 1973. It grew in popularity as a financial product quickly, and by 1986, as per RBI's records, there were 339 equipment leasing companies with leased assets aggregated to USD 36.85 million. From 1986 till 1996 was a period of a significant boom in the industry. The factors that worked to fuel the boom included tax incentives due to first year depreciation and investment allowance, positive response to leasing IPOs by the capital markets, strong performance by early starting companies, etc. There were two more factors, discussed below, that fueled an unsustainable growth – the lure of public deposits, and lack of accounting standards. Presently, leasing finance becomes popular and effective financial sources for most of the business concerns. With the importance of lease finance, now a days banks and financial institutions provide leasing financial assistance to the industrial concern. The following institutions are famous and widely providing lease finance in India:

Leasing financial institutions in India may be classified into the following groups.





Fig. 7.1 Leasing Institutions

1. Leasing by Development Institutions

All India development institutions are providing leasing finance assistance to industrial concerns. Some of the public sector, leasing finance companies in India, is follows:

- Industrial Credit & Investment Corporation of India (ICICI)
- Industrial Finance Corporation of India (IFCI)
- Industrial Investment Bank of India (IIBI)
- Small Industries Development Corporation (SIDC)
- State Industrial Investment Corporation (SIIC)

2. Leasing by Specialized Institutions

Specialized financial institutions also provide lease finance to the industrial concern.

Some of the lease finance providing institutions are as follows:

- Life Insurance Corporation of India (LIC)
- General Insurance Corporation of India (GIC)
- Unit Trust of India (UTI)
- Housing Development Finance Corporation of India (HDFC)

3. Private Sector Leasing Company

Private sector leasing companies also provide financial assistance to the industrial concerns.

The following are the example of the private sector leasing companies in India:

- Express Leasing Limited
- 20th Century Leasing Corporation Ltd.
- First Leasing Company of India
- Mazda Leasing Limited
- Grover Leasing Limited

4. Private Sector Financial Company

Private sector financial companies also involve in the field of leasing finance. The following are the example of the private sector finance companies:

- Cholamandal Investment and Finance Company Ltd.
- Dcl Finance Limited
- Sundaram Finance Limited
- Anagram Finance Limited
- Nagarjuna Finance Limited.

7.11 ACCOUNTING AND TAX ASPECTS OF LEASING

A financing lease may have a major influence on a company's financial statements from an accounting standpoint. A company's balance sheet will display an increase in assets and liabilities as a result of a financing lease being capitalised, but working capital will stay unchanged. However, the debt-to-equity ratio will rise. The costs of a financing lease are divided into two categories: interest and principal value. It's comparable to a bond or a loan. A portion of the payments will be recorded as operational cash flow, while the remainder will be reported as financing cash flow. When a corporation is participating in a financing lease, this causes operating cash flow to grow.

Except for the leases specified below, AS-19 covers the accounting policies that apply to all forms of leases. A lease is an arrangement between the lessor and the lessee that grants the lessee the right to use an asset in exchange for a payment or series of payments over a predetermined period of time. This Standard does not apply to: (a) lease agreements for natural resource exploration or use. Oil, gas, lumber, metals, and other resource rights are examples. Licensing agreements (b). Films, video recordings, plays, manuscripts, patents, and copyrights are examples, as are lease agreements for land usage.

Accounting in the books of Lessee in case of Finance Lease

- 1. The lessee will recognise the lease as an asset or liability at the start of the lease at the fair value of the leased assets.
- 2. Divide the lease payments between financing charges and the reduction of the existing debt.
- 3. Distribute the loan fee throughout the lease duration.
- 4. Make a depreciation journal entry.

Disclosure in case of Finance Lease

- 1. Leased assets should be reported separately.
- 2. At the balance sheet date, show the net carrying amount for each leased asset.
- 3. Show the sum of minimum lease payments as of the balance sheet date, as well as their present value for the following periods: not more than one year, not more than five years, and more than five years.
- 4. Expected minimum sublease payment in the future

Accounting in the books of Lessee in case of Operating Lease

Lease payment is recognized as an expense in the profit and loss account.

Disclosure in case of Operating Lease

1. Future lease payment for the following period

Not later than one year

Later than one year but not later than five years

Later than five years

- 2. Total Expected future lease payment
- 3. Lease payment recognized in the statement of Profit and Loss for the period
- 4. General Description of Lessee significant leasing arrangements

Accounting in the books of Lessor in case of Finance Lease

1. Lessor to record assets in the books of account at an amount equal to net investment in Lease

- 2. Record finance income based on pattern reflecting constant periodic rate of return
- 3. Estimate unguaranteed residual value used in computing lessor gross investment in lease

Disclosure in case of Finance Lease

1. Provide reconciliation between gross investment in lease at balance sheet date and present value of minimum lease payment. Also disclose the same as

Not later than one year

Later than one year, but not later than five years

Later than five years

- 2. Unearned finance income
- 3. Unguaranteed residual value

Accounting in the books of Lessor in case of Operating Lease

- 1. Assets should be included in the balance sheet under fixed assets by the lessor.
- 2. Lease revenue should be included in the profit and loss account.
- 3. In an intense industry, costs incurred, including depreciation, must be reported in the statement of profit and loss account.

Disclosure in case of Operating Lease

- 1. For each class of assets accumulated depreciation, accumulated impairment and carrying amount at the balance sheet date.
- 2. Depreciation recognized in the statement of profit and loss account.
- 3. Impairment losses recognized in the statement of profit and loss account.
- 4. Impairment loss reversed in the statement of profit and loss account.
- 5. General description of leasing arrangement

Tax aspect of Lease: The full amount of the lease payments is a tax-deductible expense for the lessee provided the Internal Revenue Service agrees that a particular contract is a genuine lease and not simply a loan called a lease. This makes it important that a lease contract be written in a form acceptable to the IRS.

7.12 REGULATORY ASPECTS OF LEASING BUSINESS

A firm that is in the business of financing must have a certificate of registration designating it as a financial services company, according to RBI regulations. Financial leases are classified as financial transactions and are classified under "financial services activities" in the National Industrial Classification Code 4, whereas operating leases are classified as rental contracts and are classified under "renting and leasing activities" in a separate section.

Any firm primarily involved in the business of financial leases is deemed a Non-Bank Finance Company since a financial lease is viewed as a financial contract (NBFC). An entity is considered to be principally engaged in financial activities if it satisfies the twin "principal business criteria" laid down by the RBI vide its press release dated 8th April, 1999:

- At least 50% of the total assets of Company should be financial assets; and
- At least 50% of the gross income should be derived from the financial assets.

7.13 Instalment Buying, Hire purchase and Leasing

When buying in instalments, the buyer has no right to return the items to the seller, and the seller has no right to obtain the products back if the buyer defaults. He can, however, launch a lawsuit in a court of law.

Under contrast, in a hire purchase agreement, the hirer is free to return the products to the seller, and the buyer has the right to reclaim the goods if the hirer defaults. In both circumstances, ownership transfers to the buyer instantly, but in the latter scenario, ownership remains with the seller until the last payment is paid.

The interest component and depreciation of hiring charges are tax deductible in a hire purchase, but the whole lease rent is taxable in a lease.

7.14 TEST YOUR UNDERSTANDING (B)

1. List out any three advantages and two disadvantage of leasing for lessee.

2. Write down the names of any five leasing institutions.

.....

3. How the lessee will disclose the leased assets in his books of accounts?

.....

- 5. Fill up the Blanks.
- a. ----- deals with the accounting policies applicable for all types of leases.
- b. Lessor should record assets in balance sheet under ----- assets.
- c. Any entity principally engaged in the business of financial leases is considered to be a ----
- In the books of Lessee, in case of Operating Lease, lease payment is recognized as an --- ----- in the profit and loss account.

(Answer: (a) AS-19; (b) fixed; (c) Non-Bank Finance Company; and (d) expense.

7.15 PROJECT FINANCING IN INDIA AND ITS FEATURES

7.15.1 Project Financing in India: When launching a new project or introducing a new part of the firm, the intended financial timeline is not always met. To make the idea a reality, some form of financial leverage is required. As a result, project finance in India addresses the monetary requirements of the unique project. It refers to a loan taken out to cover the financial obligations that a new project entails. The project itself serves as collateral security in this case. As a result, the loan can be returned whenever the project is completed or generates money.

As a result, it is the long-term financing of infrastructure or industrial projects. Once the project has been finished, the cash flow begins. It's a frequent way to get money. So, used widely in the Indian market industry. Lending institutions, banks, NBFCs provide this type of loan.

According to the collateral required, project financing is of two types: (1) Primary and (2) secondary. The former form of collateral is the project itself. And the secondary collateral is the value of the loan and this collateral is apart from the project. The reason for this basically,

is the profile of the company- whether it is a newly established firm or a firm that has been in business for long years? The risk factor involves the perspective of banks and lending institutions.

7.15.2 Features of Project Funding:

- Capital may be raised for any sort of project. As a result, this is merely one of the important aspects of project finance. It involves money from investors. Furthermore, the funded loans must be returned after the cash flow is established.
- It's a non-recourse loan: In the event of project finance, the borrower is not accountable for commitments if the project is not completed. It is a sort of mortgage that banks use to finance a project when there are issues such as the borrower's inability to repay the loan in whole or in part. The mortgage is used by banks, financial organisations, and lending businesses to reclaim the loan amount. Their recovery will be equal to the amount of the mortgage and will not exceed it.
- There is a participation of multiple entities which ensure the process is collectively smooth, and fast.
- Special Purpose Vehicle (*SPV*) keeps an eye on the proceedings of the project. It also maintains a line of sight at the assets. So, after the completion of the project, asset allocation is processed with regards to the Special Purpose Vehicle which monitors all of that.
- The cash flow which the project generates after completion is therefore used for the repayment of the loan. A credit rating of the sponsor has minimal impact on project funding

7.16 BENEFITS OF PROJECT FINANCE

Here are some of the major benefits of project financing:

1. Risk-sharing

In project funding, there is the possibility of risk sharing. It's because there are several parties involved, such as lenders and investors. The scope of risk-sharing in project finance is a communal one, which reduces risk while minimizing it.

2. Extending the debt capacity

The capacity of containing debt of a firm is also enhanced due to the presence of multiple entities.

- Using general project financing to fund a project allows the sponsors to keep essential details hidden. It has to do with the project that will be funded. It's about gaining a competitive advantage in a competitive market.
- Any project involving the introduction of new industrial technology or the creation and commercialization of a new product or service falls under this category.
 Projects based on the enhancement of current products or services are also totally qualified to obtain project funding, as stated in the project financing eligibility requirements.
- Projects that ensure sustainable development. That is reduced material consumption, or cost optimization projects. Those having the potential to function in the field of modern technology also fall under the project financing eligibility criteria.
- The project must be justifiable to the investors and lending institutions.
- A new and exclusive opening of an aspect that would be commercialized in the form of a completed project. Once the lending facilities get convinced, the project will generate considerable cash flow. They can provide the funds with reliability.

3. Interest Rates

The interest rate on project finance is determined by the project's profile and overall viability. An interest rate is set by investors and lending institutions. In other circumstances, however, the project funding interest rate element is missing. It all depends on the cash flow created when the project is completed.

7.17 GROWTH IN PROJECT FINANCE

Prior to 1991, India's project finance was mostly focused on the industrial industry. Following that, big infrastructure project finance began to follow power sector policy changes. Later, under the public-private-partnership (PPP) arrangement, further infrastructure projects were also granted.

The power producing capacity increased from 69,065 megawatts (MW) in FY1991-92 to 3,70,107 MW in FY19-20, thanks to private sector (PPP projects) capacity additions of 2,862MW to 173,308MW during the same period, for an 18-year CAGR of 15.8%.

Aided by private sector participation in National Highway Development Programme and state government project awards under PPP, the national road length, which aggregated 2.327mn (million) km in FY1990-91, spurted to 5.89mn km in FY20-21. The telecom revolution, which

began with the announcement of the National Telecom Policy in 1994, also catalysed significant investment by the private sector and project financing.

Over the years, the PPP structure was extended to other infrastructure sectors such as airports, seaports, water distribution, railways and other public utilities such as hospitals bus terminuses etc.

PPP projects provided huge economic potential for banks and financial institutions since they allow for thorough risk assessment and mitigation in a contractual package with government backing. As a result, massive infrastructure projects with high debt levels from banks and FIs were undertaken in numerous sectors such as electricity production, transmission, distribution, toll, annuity highways, seaports, airports, telecom services, and water distribution.

In expectation of continuous cash-flows from contractual off-take in the case of power projects, or expected demand or cash-flow levels from other infrastructure projects, a debt-equity ratio (DER) of 70:30 or higher nearly became a norm for infrastructure project financing. As a result, since the mid-1990s, banks' exposure to infrastructure has progressively increased. The exposure of 14 scheduled banks to infrastructure projects peaked at Rs10.69 trillion (lakh crore) in June 2020, showing a 13.4% compound annual growth rate (CAGR) over 13 years.

7.18 TEST YOUR UNDERSTANDING (C)

1. Give features of project finance.

2. What are advantages of project finance?

Show growth of project finance in India.

.....

4. Multiple choice questions:

- 1. Project appraisal by financial institution takes into consideration
 - a. Promoter's capacity and competence
 - b. Project
 - c. Economic Aspects
 - d. All of above

Answer:

- (d) All of above
- 2. External sources of finance do not include:
 - a. Leasing
 - b. Debentures
 - c. Retained earnings
 - d. Overdrafts

Answer:

(b) Debentures

3. Which of the following is a drawback to a business that issues debentures?

- a. Lenders do not have any voting rights.
- b. There is dilution of control.
- c. There is a dilution of ownership.
- d. The value of liabilities increases.

Answer:

(a) Lenders do not have any voting rights.

7.19 LET US SUM UP

- Because leasing may be used instead of debt finance, it broadens the number of financing options accessible to firms (and to individuals).
- There are two stakeholders in every leasing transaction: The lessee is the one who uses the leased asset, whereas the lessor is the person who owns the property, which is generally the manufacturer or a leasing business.
- Operating leases, finance or capital leases, sale-and-leaseback leases, combination leases, and leveraged leases are the five most common forms of lease agreements. An operating

lease is a lease whose term is much shorter than the expected useful life of the asset being leased.

- Financial leases, also known as capital leases, differ from operational leases in that they (1) do not usually include maintenance, (2) are not usually cancellable, (3) are usually for a term that approximates the asset's useful life, and (4) are completely amortised.
- The lessee can deduct the whole lease payment if the Internal Revenue Service decides that the transaction is a true lease and not just a loan disguised as a lease. As a result, it's critical that a lease contract be prepared in an IRS-acceptable format.
- Project finance is a non-recourse or limited-recourse financing framework that combines loan, equity, and credit enhancement for the building and operation of a project.

7.20 KEY TERMS

- LESSEE: In a lease agreement, the party that uses the leased asset and makes the rental payments.
- LESSOR: In a lease agreement, the party that owns the leased asset and receives the rental payments.
- OPERATING LEASE: A lease whose term is much shorter than the expected useful life of the asset being leased.
- FINANCIAL LEASE: A lease agreement that has a term (life) approximately equal to the expected useful life of the leased asset.
- PROJECT FINANCING: It is a loan structure that relies primarily on the project's cash flow for repayment, with the project's assets, rights, and interests held as secondary collateral. Project finance is especially attractive to the private sector because companies can fund major projects off-balance sheet (OBS).

7.21 REVIEW QUESTIONS

- 1. Define each of the following terms:
 - a. Lessee; lessor
 - b. Operating lease; financial lease; sale-and-leaseback; combination lease;
 - c. Lessee's analysis; lessor's analysis
- 2. Distinguish between operating leases and financial leases. Would you be more likely to find an operating lease employed for a fleet of trucks or for a manufacturing plant?

3. Would you be more likely to find that lessees are in high- or low-income tax brackets as compared with lessors?

What is the difference between an operating lease and a financial, or capital, lease?

- 4. What is a sale-and-leaseback transaction? What is a combination lease?
- 5. What is the difference between a tax-oriented lease and a non-tax-oriented lease?
- 6. What is project finance? Show the growth of project finance in India.
- 7. What are the main characteristics of Infrastructure Financing?

7.22 FURTHER READINGS

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 8 – INTERNATIONAL BUSINESS FINANCE

STRUCTURE

- 8.0 Objectives
- 8.1 Introduction to international finance
- 8.2 Meaning of international finance
- 8.3 Objectives and scope of international finance
- 8.4 Reasons why companies go global
- 8.5 International finance vs. domestic finance
- 8.6 Test your understanding (A)
- 8.7 The foreign exchange market
- 8.8 Test your understanding (B)
- 8.9 International capital budgeting
- 8.10 Multinational working capital management
- 8.11 Financing international operations
- 8.12 Balance of payment
- 8.13 Test your understanding (C)
- 8.14 Let us sum up
- 8.15 Key terms
- 8.16 Review questions
- 8.17 Further readings

8.0 OBJECTIVES

After studying the Unit, students will be able to

- Understand meaning, nature and scope of international finance
- Understand how the foreign exchange market operates
- Explain the relationship between interest rates, inflation rates and exchange rates
- Focus on the techniques that can be used to hedge the foreign exchange risk
- Illustrate how the international capital budgeting and working capital decisions are made
- Highlight the methods of financing international operations
- Understand Balance of Payment position of a country

8.1 INTERODUCTION TO INTERNATIONAL FINANCE

Today, every nation needs to take international finance seriously because every country is dependent on another country in some way. The advanced nations turn to the developing nations for a cheap labour force, and the developing nations look to the advanced nations for services and goods. Multinational firms, which are regarded as the most significant phenomena in the economic growth of that century, were created as a result of the rapid expansion of cross-border commercial transactions in the second half of the twentieth century. A multinational corporation (MNC) manufactures and markets products or services across borders. The Coca-Cola Company, which has operations in more than 200 nations, serves as an illustration. In terms of their economic, political, and social systems, nations, businesses, and the people who live in them are becoming more connected and integrated.

