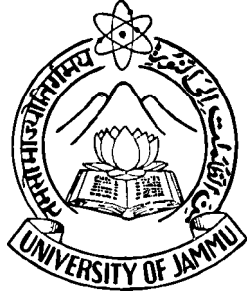


Directorate of Distance Education

UNIVERSITY OF JAMMU

JAMMU



SELF LEARNING MATERIAL

For

M.Com Fourth Semester

FINANCIAL DECISION ANALYSIS

For the examination to be held in 2021

Course No.: M.COM-FC 411

UNIT : I - IV

COURSE COORDINATOR :

Prof. Sandeep Kour Tandon

Room No. 111, Ist Floor

DDE

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M.COM FOURTH SEMESTER

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DIRECTORATE OF DISTANCE EDUCATION
UNIVERSITY OF JAMMU
M.COM FOURTH SEMESTER (Non-CBCS)
SYLLABUS
FINANCIAL DECISION ANALYSIS

Course: M.COM-FC411

Max. Marks: 100 Marks

Credit: 4

External: 80 Marks

Time: 3.00 Hrs

Internal: 20 Marks

OBJECTIVES:

The objectives of this course is to give the students an intensive knowledge of the finance function in specified decision areas.

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UNIT-1: NATURE OF FINANCIAL DECISION ANALYSIS

7-92

Meaning and concept of financial analysis; Objectives and importance of financial analysis; Parties interested in financial analysis; Types of financial analysis; Major financial decision areas; Ratio analysis and performance: management's point of view, owner's point of view, lender's point of view; Basic factors influencing financial decisions; Projection of financial requirements: meaning and utility of financial projection, techniques of financial projections; Sustainable growth and proforma forecasts; Financial information system: nature of financial information system, role of financial information system in decision making, designing suitable financial information system.

UNIT-II: RISK ANALYSIS

93-180

Concept of certainty, risk and uncertainty; Causes of risk; Types of risk; Risk- return relationship; Measurement of risk; Utility theory and risk analysis in investment decisions; Cost of uncertainty; Decision tree analysis; Capital Asset pricing Model; Capital market line; Security market line; Asset pricing implications of CAPM; Markowitz model; Economic value added and investment analysis

UNIT-III: PORTFOLIO AND INSTITUTIONAL MONEY MANAGEMENT

181-260

Institutional investors; Portfolio management services; Three errors of the investment industry; Guidelines for investment decisions- the ten commandments; Guidelines for equity investing; Specification of investment objectives and constraints; quantification of capital market expectations; Asset allocation- strategic asset allocation; Asset allocation in response to evolving market; Equity portfolio management strategies; Bond portfolio management strategies.

UNIT-IV: PROFIT PLANNING AND BUSINESS TAXATION

261-382

Concept of profit planning; Basics of profit planning; Approaches to profit planning; Strategy and Financial planning; Capital expenditure decisions; meaning, nature , importance, factors affecting capital expenditure decisions, techniques; Project financing; Taxation and specific management decisions- scope of tax planning in India; taxation and make or buy decision, taxation and capital structure policies, taxation and dividend decisions.

MODEL QUESTION PAPER

FINANCIAL DECISION ANALYSIS

Duration of examination: 3 hours

Max. Marks: 80

SECTION A

Attempt any six questions. Each question carries four marks. Answer to each question should be within 200 words.

1. Discuss the various parties involved in financial analysis.
2. Discuss in detail the ratio analysis and its performance from different point of view
3. Explain the nature of capital expenditure decisions
4. What strategic considerations should be kept in mind while taking make or buy decisions?
5. Discuss the importance of institutional investors.
6. Discuss the immunization strategy of bond portfolio management strategies.
7. Explain the relationship between risk and return
8. Discuss in detail the utility theory and risk analysis in investment decisions

SECTION B

Attempt any four questions. Each question carries 14 marks. Answer in each question should be within 800 words.

1. What do you mean by financial decisions? Discuss the major areas of financial decisions.
2. Give the meaning of financial information system. Also discuss the role of financial information system in decision making.
3. What is profit planning? Also discuss the various fundamental principles or basics of profit planning.

4. Write a detailed note on CAPM model.
5. How are dividend decisions influenced by tax planning? Discuss in detail.
6. Describe a formal approach to strategic asset allocation.

M.COM FOURTH SEMESTER - IV (NON-CBCS)

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**MEANING AND CONCEPT OF FINANCIAL
ANALYSIS****STRUCTURE**

- 1.1 Introduction
- 1.2 Objectives
- 1.3 Meaning and concept of financial analysis
- 1.4 Objectives of financial analysis
- 1.5 Importance of financial analysis
- 1.6 Parties interested in financial analysis
- 1.7 Types of financial analysis
- 1.8 Summary
- 1.9 Glossary
- 1.10 Self Assessment Questions
- 1.11 Lesson End Exercise
- 1.12 Suggested Readings

1.1 INTRODUCTION

Financial analysis can be undertaken by management of the firm or by parties outside the firm, viz, owners, creditors, investors and others. Trade creditors are interested primarily in the liquidity of a firm. Their claims are short term and the ability of a firm to pay these claims is best judged by means of a through analysis of its liquidity. The claims of bondholders, on the other hand, are long term. Accordingly, they are more interested in the cash and the ability of the firm to service debt over the long run .The bondholder may evaluated this ability by analyzing the capital structure of the firm , the major sources and uses of funds, it profitability overtime and projections of future profitability. Financial statement analysis is an analysis that highlights the important relationship in the financial statements. Financial statement analysis focuses on the evaluation of past performance of the business firm in terms of liquidity, profitability, operational efficiency and growth potentiality.