The administration of global financial institutions, currency rates, and financial flows is the subject of international finance. The government of the home nation should implement trade and funding regulations to protect local players from fierce competition from global corporations. Multinational finance is not a brand-new topic in the field of corporate finance management; it was previously extensively covered in international economics. It was only due to the rapid expansion of global trade in the years following World War II and the complications that came with it that the topic became its own field of study.

8.2 MEANING OF INTERNATIONAL FINANCE

The field of economics known as international finance investigates the dynamics of foreign exchange rates, foreign direct investments, and how they impact global commerce. The macroeconomic relationship and monetary exchanges between two or more nations are the subject of international finance. Under international finance, terms like interest rate, exchange rate, FDI, FPI, and currency used in commerce are included. This also includes global initiatives, global financial flows, and global investments. Organizations can do cross-border trade with overseas suppliers, consumers, and lenders with the aid of international financial operations. In order to satisfy their operational demands, government agencies and nonprofit organisations also employ international financial methods. The following criteria are used to define the phrase "international financial management":

- 1. It manages all financial and non-financial operations with the goal of maximizing the wealth of the owners.
- 2. It is a field that deals with financing cross-border commercial transactions.
- 3. International markets are a part of international finance (such as international banking, euro currency market, euro-bond, international capital markets)
- 4. MNCs, governments, and private people all engage in managerial, economic, commercial, and accounting operations.
- 5. It calls for the exchange of one currency for another.

8.3 OBJECTIVES AND SCOPE OF INTERNATIONAL FINANCE

The main objective of international financial management is to arrange sufficient funds for meeting the short-term and long-term goals of an organization. Foreign finance has often been associated with the administration of MNCs that do some kind of international commerce. These MNCs continually develop tactics to increase shareholder value and their cash flows. The removal of entrance restrictions encourages businesses to explore global trade. Multinational firms were founded as a result of the rapid expansion of cross-border economic operations in the second half of the 20th century. When determining the country's exchange rates, it is crucial. This might be done in opposition to a commodity or the USD. The following functions of international finance require a financial manager's attention:

Making Capital Budgeting and Working Capital Decisions

One of the important functions of an international finance manager is to deploy resources in a prudent manner in long term projects. These decisions comprise decisions pertaining to capital expenditure and current assets. Capital budgeting technique can be extremely useful in identifying potential opportunities and evaluating their economic viability. The management of multinational working capital is another necessary role of the international financial manager.

• Estimating Financial Requirements

Another responsibility of the international finance manager is to estimate the short- and long-term financial requirements of the business. To determine this, the finance manager has to prepare a financial plan for the present as well as the future, based on the past financial data of the business. This includes estimating the amount required for purchasing fixed assets as well as the working capital.

Capital Structure Decision

The capital structure refers to an aggregate of different securities for raising the required funds. It is a mix of ownership and debt funds. After deciding about the amount of funds required, the finance manager needs to decide which type of securities should be raised. It may be wise to finance the fixed assets with a proper mix of equity capital, long-term debts and short-term debts.

• Selecting a Source of Finance

The best source of financing must be chosen once the ratio of the various sources has been decided. Share capital, debentures, financial institutions, commercial banks, public deposits or equity are just a few of the several avenues through which money may be raised. A bank, public deposits, commercial papers, and financial institutions are acceptable if short-term financing is needed. Conversely, share capital and debentures may be helpful if long-term financing is needed.

8.4 REASONS WHY COMPANIES GO GLOBAL

Over the recent years, increasingly companies are choosing or are being forced to sell their products in markets other than their domestic markets. It has become imperative for most companies to compete in foreign markets. The Companies choose to go global because of the following reasons:

- (i) Saturation of Domestic markets. Over the years, the domestic markets are saturated and there is pressure to raise sales and profits. Most companies have very ambitious sales and profit targets. If such figures have to be realized, companies have to move out of their domestic markets.
- (ii) *Domestic markets are small*. Companies which have ambitions to become big will have to look for bigger markets outside their boundaries.

- (iii) *Suppliers follow the world with their clients.* Customers in various sectors want their suppliers to be present internationally so that they may participate in the majority of the marketplaces where the buyer is active. For instance, a global corporation will select an advertising firm with a presence in every area where the corporation sells its goods. The consumer does not want to deal with the trouble of working with several advertising agencies for every market.
- (iv) Pressure from competitors. When their rivals do so, some businesses will be forced to leave their home markets. If the competitor is allowed to pursue its international growth alone, the competitor is likely to plough back some of the earnings from its international operations to the domestic market, making it difficult for the companies which refrained from pursuing international markets, to focus on the domestic market.
- (v) To seek raw materials. Some companies have major subsidiaries around the world to ensure access to the basic resources needed to sustain the companies' primary business line.
- (vi) To seek new technology. A single nation cannot hold a commanding advantage in all technologies, so companies are scouring the globe for leading scientific and design ideas.
 For example, Xerox has introduced more than 80 different office copiers in the United States that were engineered and built by its Japanese joint venture, Fuji Xerox.
- (vii) *To seek production efficiency*. Companies in high-cost nations are moving some of their production there. The capacity to move manufacturing from one nation to another has a significant impact on labour prices in every nation. Some multinational corporations decide where to move manufacturing virtually every day. For instance, BMW developed assembly plants in the United States because to the high production costs in Germany.
- (viii) *To avoid political and regulatory hurdles*. To avoid American import limitations, Japanese automakers mostly shifted manufacture to the country. Vehicles are now being assembled in the US by Honda, Nissan, Toyota, Mazda, and Mitsubishi. The need to avoid licencing and regulatory delays in their biggest markets led the American pharmaceutical company SmithKline and the British company Beecham to unite.
- (ix) To diversify. Numerous companies have crossed their country boundaries with the aim of diversification. For example, General Motors softened the blow of poor sales in the United States during the recessions of 1990-91, with strong sales by its European subsidiaries. In general, geographic diversification works because the economic ups and downs of different countries are not perfectly

8.5 INTERNATIONAL FINANCE VS DOMESTIC FINANCE

When all the *business and economic transactions* occur within a domestic boundary of the country, it is said to be domestic finance. However, if the transactions occur across international borders, it refers to international finance. Currency rates and currency derivatives are usually involved in international finance. Whereas in domestic finance, not many *financial instruments* as such are used. The following are the main distinctions between domestic and international finance:

Domestic Finance

- There is no effect from currency exposure.
- Domestic finance is exposed to the same political and economic climates.
- The *stakeholders* in domestic finance are usually uniform with a similar culture, language, and beliefs.
- It is subject to the same tax laws and rules.
- Stakeholders share the same values, dialects, etc.
- It is not necessary to be familiar with foreign currency derivatives.
- It is not necessary to maintain separate books.

International Finance

- The currency exposure has impact on international finance.
- International finance is exposed to different economic and political environments.
- IFM is also exposed to different tax laws and regulations.
- Stakeholders are of different beliefs, languages etc.
- Knowledge of foreign exchange derivatives are required.
- IFM has numerous challenges.
- Maintenance of separate books is required as per GAAP/AS.
- Diversity among stakeholders' cultures, languages, and values in international finance.

8.6 TEST YOUR UNDERSTANDING (A)

1. What do you mean by international finance?

.....

2. Briefly explain scope of international finance.

.....

.....

3. Differentiate between domestic finance and international finance.

.....

.....

4. International finance mainly discusses the issues related with monetary interactions of at

least_____.

- A. one country
- B. two or more countries
- C. five countries
- D. None of the above

5. International finance is concerned with_____

- A. exchange rates of currencies
- B. monetary systems of the world
- C. foreign direct investment
- D. all of the above

6. _____ maintains the foreign exchange reserves in India?

- A. State Bank of India
- B. Reserve Bank of India
- C. Finance Ministry of India
- D. EXIM India6.

Answer MCQs

(4) B; (5) D; and (6) Reserve Bank of India.

8.7 THE FOREIGN EXCHANGE MARKET

8.7.1 Meaning and features of Foreign Exchange Market:

The market where currencies are traded is known as the foreign exchange market. Among all the financial markets, it has the highest level of liquidity. It is decentralized in the sense that it is not under the jurisdiction of a single entity, such as a government or an international organisation. Over-the-counter (OTC) and dealer markets make up this market. It indicates that transactions are carried out between two participants in the foreign exchange market using telecommunications technology. All major currencies are exchanged in this market, which is open twenty-four hours a day, seven days a week. The simultaneous buying and selling of two currencies is currency trading in the foreign exchange market. One currency (the base currency) is compared to another to establish its value in this procedure (counter currency). In this process the value of one currency (base currency) is determined by its comparison to another currency (counter currency). The price at which one currency can be exchanged for another currency is called the *foreign exchange rate*. The most popular foreign exchange market is the euro to US dollar exchange rate (EUR to USD), which trades the value of euros in US dollars.

Actually, the foreign exchange markets are made up of many different markets. The foreign exchange markets are the original and oldest financial markets and remain the basis upon which the rest of the financial structure exists and is traded. The forex market provides international liquidity, preferably with relative stability. Historically, different international monetary systems have emphasized different policy mixes for exchange rate determination. For instance, the Bretton Woods system emphasized the first two at the expense of free capital movement. The collapse of the system destroyed the stability and predictability of the currency markets. The resultant large fluctuations meant a rise in exchange rate risk. Governments now face numerous challenges that are often captured under the term globalization or capital mobility: the move to floating exchange rates, the political liberalization of capital controls, and technological and financial innovation. Foreign exchange market allows traders to identify risk free opportunities and arbitrage these away.

Foreign exchange market is of two types, viz.; retail market and wholesale market, also termed as the inter-bank market. In retail market, travellers and tourists exchange one currency for another. The total turnover in this market is very small. Wholesale market comprises of large commercial banks, foreign exchange brokers in the inter-bank market, commercial customers, primarily MNCs and Central banks which intervene in the market from time to time to smooth exchange rate fluctuations or to maintain target exchange rates.

8.7.2 Participants in Foreign Exchange Market

A network of telephones, computer terminals, and automated dealing systems connects banks, nonbank dealers, forex dealers, and brokers to form the foreign exchange markets. The two biggest suppliers of quotation screen monitors used in currency trading are Electronic Broking Services and Reuters. Governments (often through their central banks) and commercial banks are the two main players on the market. The market is also populated by organisations like producers, exporters, and importers, as well as people like tourists from outside. In foreign exchange market, more than 90% of the total trading volume is represented by inter-bank transactions and the remaining 10% by transactions between banks and their non-bank customers. It is worth noting that central bank intervention involving buying or selling in the market is often indistinguishable from the foreign exchange dealings of commercial banks or of other participants.

Foreign exchange market in India is relatively very small. The major players in that market are the RBI, banks and business enterprises. Indian foreign exchange market is controlled and regulated by the RBI. The RBI plays crucial role in settling the day-to-day rates. Participants in Foreign exchange market can be categorized into five major groups, viz.; commercial banks, Foreign exchange brokers, Central bank, MNCs and Individuals and Small businesses.

1. Commercial Banks

The major participants in the foreign exchange market are the large Commercial banks who provide the core of market. As many as 100 to 200 banks across the globe actively "make the market" in the foreign exchange. These banks serve their retail clients, the bank customers, in conducting foreign commerce or making international investment in financial assets that require foreign exchange. These banks operate in the foreign exchange market at two levels. At the retail level, they deal with their customers-corporations, exporters and so forth. At the wholesale level, banks maintain an inert bank market in foreign exchange either directly or through specialized foreign exchange brokers.

A bank that has committed itself to buy a certain particular currency is said to have long position in that currency. A short-term position occurs when the bank is committed to selling amounts of that currency exceeding its commitments to purchase it.

2. Foreign Exchange Brokers

Foreign exchange brokers also operate in the international currency market. They act as agents who facilitate trading between dealers. Unlike the banks, brokers serve merely as matchmakers and do not put their own money at risk. They actively and constantly monitor exchange rates offered by the major international banks through computerized systems such as Reuters and

are able to find quickly an opposite party for a client without revealing the identity of either party until a transaction has been agreed upon.

The Foreign Exchange Dealers Association of India (FEDAI) is an association of commercial banks that specializes in the foreign exchange (forex) markets in India. These institutions are also called Authorised Dealers or ADs. The Association regulates the rules that determine commissions, fees, and charges that are attached to the interbank foreign exchange business.

3. Central banks

Another important player in the foreign market is Central bank of the various countries. Central banks frequently intervene in the market to maintain the exchange rates of their currencies within a desired range and to smooth fluctuations within that range. The level of the bank's intervention will depend upon the exchange rate regime flowed by the given country's Central bank.

4. Multi-National Companies

MNCs are the major non-bank participants in the forward market as they exchange cash flows associated with their multinational operations. MNCs often contract to either pay or receive fixed amounts in foreign currencies at future dates, so they are exposed to foreign currency risk. This is why they often hedge these future cash flows through the inter-bank forward exchange market.

5. Individuals and Small Businesses

Individuals and small businesses also use foreign exchange market to facilitate execution of commercial or investment transactions. The foreign needs of these players are usually small and account for only a fraction of all foreign exchange transactions. Even then they are very important participants in the market. Some of these participants use the market to hedge foreign exchange risk.

6. Travellers and Tourists. In retail market, travellers and tourists exchange one currency for another. The total turnover in this market is very small.

8.7.3 Segments of Foreign Exchange Market:

There are two types of exchange rates that are commonly used in the foreign exchange market. The **spot** exchange rate is the exchange rate used on a direct exchange between two currencies "on the spot," with the shortest time frame such as on a particular day. For example, a traveler exchanges some Japanese yen using US dollars upon arriving at the Tokyo airport. The **forward** exchange rate is a rate agreed by two parties to exchange currencies for a future date, such as 6 months or 1 year from now. A main purpose of using the forward exchange rate is to manage the foreign exchange risk, as shown in the case below.

The two segments of foreign exchange market are: Spot Market and Forward Market.

1. Spot Market:

In spot market currencies are exchanged immediately on the spot. This market is used when a firm wants to change one currency for another on the spot. The procedure is very simple. A banker can either handle the transaction for the firm or may have it handled by another bank. For instance, a US firm wants to buy 3000 books from a British Publisher. The Publisher wants three thousand British Pounds for the books so that the American firm needs to change some of its dollars into pounds to pay for the books. If the British Pound is being exchanged, say, for US 1.70, then £ 3,000 equals 5100. The US firm simply pays 5100 to its bank and the bank exchanges the dollars for 3000 £ to pay the British Publisher.

Risks are always there in any given currency on the spot market. Whatever currency a corporation now owns or anticipates holding, if it is unfortunate or careless, the exchange rate might shift and the firm could wind up with a currency that is losing value. There is also a chance that the debt the company owes or will owe will be expressed in a currency that appreciates in value and becomes more difficult to obtain and utilise to satisfy the debt.

2. Forward Market:

Forward market has come into existence to avoid uncertainties. In Forward market, a forward contract about which currencies are to be traded, when the exchange is to occur, how much of each currency is involved, and which side of the contract each party is entered into between the firms.

With this contract, a firm eliminates one uncertainty, the exchange rate risk of not knowing what it will receive or pay in future. However, it may be noted that any possible gains in exchange rate changes are also estimated and the contract may cost more than it turns out to be worth.

8.7.4 Foreign Exchange Rates

The two basic quotations are *direct and indirect quotes*. In direct quotation, the cost of one unit of foreign currency is given in units of local or home currency. In indirect quotations the cost of one unit of local or home currency is given in units of foreign currency.

For example, consider EUR as the local currency. Then

Direct Quote: 1 USD = 0.951167 EUR (on 22June, 2022)

Indirect Quote: 1 EUR = 1.0498 USD

Since the US dollar (USD) is the most dominant currency, usually, the exchange rates are expressed against the US dollar. However, the exchange rates can also be quoted against other countries' currencies, which are called as cross currency.

Now, a lower exchange rate in a direct quote implies that the domestic currency is appreciating in value. Whereas, a lower exchange rate in an indirect quote indicates that the domestic currency is depreciating in value as it is worth a smaller amount of foreign currency.

Base and Counter Currency: The exchange rate has two components—the base currency and the counter currency. In a direct quotation, the foreign currency is the base currency and the domestic currency is the counter currency. In an indirect quotation, it's the other way around. The domestic currency is the base and the foreign currency is the counter.

For example, USD to INR is a direct quote and INR to USD is an indirect quote. Most exchange rates list the USD as the base currency. Exceptions, in this case, include the Euro and the Commonwealth currencies such as Great Britain Pound (GBP), Australian Dollar (AUD), and the New Zealand Dollar (NZD).

Exchange Rate Types:

Floating and Fixed Exchange Rate: Exchange rates do not remain constant. They can be floating or fixed. The exchange rate is considered to be floating when the currency rate is determined by market conditions. Most countries use a floating exchange rate. On the other

hand, some countries prefer to fix their domestic currency as against a dominant currency, such as the USD.

Spot and Forward Exchange Rate: Exchange rates can also be classified into two types, namely spot, and forward exchange rates. The spot exchange rate is the current exchange rate at any given point in time. The forward exchange rate refers to the exchange rate that is stated and traded upon as of today but earmarked for payment and delivery at a future date.

8.7.5 International Parity Relationships

Generally, a mystery surrounds how exchange rates are calculated. The concept of exchange rate determination has become more complex and challenging to comprehend due to the enormous increase in the international mobility of capital as a result of noticeable improvements in global telecommunications as well as fewer restrictions on international financial transactions. The aforementioned causes frequently cause the Forex market to behave like an erratic stock market.

There are many questions about exchange rate determination. Are exchange rate fluctuations predictable? How do currency rates respond to inflation? What connection does interest rate have to exchange rates? What, theoretically, is the "correct exchange rate"? Thus, understanding the various exchange rate determination theories is crucial for finding a solution to these fundamental problems. The three theories of exchange rate determination are:

- 1. Interest Rate Parity Theory
- 2. Purchasing Power Parity Theory
- 3. International Fisher Effect

8.7.5.1. The Interest Rate Parity (IRP) Theory: The interest rate parity links spot exchange rates, forward exchange rates and nominal interest rates. Interest rate parity (IRP) is a theory according to which the interest rate differential between two countries is equal to the differential between the forward exchange rate and the spot exchange rate. Interest rate parity (IRP) plays an essential role in foreign exchange markets by connecting interest rates, spot exchange rates, and foreign exchange rates.

Interest Rate Parity is the fundamental equation that governs the relationship between interest rates and currency exchange rates. The basic premise of IRP is that hedged returns from investing in different currencies should be the same, regardless of their interest rates. IRP is the concept of no-arbitrage in the foreign exchange markets (the simultaneous purchase and
sale of an asset to profit from a difference in the price). Investors cannot lock in the current exchange rate in one currency for a lower price and then purchase another currency from a country offering a higher interest rate.

The formula for IRP is:

$$F_0 = S_0 imes \left(rac{1+i_c}{1+i_b}
ight)$$

Where:

F0=Forward Rate

S0=Spot Rate

ic=Interest rate in country

cib=Interest rate in country *b*

8.7.5.2 Purchasing Power Parity (PPP): This theory links spot exchange rates to nations' price levels. The PPP theory focuses on the inflation-exchange rate relationships. If the law of one price were true for all goods and services, we could obtain the theory of PPP. There are two forms of the PPP theory.

Absolute Purchasing Power Parity: The absolute PPP theory postulates that the equilibrium exchange rate between currencies of two countries is equal to the ratio of the price levels in the two nations. Thus, prices of similar products of two different countries should be equal when measured in a common currency as per the absolute version of PPP theory.

A Swedish economist, Gustav Cassel, popularised the PPP in the 1920s. When many countries like Germany, Hungary and Soviet Union experienced hyperinflation in those years, the purchasing power of the currencies in these countries sharply declined. The same currencies also depreciated sharply against the stable currencies like the US dollar. The PPP theory became popular against this historical backdrop.

Let Pa refer to the general price level in nation A, Pb the general price level in nation B and Rab to the exchange rate between the currency of nation A and currency of nation B. Then the absolute purchasing power parity theory postulates that

Rab = Pa/Pb

For example, if nation A is the US and nation B is the UK, the exchange rate between the dollar and the pound is equal to the ratio of US to UK Prices. For example, if the general price level in the US is one and half time the general price level in the UK, the absolute PPP theory postulates the equilibrium exchange rate = $1.5/\pounds1$.

In reality, the exchange rate between the dollar and the pound could vary considerably from \$1.5/£1 due to various factors like transportation costs, tariffs, or other trade barriers between the two countries. This version of the absolute PPP has some defects. For instance, the existence of transportation costs, tariffs, quotas or other obstructions to the free flow of international trade may prevent the absolute form of PPP. The absolute form of PPP appears to calculate the exchange rate that equilibrates trade in goods and services so that a nation experiencing capital outflows would have a deficit in its BOP while a nation receiving capital inflows would have a surplus. Also, the theory does not even equilibrate trade in goods and services.

Relative Purchasing Power Parity: The relative form of PPP theory is an alternative version which postulates that the change in the exchange rate over a period of time should be proportional to the relative change in the price levels in the two nations over the same time period. This form of PPP theory accounts for market imperfections such as transportation costs, tariffs and quotas. Relative PPP theory accepts that because of market imperfections prices of similar products in different countries will not necessarily be the same when measured in a common currency. This approach specifically states that the rate of change in the prices of products will be somewhat similar when measured in a common currency as long as the trade barriers and transportation costs remain unchanged.

Graphic Analysis of PPP: Exhibit 1 shows the Purchasing Power Parity theory which helps us to assess the potential impact of inflation on exchange rates. The vertical axis measures the percentage appreciation or depreciation of the foreign currency relative to the home currency while the horizontal axis measures the percentage by which the inflation in the foreign country is higher or lower relative to the home country. The points in the diagram show that given the inflation differential between the home and the foreign country, say by X per cent, the foreign currency should adjust by X per cent due to the differential in inflation rates. The diagonal line connecting all these points together is known as the PPP line and it depicts the equilibrium position between a change in the exchange rates and relative inflation rates.

Purchasing Power Purity Theory (exhibit-1)



For example, point A represents an equilibrium point where inflation in the foreign country, say UK, is 4% lower than the home country, say India, so that Ih - If = 4%. This will lead to an appreciation of the British pound by 4% per annum with respect to the Indian rupee.

Point B in the diagram shows a point where the difference in the inflation rates in India and Mexico is assumed to be 3% so that Ih - If = -3%. This will lead to an anticipated depreciation of the Mexican peso by 3 per cent, as depicted by point B. If the exchange rate responds to inflation differentials according to the PPP, the points will lie on or close to the PPP line.

8.7.5.3 International Fisher Effect (IFE)

The International Fisher Effect uses interest rates rather than inflation rate differential to explain the changes in exchange rates over time. IFE is closely related to the PPP because interest rates are significantly correlated with inflation rates. The relationship between the percentage change in the spot exchange rate over time and the differential between comparable interest rates in different national capital markets is known as the 'International Fisher Effect.'

According to the global Fisher effect, if two nations have equal interest rates, the currency of the nation with the higher rate will devalue by the amount of the interest rate difference. In other words, the nominal interest rate within a nation typically equals about the actual interest rate plus the anticipated inflation rate. Irving Fisher had come to the conclusion that changes in price level expectations lead to a compensatory adjustment in the nominal interest rate, and that the speed of the adjustment depends on the level of information that market participants possess. This conclusion was supported by both theoretical arguments and empirical research.

The "Fisher effect," or the degree to which the nominal interest rate directly fluctuates with anticipated inflation rates, has since been integrated into the theory of exchange. Applied internationally, the International Fisher Effect suggests that nominal interest rates are unbiased indicators of future exchange rates. The IFE implies that if the nominal interest rate does not sufficiently increase to maintain the real interest rate, the exchange value of the country's currency tends to decline even further.

8.7.6 Foreign Exchange Hedging

Forex hedging is a tactic used to safeguard a position in a currency pair against a negative change. When a trader is worried about news or an event that might cause volatility in currency markets, it is often a type of short-term protection. When discussing this type of hedging for currency pairs, there are two similar tactics. A hedge may be set up by taking the opposite position in the same currency pair, and buying forex options is a second method.

Strategy One: A forex trader can create a "hedge" to fully protect an existing position from an undesirable move in the currency pair by holding both a short and a long position simultaneously on the same currency pair. This version of a hedging strategy is referred to as a "perfect hedge" because it eliminates all of the risk (and therefore all of the potential profit) associated with the trade while the hedge is active.

Although selling a currency pair that you hold long, may sound bizarre because the two opposing positions offset each other, it is more common than you might think. Often this kind of "hedge" arises when a trader is holding a long or short position as a long-term trade and, rather than liquidate it, opens a contrary trade to create the short-term hedge in front of important news or a major event. However, forex dealers in the United States do not allow this type of hedging. Instead, firms are required to net out the two positions—by treating the contradictory trade as a "close" order. However, the result of a "netted out" trade and a hedged trade is essentially the same.

Strategy Two: A forex trader can create a "hedge" to partially protect an existing position from an undesirable move in the currency pair using forex options. The strategy is referred to as an "imperfect hedge" because the resulting position usually eliminates only some of the risk (and therefore only some of the potential profit) associated with the trade. In order to create an imperfect hedge, a trader with long position in a currency pair can buy put option contracts to reduce downside risk, while a trader who is short a currency pair can buy call option contracts to reduce the risk stemming from a move to the upside.

8.7.7 Foreign Exchange Rates System

Foreign currency exchange rates can be floating or fixed. In case of floating rates, they change continually based on a multitude of factors. Alternatively, they can be pegged (or fixed) to another currency, in which case they still float, but they move in tandem with the currency to which they are pegged. In other words, the *fixed exchange rate regimes* are set to a pre-established peg with another currency or basket of currencies. In contrast, *a floating exchange rate is* one that is determined by supply and demand on the open market as well as macro factors.

8.7.7.1 Floating vs. Fixed Exchange Rates

Currency prices can be determined in two main ways: a floating rate or a fixed rate. A floating rate is determined by the open market through supply and demand on global currency markets. Therefore, if the demand for the currency is high, the value will increase. If demand is low, this will drive that currency price lower. There are several technical and fundamental factors which determine what people perceive as a fair exchange rate and alter their supply and demand accordingly.

The currencies of most of the world's major economies were allowed to float freely following the collapse of the Bretton Woods system between 1968 and 1973. Therefore, most exchange rates are not set but are determined by ongoing trading activity in the world's currency markets.

Fixed Rates/Pegged rates: This rate is determined by the government through its central bank. The rate is set against another major world currency (such as the U.S. dollar, euro, or yen). To maintain its exchange rate, the government will buy and sell its own currency against the currency to which it is pegged. Short-term moves in a floating exchange rate currency reflect speculation, rumors, disasters, and everyday supply and demand for the currency. If supply outstrips demand, then that currency will fall, and if demand outstrips supply, that currency will rise. Contrarily, the extreme short-term moves can result in intervention by central banks, even in a floating rate environment. Because of this, while most major global currencies are considered floating, central banks and governments may step in if a nation's currency becomes too high or too low.

Maintaining rates. Some countries may decide to use a pegged exchange rate which is maintained artificially by the government. This rate will not fluctuate intraday and may be reset on particular dates known as revaluation dates. Governments of emerging market countries often do this to create stability in the value of their currencies. To keep the pegged foreign exchange rate stable, the government of the country must hold large reserves of the currency to which its currency is pegged to control changes in supply and demand.

8.8 TEST YOUR UNDERSTANDING (B)

1. Define foreign exchange market.
2 What are types of exchange rate quotations?
2. What are types of exchange rate quotations:
3. What is interest rate parity theory of exchange rates?
4. Exchange Rate refers to the rate at which the following is exchanged.
A. Goods
B. Services
C. Currencies
D. All the above
5. Floating Exchange Rates is determined by:
a) Mutual consultations between countries
b) Banking systems
c) Market Forces
d) None of the above
6. In the foreign exchange market that market price of US Dollar rises from \gtrless 74 to \gtrless 75. This

6. In the foreign exchange market that market price of US Dollar rises from ₹ 74 to ₹ 75. This means that:-

a) Rupee has depreciated

b) US Dollar has appreciated

c) Both a) and b)

d) None of the above

7. Identify which of the following statements is true?

a) The flexible exchange rate system gives the government more flexibility to maintain a large stock of foreign exchange reserves

b) In the managed floating exchange rate system, the government intervenes to buy and sell foreign currencies.

c) in the Managed floating exchange rate system, the central bank intervenes to moderate exchange rate fluctuations

d) In the Fixed exchange rate system, market forces fix the exchange rate.

Answer to MCQs

(4) C; (5) C; (6) A; and (7) C.

8.9 INTERNATIONAL CAPITAL BUDGETING

For both MNCs and local companies, capital budgeting is a process of inquiry and analysis that results in a significant financial choice. The cash inflows and outflows of a project are analysed as part of the capital budgeting process to see if the anticipated return matches a predetermined standard. Payback period, accounting rate of return, net present value method, and internal rate of return methodologies are some of the key capital budgeting techniques. Due to the fact that MNCs are often big and capital-intensive, as well as the fact that the process incorporates more factors and decision variables overall, international capital budgeting is more difficult than domestic capital budgeting. In comparison to domestic capital budgeting involves the estimation of some measures or criteria that indicate the feasibility or otherwise of a project such as adjusted Net Present Value (ANPV). Foreign projects differ from domestic projects concerning several factors- the foreign currency dimension, different economic indicators in different risk characteristics with which the MNC is not as familiar as

those of domestic projects. All these differences lead to a higher level of risk in international capital budgeting than in domestic capital budgeting.

While calculating the incremental cash flows for international capital budgeting, the following accounts must be taken into account:

Cannibalization: Cannibalization occurs when new projects cause current cash flows to decline as a result of the new projects. These declining cash flows are regarded as the cash outflows for the new projects and are subtracted from the final calculation.

Royalties and fees: You occasionally have to pay additional licence fees and other royalties to the local government; these are regarded as financial outflows. Sometimes the opportunity cost is also considered as the cash out flows.

Transfer Pricing. In the international transfer major portion of some product is manufactured in some other subsidiary and the host country little value to finished product. The parent country and the host country are involved in transfer pricing.

The following factors indicate the importance of international capital budgeting-

Create and Establish Long-Term Strategic Objectives: Any business's ability to develop and succeed depends on its capacity to create long-term goals. Capital budgeting's capacity to evaluate investment projects provides organisations with a foundation for long-term planning.

Find New Investment Projects: Evaluating investment projects provides a corporation with the framework it needs to find and assess new projects, which is a crucial task for all companies looking to succeed and make money in their sector.

Facilitate the Transfer of Information: The capital budgeting process facilitates the transfer of information to the appropriate decision-makers within a company.

Monitoring and Control of Expenditures: Since a good project can turn bad if expenditures aren't carefully controlled or monitored, this step is a crucial benefit of the capital budgeting process.

8.10 MULTINATIONAL WORKING CAPITAL MANAGEMENT

Management of current assets and liabilities for any multinational corporation with several branches and subsidiaries spread across various nations is known as multinational working capital management. There is need to handle the inventory, cash, short-term investments,

debtors, and foreign exchange risks, to put it simply. By controlling this, a global corporation may lower its costs and raise funds for covering ongoing expenses.

1. Inventory Management. Inventory management means to reduce the carrying and holding cost of inventory. At international level, company has to take following decisions:

- a. What is the quantity of production?
- b. Where will it produce its goods?
- c. From where will it buy the raw material?
- d. Which transport will it use for transferring goods?
- e. Where will it store its products?

For getting answer of all these questions, MNC has to analyze its past records. Quantity of production depends on the demand of customers. Past sales records of its different branches will be helpful better financial decision relating to the quantity of production. Firm should produce near the location of production. But it should also see the labour cost and other overhead cost. But affect the production location. After analyzing the labour cost, delivery cost, raw material availability and other overhead cost, company has to take this decision.

2. Cash Management. Company can use centralized cash management system and decentralized cash management system. Every transaction relating to receipt and payment is recorded. In centralized cash management system, all cash is collected in head office. Only authorized order, cash is issued from head office. Through cash pooling company can use CCM better way. In this system, company's cash is deposited in their local financial institutions and banks from different branches. Financial institute or bank converts all cash into pool. So, without paying any fees, any bank uses this fund. There is also not any low balance problem.

3. Currency Risk Management. In case of a MNC's currency management, currency risk will effect. If home currency will weak and other country's currency will strong, it will affect your total calculation of working capital. For example, you have to pay your one employee 1000 \$ in Indian currency, it is your current liability. Today exchange rate is Rs. 75/1 \$. For this, you have to pay Rs. 75,000. Suppose, you have deposited Rs. 75,000 in Indian bank for paying your Indian employees, but due to Indian currency fluctuation, exchange rate becomes Rs. 77/1\$. It means, you have to pay more Rs. 2000. This Rs. 2000 is your loss due to currency rate changes and your liability may be increased or reduced. So, by using inter-currency transactions and hedging, you can control the effect of changes in currency rates.

4. *Current liabilities Management.* Every branch's current liabilities may be different from other branch. There should be proper rules for paying within the time limit. Optimize and improvement in payment process will increase your working capacity. In India, multinational company uses line of credit for paying its small expenses. With this, interest is charged only when the money is withdrawal for paying expenses.

8.11 FINANCING INTERNATIONAL OPERATIONS

International Financing is important for various reasons; one being the important tool to estimate the exchange rates prevailing, these rates further help the investors in deciding about their investment in foreign companies.

Also, International Financing helps in utilizing the financial statements made by the countries who have adopted the style of International Financial Reporting Standards (IFRS). This helps the countries to follow the similar reporting systems.

The various sources for International Finance are as follows:

- 1. **Commercial Banks:** Global Commercial Banks all over the international market provide loans in the foreign currency to the companies. These banks are very crucial in financing the non-trade international operations. They facilitate international trading to occur smoothly.
- International Agencies and Development Banks: The developmental banks and other international agencies have come forth over the years for the purpose of financing in the international sector. The agencies are set up by the government of the developed countries of the world. The highly industrious agencies among this sector are – International Finance Corporation, EXIM Bank and Asian Development Bank.
- International Capital Markets: The budding organizations which include the multinational companies depend upon the fairly large amount of loans known as the foreign currency. The financial instruments which are used by these organizations include

 American Depository Receipts, Global Depository Receipts, and Foreign Currency Convertible Bonds.

8.12 BALANCE OF PAYMENT

Balance of Payment (BOP) may be defined as a statement that records all the monetary transactions made between residents of a country and the rest of the world during any given

period. This statement includes all the transactions made by/to individuals, corporates and the government and helps in monitoring the flow of funds to develop the economy.

The Balance of Payment shows whether the country has a surplus or a deficit of funds, i.e. when a country's export is more than its import, its BOP is said to be in surplus. On the other hand, the BOP deficit indicates that its imports are more than its exports. It is prepared according to the double-entry accounting system. All transactions will have a debit entry and a corresponding credit entry.

The formula for calculating the balance of payments is: current account + capital account + financial account + balancing item = 0.

A country's BOP is vital for the following reasons: A BOP statement can be used to determine whether the country's currency value is appreciating or depreciating. The BOP statement helps the government to decide on fiscal and trade policies. By studying its BOP statement and its components closely, one would be able to identify trends that may be beneficial or harmful to the county's economy and, thus, then take appropriate measures. There are three components of the balance of payment viz current account, capital account, and financial account. The total of the current account must balance with the total of capital and financial accounts in ideal situations.

Current Account

The movement of commodities and services between nations is tracked by the current account. This account includes all of the payments and receipts related to produced items and raw materials. It also includes stock dividends, royalties from patents, and earnings from engineering, tourism, transportation, commercial services, and copyrights. The balance of trade of a nation is the sum of all its exports and imports (BOT).

Capital Account: All capital transactions between the countries are monitored through the capital account. Capital transactions include purchasing and selling assets (non-financial) like land and properties. The capital account also includes the flow of taxes, purchase and sale of fixed assets etc., by migrants moving out/into a different country. The deficit or surplus in the current account is managed through the finance from the capital account and vice versa. There are three major elements of a capital account: (1) It includes all types of loans from the private and public sectors located in foreign countries; (2) Investments and (3) Foreign exchange

reserves held by the country's central bank to monitor and control the exchange rate does impact the capital account.

Financial Account: The flow of funds from and to foreign countries through various investments in real estate, business ventures, foreign direct investments etc., is monitored through the financial account. This account measures the changes in the foreign ownership of domestic assets and domestic ownership of foreign assets. Analysing these changes can be understood if the country is selling or acquiring more assets (like gold, stocks, equity, etc.).

Let us take an example to understand the Balance of Payment: Suppose, for the year 2020, the value of exported goods from India is Rs. 100 lakh and the value of imported items to India is 125 lakh, then India has a trade deficit of Rs. 25 lakhs for the year 2020.

8.13 TEST YOUR UNDERSTANDING (C)

1. What is internat	ional capital b	udgeting?				
2. What factors mu	ıst be consider	ed in internat	ional capital b	oudgeting	decisions?	
3. Explain the tern	1 Centralised v	vorking capita	al managemen	t for a MI	NC.	
1. Differentiate	between	Current	account	and	Capital	account

1. Differentiate	between	Current	account	and	Capital	account.
				•••••		

- 2. True-False Questions
- a. The entire NPV analysis can be conducted in terms of the host currency if money markets and exchange markets are fully integrated with the home market.
- b. The entire NPV analysis can be conducted in terms of the host currency if money markets, stock markets, and exchange markets are fully integrated with the home market.
- c. You can translate at the expected spot rate and discount at a risk-adjusted home-currency cost of capital.

d. From a financial analyst's viewpoint, "gross working capital" simply refers to current assets.

Answer question-5

a. false, b. true, c. true and d. true

8.14 TERMS USED

Balance of Payment: Balance of payment is a statement that records all the monetary transactions made between residents of a country and the rest of the world during any given period.

Capital Budgeting: Capital Budgeting is defined as the process by which a business determines which fixed asset purchases or project investments are acceptable and which are not.

Direct quotation: Direct quotation is when the one unit of foreign currency is expressed in terms of domestic currency.

Exchange rate risk: Exchange rate risk refers to the risk that arises due to fluctuations in the exchange rate between foreign and domestic currency.

Exchange Rate: The rate that is agreed upon by the two parties in the exchange is called **exchange rate**.

Foreign Exchange Market: The foreign exchange market is the global market for exchanging currencies of different countries.

Foreign exchange: It is the action of converting one currency into another.

Forward Rate: The *forward* exchange rate is a rate agreed by two parties to exchange currencies for a future date, such as 3 months or 6 months from now.

Indirect quotation: The indirect quotation is when one unit of domestic currency is expressed in terms of foreign currency.

Political risk: It refers to risks associated with doing business in particular country.

Spot rate: The **spot** exchange rate is the exchange rate used on a direct exchange between two currencies "on the spot," with the shortest time frame such as on a particular day.

Working capital: Working capital is calculated by subtracting current liabilities from current assets.

8.15 LET US SUM UP

- IFM is concerned with financial decisions taken in international business. □International financial management is an extension of corporate finance at international level.
- The goal of an MNC is to maximize shareholder wealth. When a corporation's shareholders differ from its managers, a conflict of goals can exist. This conflict is often referred to as the agency problem.
- The costs of ensuring that managers maximize shareholder wealth (agency costs) are usually larger for MNCs than for purely domestic firms, because monitoring managers of distant subsidiaries in foreign countries is more difficult.
- The complexity of operations may result in decisions for foreign subsidiaries of the MNCs that are inconsistent with maximizing shareholder wealth.
- IFM includes foreign exchange markets, international accounting, exchange rate risk management, and management of finance functions of international business. IFM sorts out the issues relating to FDI and foreign portfolio investment.
- The financial manager of MNCs manage various risks such as inflation risk, interest rate risks, credit risk and exchange rate risk. It also manages the changes in the foreign exchange market.
- The foreign exchange market is an important component of international finance. The foreign exchange market is a market where currencies are traded. The forex market is the world's largest financial market where trillions are traded daily. It is an OTC market. The currency market is open 24 hours a day, five days a week, with all major currencies traded in all major financial centers.
- Like in any other market, demand and supply determine the price of a currency. At any point in Time, in a given country, the exchange rate is determined by the interaction of the demand for foreign currency and the corresponding supply of foreign currency.
- The three theories of exchange rate determination are: Interest Rate Parity Theory; Purchasing Power Parity Theory and International Fisher Effect.
- *The Interest Rate Parity (IRP) Theory:* The interest rate parity links spot exchange rates, forward exchange rates and nominal interest rates. Interest rate parity (IRP) is a theory according to which the interest rate differential between two countries is equal to the differential between the forward exchange rate and the spot exchange rate.
- *Purchasing Power Parity (PPP):* This theory links spot exchange rates to nations' price levels. The PPP theory focuses on the inflation-exchange rate relationships. There are two

forms of the PPP theory: (a) Absolute Purchasing Power Parity and (b) Relative Purchasing Power Parity. The absolute PPP theory postulates that the equilibrium exchange rate between currencies of two countries is equal to the ratio of the price levels in the two nations. The relative form of PPP theory is an alternative version which postulates that the change in the exchange rate over a period of time should be proportional to the relative change in the price levels in the two nations over the same time period. The International Fisher Effect uses interest rates rather than inflation rate differential to explain the changes in exchange rates over time.

- *International capital budgeting* is one of the crucial decisions for finance managers. This decision is more complicated than domestic capital budgeting because MNCs are typically large and capital intensive, and because the process involves a larger number of parameters and decision variables. In general, international capital budgeting involves a consideration of more risk than domestic capital budgeting. So, international capital budgeting involves the estimation of some measures or criteria that indicate the feasibility or otherwise of a project such as adjusted Net Present Value (ANPV).
- Balance of Payment (BOP) may be defined as a statement that records all the monetary transactions made between residents of a country and the rest of the world during any given period. BOP has three components: Current account, capital account and reserve account.

8.16 REVIEW QUESTIONS

- What do you mean by international Finance? Why is international finance important? What are components of international financial management?
- 2. What is difference between management of a domestic firm and multinational company?
- 3. Discuss nature and scope of international financial decision.
- 4. Explain various types of quotations in foreign exchange market.
- 5. Describe International parity relationships by giving examples.
- 6. Distinguish between currency spot rate and Forward rates? What is role of hedging?
- 7. How does trade occur in forex market? What are spot trades?
- 8. Who all are the market participants in foreign exchange market?
- 9. Explain how currency exchange rate is determined? How do the interest rate parity and purchasing power parity relationships affect exchange rate?
- 10. Describe various issues involved in international capital budgeting decisions.

 Define the term Balance of Payment. What is its importance? Also explain elements of BOP.

8.17 FURTHER READINGS

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 9 : LEVERAGE OPERATING, FINANCIAL AND TOTAL

STRUCTURE

- 9.0 **Objectives**
- 9.1 Introduction
- 9.2 Concept and Types of Leverage
- 9.3 Operating Leverage
 - 9.3.1 Meaning
 - 9.3.2 Computation of OL
 - 9.3.3 Behaviour of Operating Leverage
 - 9.3.4 Applications
- 9.4 Financial Leverage
 - 9.4.1 Meaning
 - 9.4.2 Computation of Financial Leverage
 - 9.4.3 Behaviour
 - 9.4.4 Applications
- 9.5 Composite Leverage
- 9.6 EBIT-EPS Analysis
- 9.7 Importance of Leverage
- 9.8 Practical Problems
- 9.9 Let us sum up
- 9.10 Key words
- 9.11 Answers to check your progress
- 9.12 Terminal Questions
- 9.13 Selected References

9.0 OBJECTIVES

After studying the Unit, students will be able to

- Understand the concepts of financial leverage, operating leverage and total leverage.
- Learn the computation process of leverages.
- Appraise the conduct and uses of leverages.
- Analysis the relationship between EBIT and EPS
- Explore the importance of leverage.
- Illustrate various practical problems of leverage

9.1 INTRODUCTION

Leverage is a term that's used to describe the use of force to move an object. The two types of leverage are mechanical and financial. Mechanical leverage is when you use your own body weight or strength to move something, like when you pull something up on a rope. Financial leverage is when you borrow money from someone else in order to buy something.

The word "leverage" means to use something as a means to gain advantage. Leverage can be used in many different ways, such as gaining power or engaging in a risky financial transaction.

There are three types of leverage:

1) Financial leverage: This is the risk of borrowing money to buy more expensive assets and then selling them at a higher price.

2) Physical leverage: This is the ability to exert force on an object using one's body weight or other physical attributes, like when using a lever.

3) Mental leverage: This is the use of intelligence, knowledge, and skills that give an individual an advantage over others.

Leverage is one of the most important concepts in finance. The word "leverage" is derived from the French word for "to lift". It denotes the use of various financial instruments to increase returns on an investment. In other words, leverage is a way to increase the return on your investment by using debt or other instruments that provide some form of borrowing capacity.

9.2 MEANING OF LEVERAGE IN FINANCE AND TYPES OF LEVERAGE

Leverage is the use of borrowed capital to increase the potential rate of return on an investment. Leverage is a financial concept that allows an investor to control a large amount of property with only a small down payment. The key difference between leverage and other forms of borrowing is that it involves using someone else's money, not your own. This can be done by using margin trading, borrowing from banks, or buying on credit. The term "leverage" derives from the idea that if you have more debt than equity (i.e., you owe more than you own), then you are "leveraged." The word "leverage" is used in finance and business to describe a company's ability to use its capital to generate earnings or cash flow. It is also used in the context of personal finances, such as when someone is trying to decide whether or not they should invest their money. Leverage can be thought of as an investment strategy that involves using borrowed funds to increase the potential return on an investment. This is done by taking on debt, which magnifies the gains from successful trades but also increases losses from unsuccessful trades.

Types of Leverage

Leverage is the use of debt to increase the return on an investment. There are two types of leverage:

- 1) Operational leverage/ Operating Leverage
- 2) Financial Leverage

Operational Leverage is a measure of how efficiently a company can generate revenue. It is calculated by dividing the company's operating income by the total assets. This means that the higher this ratio, the more efficiently the company is generating earnings from its assets.

Financial Leverage is a measure of how much debt a company has taken on to generate earnings for their shareholders. The higher this ratio, the more debt-heavy and risky the company's strategy.

<u>Combined Leverage</u> is the multiplication of operating leverage and financial leverage.

Activity 1

1. Explain the following: (i) Combined Leverage	(ii) Asset Leverage (iii) ROI Leverage

2. Explain the concept of leverage. State its essentials.

.....

9.3 OPERATING LEVERAGE

It takes place when a change in revenue produces a greater change in EBIT. It is related to fixed costs. A firm with relatively high fixed costs uses much of its marginal contribution to cover fixed costs.

9.3.1 MEANING OF OPERATING LEVERAGE

Operating leverage is the ratio of fixed costs to variable costs. It is a measure of how much more profitable a business becomes when it expands its operations. Operating leverage is calculated as the ratio of fixed costs to variable costs:

200,000 (fixed cost) \div 20,000 (variable cost) = 10x operating leverage

Operating leverage is a measure of the level of fixed costs relative to variable costs. A company with high operating leverage has low fixed costs and high variable costs, so a small change in sales volume results in a large change in profit. The concept was developed by Andrew S. Grove and Robert W. Taylor, Jr., who wrote about it in their book "High Output Management" (1983).

Operating leverage is a concept that is used to measure the amount of input needed to produce a given amount of output. The more operating leverage a company has, the more it can produce with less input. Operating leverage can be achieved through vertical integration, because this allows companies to use their own inputs and outputs in an efficient way. For example, if they own the entire supply chain for their products, they will need fewer inputs than if they were dependent on other suppliers. Operating leverage is a company's ability to generate more revenue or earnings from the same amount of capital. This can be achieved through various means, such as by increasing margins and reducing fixed costs. Operating leverage is an important concept in finance. It refers to how a company makes use of its assets to generate profit. The concept can be applied to any business, but it's most common in manufacturing, where companies with higher operating leverage are more profitable because they need less money to produce the same level of output.

9.3.2 COMPUTATION OF OPERATING LEVERAGE

The operating leverage can be calculated by the following formula

OL =	Contribution	or	С
	EBIT		EB

where contribution means sales minus variables costs EBIT means contribution minus fixed costs. If contribution is more than fixed cost, it is favorable financial leverage. In case of vice-versa, it is unfavorable financial leverage.

Illustration No. 9.1

The following are the details

Selling price per unit	Rs. 20
Variable cost per unit	Rs. 12
Actual sales	200 units
Installed capacity	300 units

Calculated operating leverage in each of the following two situations.

- (i) when fixed costs are Rs. 1000
- (ii) when fixed costs are Rs. 800.

Solution :Statement showing computation of operating leverage

Sales	Rs. 4,000	Rs. 4,000	
Less Variables Costs	Rs. 2,400	Rs. 2,400	
Contribution	Rs. 1,600	Rs. 1,600	
Less – Fixed Costs	Rs. 1,000	Rs. 800	
Earning Before Tax	Rs. 600	Rs. 800	
Operating Leverage	Rs. 1,600	Rs. 1,600	
	Rs. 600	Rs. 800	
	= 2.67	2.0	

9.3.3. BEHAVIOUR OF OPERATING LEVERAGE

The behaviour of operating leverage may be measured by the degree of operating leverage. The degree of operating leverage is the percentage change in the profits resulting from a percentage change in the sales. It may be put in the form of the following formula:

	Percentage change in EBIT
Degree of Operating Leverage =	
	Percentage change in Sales
illustration No. 9.2	
The following are the details	
Selling Price Per Unit	Rs. 20
Variable Cost per unit	Rs. 12
Actual Sales	200 units
Fixed cost	1000
Calculate degree of operating leverage	ge when sales will be
(a) 150 units	
(b) 250 units	
(c) 300 units	

Solution:

Computation of degree of operating leverage

	Present	(i)	(ii)	(iii)
Items	Position			

Sales in units	200	150	250	300
Sales in Rs.	4000	3000	5000	6000
Less Variable	2400	1800	3000	3600
Costs in Rs.				
Contribution	1600	1200	2000	2400
Less Fixed	1000	1000	1000	1000
Costs in Rs.				
EBIT in Rs.	600	200	1000	1400
Degree of Operating		200	67	133
Leverage				
		25	25	50
		- 8	+ 2.67	+ 2.67

If a firm has a high degree of operating leverage, small change in sales will have large effect on operating income. Similarly, the operating profits of such a firm will suffer loss as compared to decrease in its sales.

There will not be any operating leverage, if there are no fixed costs.

9.3.4. APPLICATIONS

The operating leverage indicates the impact of change in sales on operating income. If a firm has a high degree of operating leverage, small change in sales will have large effect on operating income. A few areas of application are as follows :

(1) Operating leverage has an important role in capital budgeting decisions. Infact, this concept was originally developed for use in capital budgeting.

- (2) Long term profit planning is also possible by looking at quantam of fixed cost investment and its possible effects.
- (3) Generally, a high degree of operating leverage increases the risk of a firm. For deciding capital structure in favour of debt, the impact of further increase in risk will influence capital structure decision.

Activity II

1. Illustrate the concept of operating leverage.

State the applications of operating leverage in the changed socio-economic Indian scenario.

9.4 FINANCIAL LEVERAGE

It refers to usage of debt in capital structure. It is the use of fixed cost capital (debt) in the total capitalization of the firm. Fixed cost capital includes loans, debentures and preferences share capital.

9.4.1 MEANING

Financial leverage is expressed as the firm's ability to use fixed financial cost in such a manner so as to have magnifying impact on the EPS due to any change in EBIT (Earning Before Interest and Taxes). In other words, financial leverage is a process of using debt capital to increase the return on equity.

According to Guthman "Financial leverage is the ability of the firm to use fixed financial changes to magnify the effect of changes in EBIT on the firms EPS.

The following are the essentials of financial leverage :

- (1) It relates to liabilities side of balance sheet
- (2) It is related to capital structure
- (3) It is related to financial risk
- (4) It affects earning after tax and earnings per share

(5) It may be favourable or unfavourable. Unfavourable leverage occurs when the firm does not earn as much as the funds cost.

9.4.2 COMPUTATION OF FINANCIAL LEVERAGE

The financial leverage can be calculated by the following formula:

EBIT

Financial Leverage =_____

EBT

where EBIT refers to earnings before interest and tax and EBT refers to earnings before tax but after interest.

Some authorities have used the term financial leverage in the context of establishing relationship between EBIT and EPS. The financial leverage shows the percentage change in EPS in relation to percentage change in EBIT.

9.4.3 BEHAVIOUR

The behaviour of financial leverage may be measured by the degree of financial leverage. The degree of financial leverage may be in the form of the following equation:

		Percentage change in EBT
Degree of Financial leverage	=	
		Percentage change in EBIT
Alternatively, this may be calculated	l in tern	as of EPS.
		Percentage change in EPS
Degree of Financial leverage	=	
		Percentage change in EBT
Illustration No. 9.3		
A Ltd. has the following capital strue	cture:	

Rs.

		1,00
Equity share capital (of Rs. 100 each)		,000
		2,00,
10% Preference share capital (of Rs. 100 each)		000
10% debentures (of Rs.		2,00
100 each)		,000
	(iii)	Rs.
If EBIT is (i) Rs. 1,00,000 (ii) Rs. 80,000 and	1,20,00	00,

Calculate financial leverage under three situations. Assume 50% tax rate.

Solution :

Computation of Financial Leverage

Items	(i)	(ii)	
EBIT	Rs. 1,00,000	Rs, 80,000	Rs. 1,20,000
Less Interest on Debentures	Rs. 20,000	Rs. 20,000	Rs. 20,000
EBT	 Rs. 80,000	 Rs. 60,000	Rs. 1,00,000
Less Income	Pa 40.000	D ₂ 20.000	D a 50.000
Tax	KS. 40,000	KS. 30,000	Ks. 50,000

PAT	Rs.	40,000	Rs. 30,000	Rs.	50,000
Less Preference					R 20,
Dividend	Rs.	20,000	Rs. 20,000		s. 000
Earnings for Equity					R 30,
Shareholders	Rs.	20,000	Rs. 10,000		s.000
No. of					Ι
Shares	Rs.	10,000	Rs. 10,000	Rs.	10,000
EPS		2	1	l	3
					Rs
					1.20.0
EBIT Rs. 1,0	00,000		Rs. 80,000)	00
Financial					
Leverage				-	
Leverage					-
					Rs.
$EDT = D_{0} 20$	000		$D_{c} = 10.000$	N	30,00
ED I KS. 20	,000		KS. 10,000	,	U
:	5		8		2

9.4.4 APPLICATIONS

Financial leverage is useful in

(i) Capital structure planning

(ii) Profit Planning

Financial leverage helps the finance managers while devising the capital structure of the company. A high financial leverage means high fixed financial costs and high financial risk. Increase in fixed financial costs may force the company into liquidation.

9.5 COMPOSITE LEVERAGE

Both operating and financial leverage magnify the returns. There is combined effect of these leverages on income. Both the leverages are closely concerned with the firm's capacity to meet its fixed costs (both operating and financial). In case both the leverages are combined, the result obtained will disclose the effect of change in sales over change taxable profit.

Composite Leverage	=	Operating Leverage	* Financial Leverage
--------------------	---	--------------------	----------------------

It may be expressed as

EBT

=

The degree of combined leverage is computed in the following manner :

Percentage change in EPS

Degree of Combined leverage = ------

Percentage change in Sales Volume

Illustration No. 13.4

The following particulars are available:

Sales	Rs. 1,00,0	
Variable Cost	Rs.	70,000
Fixed Cost	Rs.	20,000
Long term loans	Rs.	50,000

At 10 percent

Compute the combined leverage.

Solution :

	30,000
Operating Leverage =	= 3
	10,000
	10,000
Financial Leverage =	= 2
	5,000
	30,000
Combined Leverage =	= 6 (or 3* 2 = 6)
	5,000

Activity 3

1. What is degree of financial leverage? How is it computed?

2. State the applications of financial leverage.

Illustrate with an example the process of computing financial leverage.

9.6 EBIT - EPS ANALYSIS

This is a method to study the effect of leverage. It involves the comparisons of alternative methods of financing under various alternative financing proposals. A firm may raise funds in either of the following alternatives :

(i) Exclusive use of equity capital

- (ii) Exclusive use of debt
- (iii)Various combinations of debt and equity
- (iv)Various combinations of debt, equity and preferences capital

Illustration No. 9.5

A company is contemplating to raise additional fund of Rs. 20,00,000 for setting up a project. The company expects, EBIT of Rs. 8,00,000 from the project. Following alternative plans are available

- (a) To raise Rs. 20,00,000 by way of equity share of Rs. 10 each
- (b) To raise Rs. 10,00,000 by way of equity shares and Rs. 10,00,000 by way of debt @ 10%.
- (c) To raise Rs. 6,00,000 by way of equity and rest Rs. 14,00,000 by way of preferences shares @ 14%.
- (d) To raise Rs. 6,00,000 by equity shares

Rs. 6,00,000 by 10% equity

Rs. 8,00,000 by 14% Preference shares

The company is in 60% tax bracket which option is best?

Solution :

EBIT - EPS Analysis

in Rs.

Particulars	Options			
	А	В	С	D
EBIT	8,00,000	8,00,000	8,00,000	8,00,000
Less Interest	-	1,00,000	-	60,000
EBT	8,00,000	7,00,000	8,00,000	7,40,000

.,	H,44,000
0,000 3,20,000	2,96,000
1,96,000	1,12,000
0,000 1,24,000	1,84,000
0,000 60,000	60,000
.8 2.07	3.07
	0,000 3,20,000 1,96,000 1,96,000 0,000 1,24,000 0,000 60,000 .8 2.07

Option D is the best as EPS is the maximum in this case.

9.7 IMPORTANCE OF LEVERAGES

Leverages have the magnifying effect. Operating leverage magnifies EBIT with respect to contribution while financial leverage magnifies EPS with respect to EBIT. Financial leverage enhances the EPS without an additional investment. By having judicious assets mix and financing mix, EPS may be increased. A few areas identified in this regard are as follows :

Investment in fixed assets	(Operating leverage)
Capital structure planning	(Financial leverage)
Profit planning	(Combined leverage)
Monitoring business and financial risk	
Maximising the value of share	
Improving EPS	

Judicious mixture of operating leverage and financial leverage.

A firm with high operating leverage should not have a high financial leverage. Similarly, a firm having low operating leverage will stand to gain by having a high financial leverage. If both leverages are increased, the possibility of bearing more risk will increase.

Activity 4

1. How does EBIT-EPS analysis help in choosing the best financing mix ?

2.Collect information for a company regarding financing mix. Also compute leverages for the same.

3. Write a brief mote on importance of leverages in profit planning.

9.8 PRACTICAL PROBLEMS

In this subsection, an attempt has been made to arrange a few practical problems of leverages along with solution:

Illustration No. 9.6

A company has three alternative plans:

	А	В	С
	Rs.	Rs.	Rs.
Equity Capital	30,000	15,000	45,000
Debt @ 10%	30,000	45,000	15,000
EBIT Rs. 6,000			

Calculate financial leverage.

Solution :

Computation o	f Financial Leverage	in Rs.
Computation 0	i i maneiai Leverage	m rs.

Particulars	А	В	С
EBIT	6,000	6,000	6,000
Less - Interest	3,000	4,500	1,500
Profit Before Tax	3,000	1,500	4,500
Financial Leverage	2	4	1.33
			Ι

Illustration No. 9.7

Given below the following data of two companies:

Particulars	A Ltd.	B. Ltd.
Sales	4,00,000	3,50,000
Variable Cost	40% of Sales	40% of Sales
Fixed Cost	25,000	30,000
Interest	1,40,000	80,000

Calculate degree of operating leverage and degree of financial leverage.

Solution: Statement showing computation of OL and FL in Rs.

Particulars	A Ltd.	B Ltd.
Sales	4,00,000	3,50,000
Less - Variable Cost	1,60,000	1,40,000
Contribution	2,40,000	2,10,000
Less - Fixed Cost	25,000	30,000
EBIT	2,15,000	1,80,000
Degree of Operating	1.12	1.17
Leverage		
Interest	1,40,000	80,000
EBT	2,75,000	1,00,000
Degree of Financial	2.87	1.80
Leverage		

Illustration No. 9.8

The following data is available for ABC Ltd.

Rs.

7,50,000

Sales

Variable Cost	4,20,000
Fixed Cost	60,000
Debt	4,50,000
Interest on Debt @	9%
Equity Capital	5,50,000

Calculate ROI, Operating, financial and combined leverage. Also ascertain the level at which EBIT will be zero.

Solution:

Return on Investment

Sales - Variable Cost - Fixed Cost

EBIT = Rs. 7,50,000 - Rs. 4,20,000 - Rs. 60,000 = Rs. 2,70,000

Rs. 2,70,000

ROI = ----- * 100 = 27%

Rs. 10,00,000

Operating Leverage

С	Rs. 3,30,000

----- = ----- = 1.22

EBIT Rs. 2,70,000

Financial Leverage

EBIT	Rs. 2,70,000
=	= 1.17
EBT	Rs. 2,29,500

 $\underline{\text{Combined Leverage}} = 1.17 * 1.22 = 1.43$

Sales when EBIT will be zero

Rs. 3,30,000

P/V Ratio = ------ * 100 = 44%

Rs. 7,50,000

Fixed Cost = 60,000 + 40,500 = 1,00,500

Rs. 1,00,500

BEP = ----- = Rs. 228409

44%

Illustration No. 9.9

The following details are available :

Existing equity capital	10,000 shares of Rs. 10 each		
Proposals to Raise	Rs. 1,00,000 with following alternatives		
(a) Deb	ot at 10%		
(b) Equ	ity capital @ Rs. 10 per share		
(c) Preference shares of Rs. 10	each @ 12% dividend		
EBIT	Rs. 80,000		
Tax Rate	50%		
Advise which of the method of financing would be most suitable.			
Which is the most optimum proposal of financing?			
Solution:			
Optimum proposal of financing			
	in Rs.		
Particulars	Ι	II	III
---------------------------	--------	--------	--------
EBIT	80,000	80,000	80,000
Less - Interest	10,000	-	-
EBT	70,000	80,000	80,000
Tax	35,000	40,000	40,000
EAT	35,000	40,000	40,000
Less – Dividend for	-	-	12,000
Preferences shares			
Earnings per shareholders	35,000	40,000	28,000
No. of shares	11,000	10,000	10,000
EPS	3.18	4.00	2.80

Activity 5

1. Calculate degree of (i) operating leverage (ii) financial leverage and (iii) combined leverage from the following data :

Sales 50,000 units @ Rs. 4 per unit

Variable cost per unit 40

Fixed costs - Rs. 1,00,000

Interest charges Rs. 3668

 The installed capacity of a factory is 700 units. The actual exploited capacity is 500 units. Selling price per unit Rs. 100 and variable cost is Rs. 60 per unit.

Calculate operating leverage when

- (a) fixed costs are Rs. 5000
- (b) fixed costs are Rs. 11,000
- (c) fixed costs are Rs. 15,000

9.9 SUMMARY

Leverage refers to the use of an asset or source of funds which involves fixed costs or fixed returns. Leverages can be operating, financial and combined. Operating leverage uses fixed operating costs to magnify the effects of changes in sales on the operating profits. Operating leverage may be favourable or unfavourable. High operating leverage is good when sales increase. Financial leverage affects financial risk of the firm. In financial leverage, the source of fund which wants fixed refund so that more than proportionate change in EPS may be reflected. Combined leverage is the multiplication of financial and operating leverage. In order to keep the risk under control, low financial leverage be kept alongwith high degree of operating leverage. EBIT – EPS analysis may help the financial managers to choose the optimum capital structure.

9.10 KEY WORDS

<u>Leverage</u> is the employment of an asset or funds for which the firm pays a fixed cost or fixed return.

<u>Operating Leverage</u> is the use of fixed operating costs to magnify a change in profits relative to a given change in sales.

<u>Financial Leverage</u> is the tendency of residual income to vary disproportionately with operating profit.

<u>Combined Leverage</u> expresses the relationship between revenue on account of sales and the taxable income.<u>ROI Leverage</u> is the ratio of EBIT and total assets.

<u>Trading on Equity</u> – Financial leverage is also sometimes called on trading on equity.

 \underline{EPS} – Earnings per share is calculated by dividing earnings available to equity share holders with number of equity shares.

9.11 ANSWERS

Activity 5

- 1. Operating leverage 4.33, Financial leverage 1.14 Combined leverage 4.9
 - 2. Operating leverage 1.33, Financial leverage 2.22 Combined leverage 4.0 times

9.12 TERMINAL QUESTIONS

- 1. What is leverage? What are the different types of leverages?
- 2. What is operating leverage? How is it different from financial leverage? Illustrate.
- 3. What is combined leverage? Explain its significance.
- 4. Illustrate EBIT EPS Analysis.
- 5. State the applications of operating and financial leverage.
- 6. Explain the significance of operating leverage? Discuss its effect on risk.
- 7. When does financial leverage become favourable? Discuss its impact on risk.
- 8. The following are the details:

	A Company	B Company
Sales	10,00,000	6,00,000
Variable cost	4,00,000	2,40,000
Fixed cost	2,40,000	1,80,000
Interest	1,00,000	1,00,000

Calculate the following :

- a) Degree of operating leverage and financial leverage of both the firms.
- b) Comment on the risk position.

[Ans : A Comp. 1.66 and 1.38

B Comp. 2 and 2.25]

9. A textile company has EBIT of Rs. 3,20,000. Its capital structure consists of the following securities :

		Rs.
10%	Debentures	10,00,000
12%	Preference shares	2,00,000
Equity	v shares of Rs. 100 each	8,00,000

Company is in the 35 percent tax bracket.

- a) Determine the EPS
- b) Determine the degree of financial leverage [Ans. a) Rs. 14.875 b) 1.75]

10. Calculate operating, financial and combined leverage under situations when fixed costs are

a) Rs. 50,000b) Rs. 1,00,000

For financial plans 1 and 2 respectively from the following information pertaining to the operation and capital structure of XYZ co.

Total Assets		Rs. 3,00,000
Asset Turnover		2
Variable cost as	3	60%
Percentage of sa	ales	
Financial plan		
А.	Debt 10%	Rs. 10,00,000
	Equity	Rs. 3,00,000
В.	Debt 10%	Rs. 3,00,000

Equity

Rs. 1,00,000

[Ans. a) 1.26 FPA 1.05 / 1.08 FPB 1.19 / 1.27 b) 1.71 FPA 1.33 / 1.84 FPB 1.5 / 2.18]

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 10 – CAPITAL STRUCTURE DECISION

STRUCTURE

- **10.0 Objectives**
- **10.1 Introduction**
- **10.2 Features of an appropriate capital structure**
- **10.3 Determinants of capital structure**
- **10.4 Optimum capital structure**
- **10.5** Theories of capital structure
- 10.6 Test your understanding (a)
- **10.7** Assumptions underlying the theories
- **10.8 Net income approach**
- **10.9** Net operating income approach
- 10.10 Modigliani and miller (mm) approach
- **10.11 Summary**
- **10.12 Questions for Practice**
- **10.13 Suggested Readings**

10.0 OBJECTIVES

After studying the Unit, students will be able to

- Define the Meaning of Capital Structure.
- Identify the major determinants of capital structure of a firm.
- Identify the determinants optimum capital structure.
- State the features of an appropriate capital structure.

• Define the various theories of capital structure

10.1 INTRODUCTION

A firm needs funds for long-term requirements and working capital. These funds are raised

through different sources both short-term and long-term. The long-term funds required by a firm aremobilised through owners' funds (equity shares, preference shares, and retained earnings) and long-term debt (debentures and bonds). A mix of various long-term sources of funds employed by a firm is called capital structure. In this lesson, we discuss the meaning of capital structure, determinants of capital structure, and various theories that explain the relationship between capital structure and cost of CapitaLand capital structure and value of the firm. Capital structure refers to the long-term sources of funds employed by a firm, viz, equity shares, preference shares, reserves, and debt capital.

According to Gerestenberg, "Capital structure of a company refers to the composition or make– up of its capitalisation and it includes all long - .term capital resources, viz, loans, bonds, shares, and reserves "Thus capital structure is made - up of debt and equity securities and refers to permanent financing of affirm.

Some authors use capital structure and financial structure interchangeably. But, both are different

concepts. Financial structure refers to the way in which the total assets of a firm are financed. In other words, financial structure refers to the entire liabilities side of the balance sheet. But, the capital structure represents only long-term sources of funds and excludes all short-term debt and current liabilities Thus, financial structure is a broader one and capital structure is only a part of it.

10.2 FEATURES OF AN APPROPRIATE CAPITAL STRUCTURE

It is the duty of the financial manager to develop an appropriate capital structure which is most advantageous to the company. The capital structure should be planned carefully keeping in view, the interests of the equity shareholders' as they are the ultimate owners of the company. The planning and designing of an appropriate capital structure is not an easy task. However, it must be seen while designing the capital structure, that a sound or appropriate capital structure should have the following features:

- i) **Profitability**: The capital structure of the company should be most advantageous. It should maximise the earnings per share while minimising the cost of financing.
- ii) Solvency : Excessive use of debt 'threatens the solvency of the company. Therefore, the debt capital should be employed upto such a level that the financial risk is within. manageable limits.
- iii) Flexibility: The capital structure should be flexible enough to meet the changing conditions. It must be possible for the company to provide funds whenever needed to finance any profitable activities.
- iv) Conservatism: The capital structure of the company should be conservative in the sense that the debt component of the firm should not exceed the debt capacity of the firm. The debt capacity of the firm depends on its ability to generate enough future cashflows for meeting interest obligations and repayment of principal when it becomes due.
- v) Control: The capital structure should be designed in such a way that it involves a minimum loss of control of the company by the existing shareholders/directors.

The above mentioned are the general features of an appropriate capital structure. The relative importance of these features may differ from one company to another. For example, one company may give more importance to flexibility to conservatism, and another company may go for solvency rather than profitability. But it may be said that the company's capital structure should be easily adaptable.

10.3 DETERMINANTS OF CAPITAL STRUCTURE

The capital structure of a firm depends on a number of factors and these factors are of different importance. Moreover, the influence of individual factors of a firm changes over a period of time. Generally, the following factors should be considered while determining the capital structure of a company.

i) **Trading on equity and EBIT - EPS analysis:** The use of long - term debt and preference share capital, which are fixed income - bearing securities, along with equity share capital is

called financial leverage or trading on equity. The use of long -term debt capital increases the earnings per share (EPS) as long as the return on investment (ROI) is greater than the cost of debt. The preference share capital will also result in increasing EPS. But the leverage effects more pronounced in case of debt because of two reasons: i) cost of debt is usually lower than the cost of preference share capital, and ii) the interest paid on debt is tax deductible.

Because of its effects on the earnings per share, financial leverage is one of the important considerations in planning the capital structure of a company. Companies with a high level of Earnings Before Interest and Taxes (EBIT) can make profitable use of the high degree of leverage to increase the return on the shareholders' equity. The EBIT – EPS analysis is one important tool in the hands of the financial manager to get an insight into the firm's capital structure planning. He can analyse the possible fluctuations in EBIT and their impact on EPS under different financing plans.

Under favourable conditions, financial leverage increases EPS, however, it can also increase financial risk to shareholders. Therefore, the firm should employ debt to such an extent that financial risk doesnot spoil the leverage effect.

ii) **Growth and stability of sales:** This is another important factor which influences the capital structure of a firm. Stability of sales ensures stable earnings, so that the firm will not face any difficulty in meeting its fixed commitments of interest payment and repayment of debt. So the firm can raise a higher level of debt. In the same way, the rate of growth in sales also affects the capital structure decision. Usually, greater the rate of growth of sales, greater can be the use of debt in the financing of a firm. On the other hand, the firm- should be very careful in employing debt capital if its sales are highly fluctuating and declining.

iii) Cost of capital: Cost of capital is another important factor that should be kept in mind while designing the capital structure of a firm. The capital structure should be designed in such a way that the firm's overall cost of capital is the minimum. The cost of capital is the minimum return expected by its suppliers. Of all the sources of capital, equity capital is the costliest as the equity shareholders bear the highest risk. On the other hand, debt capital is the cheapest source because the interest is paid on it by the firm whether it makes profits or not. Moreover, interest on debt capital is tax-deductible, which makes it further cheaper.

Preference share capital is also cheaper than equity capital as the dividends are paid at a fixed rate on preference shares. So, the overall cost of capital depends on the proportion in which the

capital is mobilised from different sources of finance. Hence, the capital structure should be designed carefully sotryat overall cost of capital is minimised.

iv) Cash flow ability: A firm which has the ability of generating larger and more stable cash inflows will be able to employ more debt capital. The firm has to meet fixed charges in the form of interest on debt capital, fixed preference dividend, and the principal amount when it becomes due. The firm can meet these fixed obligations only when it has adequate cash inflows. Whenever a firm wants to raise additional funds, itshould estimate the future cash inflows to ensure the coverage of fixed charges. Fixed charges coverageratio and interest coverage ratio are relevant for this purpose.

Here, one important point to be considered is that it is the cash flow ability of the firm and not theearning capacity alone (as indicated by EBIT) that should be taken into view while designing the capital structure. A firm may have adequate profits (EBIT) but it may not have adequate cash inflows to meet its fixed charges, and obligations. Sometimes, the inadequacy of cash inflows may lead the firm to the point of insolvency, when it fails to meet its payment obligations in time. Therefore debt capacity of the firm is determined by its cash flow ability.

v) Control: Sometimes, the design of the capital structure of a firm is influenced by the desire of the existing management to retain control over the firm. Whenever additional funds are required, the management of the firm wants to raise the funds without any loss of control over the firm. If equity shares are issuedfor raising funds, the control of the existing shareholders is diluted. Because of this, they may raise thefunds by issuing fixed charge-bearing debt and preference share capital, as preference shareholders anddebtholders do not have any voting rights. Debt financing is advisable from the point of view of control. But overdependence on debt capital may result in a heavy burden of interest and fixed changes

and may lead to the liquidation of the company.

10.4 OPTIMUM CAPITAL STRUCTURE

The capital structure of a firm influences its cost of capital and the value of the firm. So, the financial manager of the firm should aim at achieving the optimum capital structure and then maintain it. An optimum capital structure may be defined as that combination of debt and equity that maximise the total value of the firm or minimises the weighted average cost of capital. According to Ezra Solomon, the optimum capital structure refers to that degree of financial

leverage at which the market value of the firm's securities will be higher or the cost of capital will be lower than at other degrees of leverage.

10.5 THEORIES OF CAPITAL STRUCTURE

But, the existence of an optimum capital structure is not accepted by all. There are two extremes views or schools of thought regarding the existence of an optimum capital structure. As per one view, capital structure influences the value of the firm and the cost of capital and hence there exists an optimum capital structure. On the other hand, the other school of thought advocates that capital structure has no relevance and it does not influence the value of the firm and the cost of capital. Reflecting these views, different theories of capital structure have been developed. The main contributors to the theories are David Durand, Ezra Solomon, Modigliani, and Miller.

The important theories of capital structure are : Net Income Approach Net Operating Income Approach The Traditional view Modigliani and Miller hypothesis

10.6 TEST YOUR UNDERSTANDING (A)

1. Define the term Capital Structure.

2. State the determinants of capital structure.
3. Give the theories of capital structure.

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10.7 ASSUMPTIONS UNDERLYING THE THEORIES

In order to have a clear understanding of these theories and the relationship between 'capital structure and value of the firm or cost of capital, the following assumptions are made:

- (i) Firms employ only debt and equity.
- (ii) The total assets of the firm are given.
- (iii)The firm's total financing remains constant. The degree of leverage can be changed by selling
- (iv) debt to repurchase shares or selling shares to retire debt.
- (v) The firm has a 100% payout ratio, i.e., it pays 100% of its earnings as dividends.
- (vi) The operating earnings (EBIT) of the firm are not expected to grow.
- (vii) The business risk is assumed to be constant and independent of capital structure and financial risk.
- (viii)Investors have the same subjective probability distribution of expected future operating earnings for a given firm.
- (ix) There are no corporate and personal taxes. This assumption is relaxed later.

10.8 NET INCOME APPROACH

The Net Income Approach suggests that the value of the firm can be increased by decreasing the overall cost of capital (WACC) through a higher debt proportion. There are various theories that propagate the 'ideal' capital mix/capital structure for a firm. Capital structure is the proportion of debt and equity in which a corporate finance it's business. The capital structure of a company/firm plays a very important role in determining the value of a firm.

A corporate can finance its business mainly by 2 means, i.e., debts and equity. However, the proportion of each of these could vary from business to business. A company can choose to have a structure with 50% each of debt and equity or more of one and less of another. Capital structure is also referred to as financial leverage, which strictly means the proportion of debt or borrowed funds in the financing mix of a company.

Debt structuring can be a handy option because the interest payable on debts is tax-deductible (deductible from net profit before tax). Hence, debt is a cheaper source of finance. But increasing debt has its share of drawbacks like increased risk of bankruptcy, increased fixed interest obligations, etc.For finding the optimum capital structure to maximize shareholders' wealth or the value of the firm, different capital structure theories (approaches) have evolved.

Durand presented the Net Income Approach. The theory suggests increasing the firm's value by decreasing the overall cost of capital which is measured in terms of the Weighted Average Cost of Capital. This can be done by having a higher proportion of debt, which is a cheaper finance source than equity finance.

Weighted Average Cost of Capital (WACC) is the weighted average costs of equity and debts, where the weights are the amount of capital raised from each source.

WACC	_	Required Rate of Return x Amount of Equity + Cost of debt x Amount of Debt
		Total Amount of Capital (Debt + Equity)

According to Net Income Approach, a change in the financial leverage of a firm will lead to a corresponding change in the Weighted Average Cost of Capital (WACC) and the company's value. The Net Income Approach suggests that with the increase in leverage (proportion of debt), the WACC decreases, and the firm's value increases. On the other hand, if there is a decrease in the leverage, the WACC increases, thereby decreasing the firm's value.

For example, vis-à-vis the equity-debt mix of 50:50, if the equity-debt mix changes to 20: 80, it would positively impact the value of the business and increase the value per share.

NET INCOME APPROACH

Net Income Approach was presented by Durand which suggests that value of the firm can be increased by decreasing the overall cost of capital (WACC) through higher debt proportion.

- Confidence level of the investors will not be affected by increase in debt
- No sources of finance like Preference Share Capital and Retained Earning.
- Uniform dividend pay out ratio; it is 1.

ASSUMPTION

- Floatation Cost = 0, Transaction Cost = 0 and CDT = 0%
- Perfect Capital market and Infinite sources of finance

	#	Particulars	Amount
(r)	Α	EBIT	XXX
B	в	Less : Interest Cost (Debt X Interest Rate)	(XX)
B	С	EAT (Tax is assumed to be absent)	XXX
CALC. PROC	D	Shareholders Earnings (C=D)	XXX
	Е	Market Value of Equity Shares (D/Cost of Equity)	xx
	F	Market Value of Debt	xx
	G	Total Market Value of Firm (E + F)	XXX
	н	Overall Cost of Capital in percentage (A/G*100)	XX%

10.9NET OPERATING INCOME APPROACH

Net Operating Income Approach to capital structure believes that the value of a firm is not affected by the change of debt component in the capital structure. It assumes that the benefit that a firm derives by infusion of debt is negated by the simultaneous increase in the required rate of return by the equity shareholders. With an increase in debt, the risk associated with the firm, mainly bankruptcy risk, also increases, and such a risk perception increases the expectations of the equity shareholders.

A company's capital structure is a mix/ratio of debt and equity in the company's mode of financing. This debt ratio in the capital structure is also known as financial leverage. Some companies prefer more debt, while others prefer more equity while financing their assets. The ultimate goal of a company is to maximize its market value and its profits. In the end, the question that stands in front is the relation between the capital structure and the value of a firm.

This approach was put forth by Durand and totally differs from the Net Income Approach. Also famous as the traditional approach, Net Operating Income Approach suggests that the change in debt of the firm/company or the change in leverage fails to affect the total value of the firm/company. As per this approach, the WACC and the total value of a company are independent of the company's capital structure decisionor financial leverage.

As per this approach, the market value is dependent on the operating income and the associated business risk of the firm. Both these factors cannot be impacted by financial leverage. Financial leverage can only impact the share of income earned by debt holders and equity holders but cannot impact the operating incomes of the firm. Therefore, a change in the debt to equity ratio cannot change the firm's value.

It further says that with the increase in the debt component of a company, the company is faced with higher risk. To compensate for that, the equity shareholders expect more returns. Thus, with an increase in financial leverage, the cost of equity increases.

NET OPERATING INCOME APPROACH

Net Operating Income Approach suggests that value of the firm is dependent on the operating income and the associated business risks. Change in the leverage (debt) fails to affect the value of the firm.

ASSUMPTIONS / FEATURES

- Overall capitalization rate remains constant irrespective of debt.
- Value of equity is the difference between total firm value less value of debt.
- WACC remains constant.

10.10 MODIGLIANI AND MILLER (MM) APPROACH

The Modigliani and Miller approach to capital theory, devised in the 1950s, advocates the capital structure irrelevancy theory. This suggests that the valuation of a firm is irrelevant to a company's capital structure. Whether a firm is high on leverage or has a lower debt component has no bearing on its market value. Instead, the market value of a firm is solely dependent on the operating profits of the company.

A company's capital structure is the way a company finances its assets. A company can finance its operations by either equity or different combinations of debt and equity. A company's capital structure can have a majority of the debt component. Or a majority of equity or an even mix of debt and equity. Each approach has its own set of advantages and disadvantages. There are various capital structure theories that attempt to establish a relationship between the financial leverage of a company (the proportion of debt in the company's capital structure) with its market value. One such approach is the Modigliani and Miller Approach.

Modigliani and Miller devised this approach during the 1950s. The fundamentals of the Modigliani and Miller Approach resemble that of the Net Operating Income Approach. Modigliani and Miller advocate capital structure irrelevancy theory, which suggests that the valuation of a firm is irrelevant to a company's capital structure. Whether a firm is high on leverage or has a lower debt component in the financing mix has no bearing on the value of a firm.

The Modigliani and Miller Approach further state that the operating income affects the firm's market value, apart from the risk involved in the investment. The theory states that the firm's value is not dependent on the choice of capital structure or financing decisions of the firm.

The Modigliani and Miller Approach indicates that the value of a leveraged firm (a firm that has a mix of debt and equity) is the same as the value of an unleveraged firm (a firm wholly financed by equity). Suppose the operating profits and future prospects are the same. If an investor purchases shares of a leveraged firm, it would cost him the same as buying the shares of an unleveraged firm.

MODIGLIANI AND MILLER APPROACH

The theory stated that the value of a firm is not dependent on the choice of capital structure or financing decision of firm. On the contrary, it is affected by its operating income apart from the risk involved in the investment. This approach was **devised by Modigliani and Miller** during 1950s. It resembles Net Operating Income Approach.

ASSUMPTIONS

PROPOSITIONS WITHOUT TAXES

- Tax Rate = 0%
- Transaction Cost = 0
- Same information access to investors
- and corporates
 Floatation Cost = 0
- CDT Rate = 0%.



- The capital structure does not influence the value of firm.
- Debt holders & equity shareholders have same priority.
- Financial leverage is in direct proportion to Cost of Equity (Ke).
- With rise in debt, the equity shareholders perceive a higher risk.

PROPOSITIONS WITH TAXES

- It assumes existence of taxes, therefore, tax benefits due to interest payments are recognized.
- So, Cost of Debt reduces by Interest Tax Shields
- Therefore, change in debt component can affect value of a firm.

10.11 SUMMARY

Capital structure refers to the long - term sources of funds employed by a firm. The planning and-designing of an appropriate capital structure is not an easy task. It depends upon a number of factors such as EBIT - EPS analysis, growth and stability of sales, cost of capital, cash flow ability of the firm, flexibility, etc. An optimum capital structure is that combination of debt and equity which maximises the value of the firm or minimises the cost of capital. But the existence of an optimum capital structure is not accepted by all. Hence, several theories of capital structure have been developed. As per the Net Income approach and the traditional view, capital structure influences the value of the firm and the otoccipital and hence there is an optimum capital structure. On the other hand, according to the Net operating Income approach and M Hypothesis, capital structure has no relevance, and it does not influence the value of the firm and the cost of capital. Modigliani and Miller supported their conclusions with the help of arbitrage process. However, they later realised the importance of the existence of corporate taxes and accepted that capital structure influences the value of the firm and cost of capital.

10.12 QUESTIONS FOR PRACTICE

- 1. What is meant by capital structure? Explain the features of an appropriate capital structure.
- 2. What do you understand by capital structure? Explain the major determinants of capital structure.
- 3. Explain Net Income (NI) and Net Operating Income (NO I) approaches.
- 4. What is the Traditional View on capital structure?
- 5. Critically examine the Modigliani Miller Hypothesis of capital structure.
- 6. What is M M Hypothesis: capital structure? Does it make any difference if corporate taxes exist?
- 7. What is arbitrage ? How does it work?

10.13 SUGGETED READINGS

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SEMESTER-II

COURSE: FINANCIAL MANAGEMENT

UNIT 11 – WORKING CAPITAL CASH MANAGEMENT

STRUCTURE

- **11.0 Objectives**
- **11.1 Introduction**
- **11.2 Nature of working capital**
- 11.3 Significance/need for working capital
- 11.4 Classification of working capital
- **11.5** Working capital investment policies
- **11.6 Test your understanding (a)**
- 11.7 Working capital cycle
- **11.8 Determinants of working capital**
- **11.9 Source of working capital finance**
- 11.10 Tandon committee report on working capital
- 11.11 Summary
- **11.12 Review questions**
- 11.13 Answers to review questions
- **11.14 Further readings**

11.0 OBJECTIVES

After studying the Unit, students will be able to

- Define the Meaning of working capital.
- Identify the major determinants of working capital.
- State the features of an appropriate working capital.
- Define the various theories of working capital

11.1 INTRODUCTION

Working capital management is also one of the important parts of the financial management. It is concerned with short-term finance of the business concern which is a closely related trade between profitability and liquidity. Efficient working capital management leads to improve the operating performance of the business concern and it helps to meet the short- term liquidity. Hence, the study of working capital management is not only an important part of financial management but also are overall management of the business concern. Working capital is described as the capital which is not fixed but the more common use of the working capital is to consider it as the difference between the book value of current assets and current liabilities.

Working Capital is a part of the capital which is needed for meeting day to day requirements of the business concern. For example, payment to creditors, salary paid to workers, purchase of raw materials, etc., normally it consists recurring in nature. It can be easily converted into cash. Hence, it is also known as short-term capital.

11.2NATURE OF WORKING CAPITAL

The nature of working capital is as discussed below:

- 1. It is used for the purchase of raw materials, and payment of wages and expenses.
- 2. It changes form constantly to keep the wheels of business moving.
- 3. Working capital enhances liquidity, solvency, creditworthiness, and reputation of the enterprise.
- 4. It generates the elements of cost namely: Materials, wages, and expenses.
- 5. It enables the enterprise to avail of the cash discount facilities offered by its suppliers.
- 6. It helps improve the morale of business executives and their efficiency reaches at the highest climax.
- 7. It facilitates expansion programs of the enterprise and helps in maintaining the operational efficiency of fixed assets.

11.3 SIGNIFICANCE / NEED FOR WORKING CAPITAL

Working capital plays a vital role in business. This capital remains blocked in raw materials, work in progress, finished products, and with customers.

The needs for working capital are as given below:

- 1. Adequate working capital is needed to maintain a regular supply of raw materials, which in turn facilitates the smoother running of the production process.
- 2. Working capital ensures the regular and timely payment of wages and salaries, thereby improving the morale and efficiency of employees.
- 3. Working capital is needed for the efficient use of fixed assets.
- 4. In order to enhance goodwill a healthy level of working capital is needed. It is necessary to build a good reputation and to make payments to creditors in time.
- 5. Working capital helps avoid the possibility of under-capitalization.
- 6. It is needed to pick up a stock of raw materials even during an economic depression.
- 7. Working capital is needed in order to pay a fair rate of dividend and interest in time, which increases the confidence of the investors in the firm.

11.4 CLASSIFICATION OF WORKING CAPITAL

Working capital may be of different types as follows:

- (a) **Gross Working Capital**: Gross working capital refers to the amount of funds invested in various components of current assets. It consists of raw materials, work in progress, debtors, finished goods, etc.
- (b) **Net Working Capital**: The excess of current assets over current liabilities is known as Net working capital. The principal objective here is to learn the composition and magnitude of current assets required to meet current liabilities.
- (c) Positive Working Capital: This refers to the surplus of current assets over current liabilities. (d) Negative Working Capital: Negative working capital refers to the excess of current liabilities over current assets.
- (e) **Permanent Working Capital**: The minimum amount of working capital which is even required during the dullest season of the year is known as Permanent working capital.
- (f) **Temporary or Variable Working Capital**: It represents the additional current assets required at different times during the operating year to meet additional inventory, extra cash, etc.

11.5 WORKING CAPITAL INVESTMENT POLICIES

The working capital financing policy basically deals with the sources and the amount of working capital that a company should maintain. A firm is not only concerned about the amount of current assets but also about the proportions of short-term and long-term sources for financing the current assets. There are several working capital investment policies a firm may adopt after taking into account the variability of its cash inflows and outflows and the level of risk.

- 1. Conservative Policy: As the name suggests, this policy tries to avoid the risk involved in the financing of current assets. Here, relatively high proportions of long-term sources are to be used for financing current assets. The firm not only matches the current assets with current liabilities but also keeps some excess amount to meet any uncertainty. This is the lowest risk working capital policy and fails to ensure optimum utilization of funds. Hence it cuts down the expected returns of the shareholders. This policy is illustrated below. Line A denotes the fixed assets and Line B denotes the permanent working capital, which is financed through long-term sources. A certain portion of fluctuating current assets, which is shown by dashed Line C, is also financed through short-term sources.
- 2. Aggressive Policy: Aggressive working capital financing policy is a risky policy that requires maximum amount of investment in current assets. Fluctuating as well as permanent current assets under this policy will be financed through short-term debt. In this policy debt is collected on time and payments to the creditors are made as late as possible. This policy has been illustrated below. According to this approach, long-term sources are used to finance the fixed assets, which are shown by Line A; but a portion of permanent current assets, shown by the dotted line B, is also financed through long-term sources. The remaining part of permanent current assets, depicted by Line C, and the entire amount of fluctuating current assets, shown by the curved Line D, are financed by short-term debt.
- **3. Highly Aggressive Policy:** This is a highly risky policy for financing the working capital. As per this policy, even some part of fixed assets is financed through short-term sources. Excessive reliance on short-term sources makes this policy highly risky. This policy has been illustrated below. A major proportion of fixed assets as shown by dotted Line A are financed through long-term sources and the remaining part of the fixed assets are financed by short- term sources—shown by Line B. Short-term sources are also used for financing

permanent current assets—Line C; as well as fluctuating current assets as shown by the curved Line D.

4. Hedging Policy: One of the policies by which a firm finances its working capital needs is the hedging policy, also known as the matching policy. This policy works in an arrangement where the current assets of the business are used perfectly to match the current liabilities. As per this approach, fixed and permanent current assets are financed through long-term sources and fluctuating current assets are financed through short-term sources. This policy is a medium-risk proposition and requires a good amount of attention. For example, if a bank loan is due to be paid after six months, the company will ensure that a sufficient amount of cash will be available to repay the loan on the date of maturity even though it may or may not currently have sufficient cash. In case of a growth firm, the amount of fixed assets and permanent current assets change with the change in production level. In the following figure, Line A and Line B are upward slopped indicating that they go on increasing with the passage of time and as per the hedging principle they are financed through long-term sources like equity and long-term debt. Fluctuating current assets, which are shown by the curved Line C, should be financed through short-term sources.

11.6 TEST YOUR UNDERSTANDING (A)

Define the term Working capital.
 State the determinants of Working capital.
 Give the theories of Working capital.

11.7 WORKING CAPITAL CYCLE

Every business organisation needs adequate working capital because the conversion of cash into finished goods to debtors and back to cash is not instantaneous. It takes some time. For example, in a manufacturing firm, cash is used to purchase raw materials. They are not consumed immediately. They remain some time in stores in order to ensure smooth production and to protect the firm against the risk of non-availability of raw materials in the future. Then they are issued from stores to the production center for conversion. This conversion also generally takes some time. When certain expenses such as wages and overheads are incurred on it, it gets itself converted into semi-finished goods or work-in-progress and, finally, into finished goods. These finished goods will have to be stored for some time before sale. Next, finished goods are sold to customers which may take the form of cash or receivables/debtors. Receivable/ debtors, when realised, again take the form of cash and the cycle starts again.

The continuing flow from cash to suppliers, to inventory, to accounts receivable, and back into cash is called the working capital cycle or operating cycle. In other words, the term operating cycle refers to the length of time which begins with the acquisition of raw materials of a firm and ends with the final realisation of cash from debtors. The amount of working capital depends upon the length of working capital cycle. The longer the working cycle, the higher the need for working capital to be maintained. This is because the fund will then remain tied up in various items of current assets for a longer period. The length of the operating cycle varies from industry to industry and from business to business. A merchandising concern will have a shorter operating cycle as it deals in finished products. On the other hand, in a service enterprise, the operating cycle is shortest and involves the conversion of cash into debtors and debtors into cash.

Thus, if raw materials remain in store for, say, 30 days, the conversion or processing period is 45 days, finished goods remain in store for 30 days, and debts collection period is 40 days then the total of this period (i.e., 30 + 45 + 30 + 40 or 145 days) is referred to as Gross Operating Cycle. Business enterprises receive credit in the purchase of raw materials from suppliers. This payment deferral period reduces the length of working capital.

The net-working cycle period is ascertained by deducting from the gross operation cycle the payment deferral period or period of credit granted by suppliers of raw materials. If the period of credit given by the supplier is 45 days, then Net Operating Cycle is 100 days (i.e., 145 days – 45 days). Similar conclusions can also be drawn for other elements of cost i.e., for direct

wages and overheads. In the case of direct wages and overheads, the operating cycle starts with the work-in-progress or processing time as there will be no raw materials storage period.

11.8 DETERMINANTS OF WORKING CAPITAL

Some of the major determinants of working capital are discussed below: A company, as a general policy, wants to hold in balance as small a quantity of working capital as possible so long as undue solvency risks are not imposed on it. This is a logical approach indicating that working capital is a means to an end and not an end in itself. Quantitative amounts of working capital can hardly be set for individual firms. Corporate management has to consider the various factors in making a decision regarding balances. An appraisal of these would provide guidance to management in estimating prospective needs. These are called as determinants of working capital.

- **1. Nature of business:** A company's working capital requirements are basically related to the kinds of business it conducts. Generally speaking, trading and financial firms require relatively large amounts of working capital, and public utilities comparatively small amounts, whereas manufacturing concerns stand between these two extremes, their needs depending upon the character of industry of which they are a part.
- **2. Production policies:** Depending upon the kind of items manufactured, a company is able to offset the effect off- seasonal fluctuations upon working capital by adjusting its production schedules. The choice rests between varying output in order to adjust inventories to seasonal requirements and maintaining a steady rate of production and permitting stocks of inventories to build up during off-season periods. It will thus be obvious that a level production plan would involve a higher investment in working capital.
- **3. Manufacturing process:** If the manufacturing process in an industry entails a longer period because of its complex character, more working capital is required to finance that process. The longer it takes to make an approach and the greater its cost, the larger the Inventory tied up in its manufacture and, therefore, the higher the amount of working capital.
- **4. Turnover of circulating capital:** The speed with which the circulating capital completes its round I.e., conversion of cash into inventory of raw material Into Inventory of finished goods. Inventory of finished goods into book debts or accounts receivables and book debt into cash account plays an important and decisive role in judging the adequacy of working capital.

- **5.** Growth and expansion of business: As a company grows, it is logical to expect that a larger amount of working capital will be required though It Is difficult to draw up firm rules for the relationship between the growth in the volume of a company's business and the growth of its working capital.
- **6. Business cycle fluctuations:** Requirements of the working capital of a company vary with the business variation. At a time when the price level comes up and boom conditions prevail, the psychology of the management is to pile up a big stock of raw material and other goods likely to be used in the business operations as there is an expectation to take advantage of lower prices. The expansion of business units caused by the inflationary conditions creates demand for more and more capital.
- **7. Terms of purchase and sales:** A business unit, making purchases on a credit basis and selling its finished products on the cash basis, will require a lower amount of working capital, on the contrary, a concern having no credit facilities and at the same time forced to grant credit to its customers may find itself in a tight position.
- 8. Dividend policy: A desire to maintain an established dividend policy may affect working capital, often changes in working capital bring about an adjustment of dividend policy. The relationship between dividend policy and working capital is well established and very few companies declare a dividend without giving due consideration to its effects on cash and their needs for cash. A shortage of working capital often acts as a powerful reason for reducing or skipping a cash dividend. On the other hand, a strong position may justify continuing dividend payments.

11.9 SOURCES OF WORKING CAPITAL FINANCE

Working Capital requirements can be normalized from short-term and long-term sources. Each source will have both merits and limitations up to a certain extract. Uses of Working Capital may be differing from stage to stage

Short-Term Sources of 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 to charge very high rates of interest and exploited the customers to the largest extent possible. Nowadays 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 creditworthiness of a firm and the confidence of its suppliers are the main basis for securing trade credit. It is mostly granted on an open account basis whereby the supplier sends goods to the buyer for the payment to be received in the future as per terms of the sales invoice. It may also take the form of bills payable whereby the buyer signs a bill of exchange payable on a specified future date. When a firm delays the payment beyond the due date as per the terms of the sales invoice, it is called stretching accounts payable. A firm may generate additional short-term finances by stretching accounts payable, but it may have to pay penal interest charges as well as to forgo cash discount. If a firm delays the payment frequently, it adversely affects the credit worthiness of the firm and it may not be allowed such credit facilities in future. 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.
- **3. 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 instalments over a predetermined 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 positions.
- **4. Advances:** Some business houses get advances from their customers and agents against orders and this source is a short-term source of finance for them. It is a cheap source of finance and in order to minimize their investment in working capital, some firms having long production cycles, especially the firms manufacturing industrial products prefer to take advances from their customers.
- **5. 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 the 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. Factors render services varying from bill discounting facilities offered by commercial banks to a total takeover of administration of credit sales including maintenance of sales ledger, collection of accounts receivables, credit control and protection from bad debts, provision of finance, and rendering of advisory services to their clients. Factoring may be on a recourse basis, where the risk of bad debts is borne by the client, or on a non-recourse basis, where the risk of credit is borne by the factor. At present, factoring in India is rendered by only a few financial institutions on a recourse basis. However, the Report of the Working Group on Money Market (Vaghul Committee) constituted by the Reserve Bank of India has recommended that banks should be encouraged to set up factoring divisions to provide speedy finance to the corporate entities. In-spite of many services offered by factoring, it suffers from certain limitations. The most critical fallouts of factoring include; (i) The high cost of factoring as compared to other sources of short-term finance, (ii) The perception of financial weakness about the firm availing of factoring services, and (iii) Adverse impact of the tough stance taken by the factor, against a defaulting buyer, upon the borrower resulting into reduced future sales.

Long-term Sources of Working Capital:

- **1. Shares:** The issue of shares is the most important source for raising permanent or long-term capital. A Co; can issue various types of shares as equity. Preference & deferred shares.
- **2. Debentures:** It is an instrument issued by the company acknowledging its debt to its holder. The debenture holders are the creditors of the company. A fixed-rate of interest is paid on debentures. The interest on debt is a charge against profit & loss all.
- **3. Public deposits:** Public deposits are the fixed deposits accepted by a business enterprise directly from the public this source of raising short term & medium finance was very popular' in the absence of banking facilities.
- **4. Ploughing Back of profits:** Which means the re-investments by a concern of its surplus earnings in its business of finance & it most suitable for an established firm for its expansion, modernization & replacement, etc it is the cheapest rather a cost-free source of finance.

5. Loans from financial institutions: Financial institutions such as commercial banks, LIC, Industrial Finance Corporation of India (IFC) SFC State Industrial development corporation, IDBI, etc.

11.10 TANDON COMMITTEE REPORT ON WORKING CAPITAL

In 1974, a study group under the chairmanship of Mr. P. L. Tandon was constituted for framing guidelines for commercial banks for follow-up & supervision of bank credit for ensuring proper end-use of funds. The group submitted its report in August 1975, which came to be popularly known as Tandon Committee Report on Working Capital. Its main recommendations related to norms for inventory and receivables, the approach to lending, style of credit, follow-ups & information system. It was a landmark in the history of bank lending in India. With the acceptance of major recommendations by the Reserve Bank of India, a new era of lending began in India.

Tandon Committee's Recommendations Breaking away from traditional methods of securityoriented lending, the committee enjoyed upon the banks to move towards need-based lending. The committee pointed out that the best security of a bank loan is a well-functioning business enterprise, not the collateral. The major recommendations of the Tandon committee were as follows:

- 1. Assessment of need-based credit of the borrower on a rational basis on the basis of their business plans.
- Bank credit would only be supplementary to the borrower's resources and not replace them, i.e., banks would not finance one hundred percent of the borrower's working capital requirement.
- 3. Bank should ensure proper end-use of bank credit by keeping a closer watch on the borrower's business, and imposing financial discipline on them.
- 4. Working capital finance would be available to the borrowers on the basis of industry-wise norms (prescribed first by the Tandon Committee and then by the Reserve Bank of India) for holding different current assets, viz.
 - \checkmark Raw materials including stores and other items used in the manufacturing process.
 - \checkmark Stock in Process.
 - \checkmark Finished goods.

 \checkmark Accounts receivables.

- 5. Credit would be made available to the borrowers in different components like cash credit; bills purchased and discounted working capital, term loan, etc., depending upon the nature of holding of various current assets.
- 6. In order to facilitate a close watch on the operation of borrowers, the bank would require them to submit at regular intervals, data regarding their business and financial operations, for both the past and the future periods.

The Norms

Tandon committee had initially suggested norms for holding various current assets for fifteen different industries. Many of these norms were revised and the least extended to cover almost all major industries of the country. The norms for holding different current assets were expressed as follows:

- 1. Raw materials as so many months' consumption. They include stores and other items used in the process of manufacture.
- 2. Stock-in-process, as so many months' cost of production.
- 3. Finished goods and accounts receivable as so many months' cost of sales and sales respectively. These figures represent only the average levels. Individual items of finished goods and receivables could be for different periods which could exceed the indicated norms so long as the overall average level of finished goods and receivables does not exceed the amounts as determined in terms of the norm.
- 4. Stock of spares was not included in the norms. In financial terms, these were considered to be a small part of total operating expenditure. Banks were expected to assess the requirement of spares on a case-by-case basis. However, they should keep a watchful eye if spares exceed 5% of total inventories.

The norms were based on the average level of holding of a particular current asset, not on the individual items of a group. For example, if the receivables holding norm of the industry was two months and a unit had satisfied this norm, calculated by dividing annual sales with average receivables, then the unit would not be asked to delete some of the accounts receivable, which were being held for more than two months.

The Tandon committee while laying down the norms for holding various current assets made it very clear that it was against any rigidity and straight jacketing. On one hand, the committee said that norms were to be regarded as the outer limits for holding different current assets, but these were not to be considered to be entitlements to hold current assets upto this level. If a borrower had managed with less in the past, he should continue to do so. On the other hand, the committee held that allowance must be made for some flexibility under circumstances justifying a need for re-examination.

The committee itself visualized that there might be deviations of norms in the following circumstances.

- 1. Bunched receipt of raw materials including imports.
- 2. Interruption of production due to power cuts, strikes, or other unavoidable circumstances.
- 3. Transport delays or bottlenecks.
- 4. Accumulation of finished goods due to non-availability of shipping space for exports or other disruption in sales.
- 5. Building up of stocks of finished goods, such as machinery, due to failure on the part of the purchaser for whom these were specifically designed and manufactured.
- 6. Need to cover full or substantial requirement of raw materials for specific export contract of short duration. While allowing the above exceptions, the committee observed that the deviations should be for known and specific circumstances and situations, and allowed only for a limited period to tide over the temporary difficulty of a borrowing unit. Returns to norms would be automatic when conditions return to normal.

11.11 SUMMARY

Working capital represents the net current assets available for day-to-day operating activities. It is defined as current assets less current liabilities and, in exam questions, the components are usually inventory and trade receivables, trade payables, and bank overdraft. Many businesses that appear profitable are forced to cease trading due to an inability to meet short-term obligations when they fall due. Successful management of working capital is essential to remaining in business. Working capital management requires great care due to potential interactions between its components. For example, extending the credit period offered to customers can lead to additional sales. However, the company's cash position will fall due to

the long wait for customers to pay, potentially leading to the need for a bank overdraft. Interest on the overdraft may even exceed the profit arising from the additional sales, particularly if there is also an increase in the incidence of bad debts.

11.12 QUESTIONS FOR PRACTICE

- 1. What are Methods of Borrowings?
- 2. What is Credit Information Systems?
- 3. Explain the recommendations of the Tandon Committee accepted by RBI?
- 4. Explain what forms of security does a bank need to provide security to a company?
- **5.** Explain what is fund-based lending? What are the various forms in which fund-based lending may be made by banks?

11.13 SUGGESTED READINGS

- Berk, Jonathan, and DeMarzo, Peter, "Financial Management", 2nd Edition (2010), Pearson Education, Dorling Kindersley (India) Pvt Ltd.
- Bhattacharya, Hrishikes, "Working Capital Management: Strategies and Techniques", 2nd Edition (2009), Prentice Hall, New Delhi.
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SEMESTER-II

COURSE: (MCMM21203T) FINANCIAL MANAGEMENT

UNIT 12 – INVENTORY MANAGEMENT, RECEIVABLES MANAGEMENT

STRUCTURE

- **12.0 Objectives**
- **12.1 Introduction**
- **12.2 Management of inventories**
- 12.3 Objectives of inventory management
- 12.4 Inventory control techniques
- 12.5 Fixation of norms of inventory holdings
- 12.6 Test your understanding (a)
- **12.7 Inventory classes**
- 12.8 Receivable management
- 12.9 Objectives of receivable management
- 12.10 Objectives of inventory management structure
- 12.11 Summary
- **12.12 Questions for Practice**
- 12.13Suggested readings

12.0 OBJECTIVES

After studying the Unit, students will be able to

- Define the Meaning of inventory management.
- Identify the major determinants of inventory management.
- Identify the determinants of optimum inventory management structure.
- State the features of appropriate receivable management.
- Define the various theories of inventory management.

12.1 INTRODUCTION

Inventories occupy the most strategic position in the structure of working capital of most business enterprises. It constitutes the largest component of current asset in most business enterprises. In the sphere of working capital, the efficient control of inventory has passed the most serious problem to the cement mills because about two-thirds of the current assets of mills are blocked in inventories. The turnover of working capital is largely governed by the turnover of inventory. It is therefore quite natural that inventory which helps in maximize profit occupies the most significant place among current assets.

In the dictionary, the meaning of inventory is a "detailed list of goods, furniture, etc." Many understand the word inventory, as a stock of goods, but the generally accepted meaning of the word 'goods' in the accounting language, is the stock of finished goods only. In a manufacturing organization, however, in addition to the stock of finished goods, there will be stock of partly finished goods, raw materials, and stores. The collective name of these entire items is 'inventory'.

The term 'inventory' refers to the stockpile of production a firm is offering for sale and the components that make up the production.

The inventory means the aggregate of those items of tangible personal property which

- (i) are held for sale in the ordinary course of business.
- (ii) are in process of production for such sales.
- (iii) they are to be currently consumed in the production of goods or services to be available for sale. Inventories are expandable physical articles held for resale for use in the manufacturing process or for consumption in carrying on business activities such as merchandise, and goods purchased by the business which are ready for sale.

12.2 MANAGEMENT OF INVENTORIES

Inventories consist of raw materials, stores, spares, packing materials, coal, petroleum products, works-in-progress, and finished products in stock either at the factory or deposits. It is the most important component of current assets in the cement industry and was 42 percent of total current assets for sample companies as on March 31, 2004. In other industries too it is a very important component of total investment.

The maintenance of inventory means blocking of funds and so it involves the interest and opportunity cost to the firm. In many countries especially in Japan great emphasis is placed on inventory management. Efforts are made to minimize the stock of inputs and outputs by proper planning and forecasting of demand of various inputs and producing only that much quantity which can be sold in the market.

The inventory cost is not only interest on stocks but also cost of store building for storage, insurance and obsolesce and movement of inputs from place of storage to the factory where the materials have to be finally used to convert them into finished goods. In Japan industries have adopted the concept of JIT (Just in Time) and components, materials are received when required for which detailed instructions are given to suppliers. There are many engineering companies that receive components directly at the assembly point and that too is only for 3-4 hours requirements at a time. Even in the case of bulk materials like iron ore, which is imported from abroad, the minimum possible inventory is kept. As against this by and large, in India, the inventory of coal, raw materials, and packing materials is very high and many items become junk or obsolete causing heavy loss to the enterprise. Lack of inventory planning in India has been pointed out by various committees but due to uncertainties in supplies, the problem of timely receipt of railway wagons, lack of planning, and unreliable suppliers the investment in inventories is quite high. The fluctuation in demand affects the inventory of finished products of which the cement industry has been a victim many times. The situation in the cement industry has been analysed in this chapter after studying the principles of inventory control and relating it with the cement industry. In the case of raw materials, the first requirement is to study the lead time between the date of order and receipt in the factory and the same is applicable in the case of coal. In the case of the cement industry, the basic raw material i.e. limestone is not purchased from the market but from one's own queries which are within 10 to 15 Km distance from the factory and only in a few cases distance is more up to 50 Km. It is transported to cursing mills by trucks, rail, or overhead ropeways to the factory. The only uncertainty is with regard to the problem of quarrying in quarries, which may be affected due to labour problems, problems in supplies of electricity, or explosives. But in spite of these factors industry feels that 3-4 days of stock of raw material is enough. This, from any standard is on the high side when self-produced raw material is used. Actually, for ideal situation there should be stock for a few hours, requirement and at the most for one day need. The industry is keeping larger stocks of limestone because of uncertainties in quarrying and transportation.

12.3 INVENTORY CONTROL

Inventory control is concerned with the acquisition, storage, handling, and use of inventories so as to ensure the availability of inventory whenever needed, providing adequate provision for contingencies, deriving maximum economy, and minimizing wastage and losses. Hence Inventory control refers to a system, which ensures the supply of required quantity and quality of inventory at the required time and at the same time prevents unnecessary investment in inventories. It is one of the most vital phases of material management. Reducing inventories without impairing operating efficiency frees working capital that can be effectively employed elsewhere. Inventory control can make or break a company. This explains the usual saying that "inventories" are the graveyard of a business. Designing a sound inventory control system is in a large measure for balancing operations. It is the focal point of many seemingly conflicting interests and considerations both short-range and long-range. The aim of a sound inventory control system is to secure the best balance between "too much and too little." Too much inventory carries financial rises and too little reacts adversely to continuity of productions and competitive dynamics. The real problem is not the reduction of the size of the inventory as a whole but to secure a scientifically determined balance between several items that make up the inventory. The efficiency of inventory control affects the flexibility of the firm. Insufficient procedures may result in an unbalanced inventory. Some items out of stock, others overstocked, necessitating excessive investment. These inefficiencies ultimately will have adverse effects upon profits. Turning the situation around, the difference in the efficiency of the inventory control for a given level of flexibility affects the level of investment required in inventory. The less efficient is the inventory control, the greater is the investment required. Excessive investment in inventories increases cost and reduces profits, thus, the effects of inventory control of flexibility and on level of investment required in inventories represent two sides of the same coin. Control of inventory is exercised by introducing various measures of inventory control, such as ABC analysis fixation of norms of inventory holdings and reorder point and a close watch on the movements of inventories.

12.4 INVENTORIES CONTROL TECHNIQUES

ABC Analysis of Inventories

The ABC inventory control technique is based on the principle that a small portion of the items may typically represent the bulk of money value of the total inventory used in the production process, while a relatively large number of items may be from a small part of the money value

of stores. The money value is ascertained by multiplying the quantity of material of each item by its unit price. According to this approach to inventory control, high-value items are more closely controlled than low-value items. Each item of inventory is given A, B, or C denomination depending upon the amount spent for that particular item. "A"or the highest value items should be under the tight control and under the responsibility of the most experienced personnel, while "C" or the lowest value may be under simple physical control.

It may also be clear with the help of the following examples: "A" Category -5% to 10% of the items represent 70% to 75% of the money value. "B" Category -15% to 20% of the items represent 15% to 20% of the money. "C" Category - The remaining number of the items represent 5% to 10% of the money value. The relative position of these items shows that items of category A should be under the maximum control, items of category B may not be given that much attention, and item C may be under a loose control.

Advantages of ABC Analysis

- 1. It ensures a closer and more strict control over such items, which are having a sizable investment there.
- 2. It releases working capital, which would otherwise have been locked up for a more profitable channel of investment.
- 3. It reduces inventory-carrying costs.
- 4. It enables the relaxation of control for the 'C' items and thus makes it possible for a sufficient buffer stock to be created.
- 5. It enables the maintenance of a high inventory turnover rate.

12.5 FIXATION OF NORMS OF INVENTORY HOLDINGS

Either by the top management or by the materials department could set the norms for inventories. The top management usually sets monitory limits for investment in inventories. The materials department has to allocate this investment to the various items and ensure the smooth operation of the concern. It would be worthwhile if norms of inventories were set by the management by objectives and concepts. This concept expects the top management to set the inventory norms (limit) after consultation with the materials department. A number of factors enter into consideration in the determination of stock levels for individual items for the purpose of control and economy. Some of them are:

1. Lead time for deliveries.
- 2. The rate of consumption.
- 3. Requirements of funds.
- 4. Keeping qualities, deterioration, evaporation, etc.
- 5. Storage cost.
- 6. Availability of space.
- 7. Price fluctuations.
- 8. Insurance cost.
- 9. Obsolescence price.
- 10. Seasonal consideration of price and availability.
- 11. EOQ (Economic Order Quantity), and
- 12. Government and other statuary restrictions

Any decision involving procurement storage and uses of the item will have to be based on an overall appreciation of the influence of the critical ones among them. Material control necessitates the maintenance of inventory of every item of material as low as possible ensuring at the same time, its availability as and when required for production. These twin objectives are achieved only by proper planning of inventory levels. If the level of inventory is not properly planned, the results may either be overstocking or understocking. If a large stock of any item is carried it will unnecessarily lock up a huge amount of working capital and consequently, there is a loss of interest. Further, a higher quantity than what is legitimate would also result in deterioration. Besides, there is also the risk of obsolescence if the end product for which the inventory is required goes out of fashion. Again, a large stock necessarily involves an increased cost of carrying such as insurance, and rent handling charges. Under stocking which is the other extreme, is equally undesirable as it results in stockouts and the consequent production holds ups. Stoppage of production, in turn, cause idle facility cost. Further, failure to keep up with delivery schedules results in the loss of customers and goodwill. These two extremes can be avoided by a proper fixation of two important inventory levels viz, the maximum level and the minimum level. The fixation of inventory levels is also known as the demand and supply method of inventory control.

12.6 TEST YOUR UNDERSTANDING (A)

1. Define the term inventories.

2. State the concept of inventory fixation.
3. Give the theories of inventory management.

12.7 INVENTORY CLASSES

Raw Materials Purchased items or extracted materials that are converted via the manufacturing process into components and/or products. Raw materials appear at the bottom level of BOM. They are stored in the warehouse and are non-phantom items. Semi-finished Goods Semifinished goods are items that have been stored uncompleted, awaiting final operations that will adapt them to different uses or customer specifications. Semi-finished goods are made under the instruction of a shop order, using the components issued by a pecking order, and stored in the warehouse when finished. They are the items between the top and bottom levels in a management BOM (rather than engineering BOM) and are non-phantoms. Semi-finished goods are not sold to the customers. Finished Goods A finished good is a product sold as a completed item or repair part, i.e., any item subject to a customer order or sales forecast. Finished goods are non-phantoms and are stored in the warehouse before they are shipped. λ Work-In-Process (WIP) Products in various stages of completion throughout the plant, including all material from raw material that has been released for initial processing up to completely processed material waiting for inspection and acceptance as finished goods. WIP inventory is temporarily stored on the shop floor and appears as a phantom in the BOM. Maintenance, Repair, and Operational Supplies (MRO) Items used in support of general operations and maintenance such as maintenance supplies, spare parts, and consumables used in the manufacturing process and supporting operations. These items are used in production but do not become part of

12.8 INVENTORY FUNCTIONS

Safety Stock An additional quantity of stock is kept in inventory to protect against unexpected fluctuations in demands and/or supply. If demand is greater than forecast or supply is late, a stock shortage will occur. Safety stock is used to protect against these unpredictable events and prevent disruptions in manufacturing. Safety stock is also called buffer stock. Lot-size Inventory In order to take advantage of quantity price discounts, reduce shipping and setup costs, or address similar considerations, items are manufactured or purchased in quantities greater than needed immediately. Since it is more economical to produce or purchase less frequently and in larger quantities, inventory is established to cover needs in periods when items are not replenished. Lot-size inventory depletes gradually as customer orders come in and is replenished cyclically when suppliers' orders are received. λ De-coupling Stock Inventory between facilities that process materials at different rates. De-coupling stock decouples facilities to prevent the disparity in production rates at different facilities from interfering with any one facility's production. This inventory increases the utilization of facilities. Pipeline Inventory Inventory to fill the transportation network and the distribution system including the flow-through intermediate stocking points. This inventory exists because of the time needed to move goods from one location to another. Time factors involve order transmission, order processing, shipping, transportation, receiving, stocking, etc.

12.9 RECEIVABLE MANAGEMENT

Accounts receivables refer to the dues owed by the customers for goods purchased from the firm or services rendered by the firm in the ordinary course of business. Accounts receivable implies futurity, i.e., cash will be received future though uncertain. Sales cannot be done for cash alone and credit is inevitable in the modern business units, which is the basis for receivables. Thus, the receivables arise when a firm sells its products or services on credit and does not receive cash immediately. It is a marketing technique by granting trade credit to protect its sales from the competitors and attract the potential customers to buy its products at favourable terms. The customers from whom receivables have to be collected in the future are known as debtors. These debtors constitute about one-third of current assets in Indian industrial units. Since, a substantial amount is tied-up in this segment of current assets, careful analysis, and proper management are very much essential. In cash sales, there will not be any risk, whereas in credit sales risk is there, as the seller receives payment later for delivery of goods affected today. In the credit business, it isnot only the uncertainty element but also depreciated

value of the money, which will receive, at the later date. Credit management is risky and it is known as riding on a double-edged sword. If credit is not given sales will not increase, which is allowed as a chance of bad debts. Hence, every firm has to be careful in credit sales and credit extension. As such a prudential financial manager has to be optimum in deciding the quantum of credit, standards, and procedures as well as terms of credit. The impact of credit business on the wealth of the firm is shown in the figure below



12.10 OBJECTIVES OF RECEIVABLES MANAGEMENT

The main aim of credit management is not to maximize the sales, nor to minimize the risk of bad debts, but it is to manage its credit in such a way that sales are expanded to such an extent to which risk remains within an acceptable limit. In order to attain the maximize the value of the firm, it should manage its trade credit to:

- (i) Obtain the optimum volumes of sales for which the efficient and effective credit management helps the firm to retain the old customers and attract new customers.
- (ii) Control the cost of credit and keep it at a minimum, which is associated with trade credit in the form of administrative expenses, bad debt losses, and opportunity cost of funds tied up in receivables.
- (iii) Maintain investment in debtors at an optimum level, by extending liberal credit, sales and profits increase but increased investment in debtors also results in increased cost and therefore, makes a trade-off between costs and benefits.

12.11 QUESTIONS FOR PRACTICE

- 1. What is meant by inventory management? Explain the features of an appropriate inventory management structure.
- 2. What do you understand by receivable management? Explain the major determinants of inventory management.
- 3. Discuss the theories of inventory management.
- 4. What is the Traditional View on inventory management and receivable management?
- 5. Critically examine the ABC theory of inventory management.

12.12 SUGGESTED READINGS

- Berk, Jonathan, and DeMarzo, Peter, "Financial Management", 2nd Edition (2010), Pearson Education, Dorling Kindersley (India) Pvt Ltd.
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