In particular, it is concerned with profitability on investment in the various asset of the company and in the efficiency of asset management. In addition to suppliers of capital and the firm itself, various government regulators may use financial analysis. In particular regularity agencies are concerned with the rate of return a company earns on its assets as well as with the proportion of non- equity funds employed in the business. Thus, the type of financial analysis undertaken varies according to the specific interests of the analyst.

1.2 OBJECTIVES

The objectives of this lesson are to:

- Understand the meaning and tools of financial analysis.
- Discuss the objectives and importance of financial analysis.
- Highlight the parties involved in financial analysis.
- Explain the types of financial analysis.

1.3 MEANING AND CONCEPT OF FINANCIAL ANALYSIS

Financial analysis refers to an assessment of the viability, stability and profitability of a business, sub-business or project. It can also be defined as the process of identifying financial strengths and weaknesses of the firm by properly establishing relationship between the items of the balance sheet and the profit and loss account. It is the examination of a business from a variety of perspectives in order to fully understand the greater financial situation and determine how best to strengthen the business and it also looks at many aspects of a business from its profitability and stability to its solvency and liquidity. It is a process of scanning the Financial Statements for evaluating the relationship between the items as disclosed in them. In other words it can be defined as an analysis which critically examines the relationship between various elements of the Financial Statements with a view to obtain the necessary and effective information from them.

According to John N. Myer, ‘Financial Statement Analysis is largely a study of relationships among the various financial factors in a business, as disclosed by a single set of statements, and study of these factors as shown in a series of statements.’

Financial Statement Analysis involves a systematic and critical examination of the information contained in the Financial Statements with a view to provide effective and more meaningful information to its different users. It is an exceptionally powerful tool for a variety of users of financial statements, each having different objectives in learning about the financial circumstances of the entity. Financial analysis is an aspect of the overall business finance function that involves examining historical data to gain information about the current and future financial health of a company.

According to Alan S. Donnahoe - “The inability to understand and deal with financial data is a severe handicap in the corporate world”

Financial analysis can be applied in a wide variety of situations to

give business managers the information they need to make critical decisions. In a very real sense, finance is the language of business. Goals are set and performance is measured in financial terms. Plants are built, equipment ordered, and new projects undertaken based on clear investment return criteria. Financial analysis is required in every such case. Financial statement analysis is an analysis that highlights the important relationship in the financial statements. Financial statement analysis focuses on the evaluation of past performance of the business firm in terms of liquidity, profitability, operational efficiency and growth potentiality. Financial statements analysis includes the method use in assessing and interpreting the result of past performance and current financial position as they relate to particular factors of interest in investment decisions. Therefore financial statement analysis is an important means of assessing past performance and in forecasting and planning future performance. It is performed by professionals who prepare reports using ratios that make use of information taken from financial statements and other reports. These reports are usually presented to top management as one of their bases in making business decisions, such as:

- Continuing or discontinuing the business
- Making or purchasing certain materials in the manufacture product
- Acquire or rent/lease certain machineries and equipment in the production of its goods
- Negotiating for a bank loan to increase its working capital and to issue the stocks
- Making decisions regarding investing or lending capital
- Allowing management to make an informed selection on various alternatives in the conduct of its business

1.4 OBJECTIVES OF FINANCIAL ANALYSIS

The main objectives of financial analysis are discussed as under:

1. Assessment of Past Performance

Past performance is a good indicator of future performance. Investors or creditors are interested in the trend of past sales; cost of goods sold, operating expenses, net income, cash flows and return on investment. These trends offer a means for judging management's past performance and are possible indicators of future performance.

2. Assessment of current position

Financial statement analysis shows the current position of the firm in terms of the types of assets owned by a business firm and the different liabilities due against the enterprise.

3. Prediction of profitability and growth prospects

Financial statement analysis helps in assessing and predicting the earning prospects and growth rates in earning which are used by investors while comparing investment alternatives and other users in judging earning potential of business enterprise.

4. Prediction of bankruptcy and failure

Financial statement analysis is an important tool in assessing and predicting bankruptcy and probability of business failure.

5. Assessment of the operational efficiency

Financial statement analysis helps to assess the operational efficiency of the management of a company. The actual performance of the firm which is revealed in the financial statements can be compared with some standards set earlier and the deviation of any between standards and actual performance can be used as the indicator of efficiency of the management. Some other objectives are:

- Provide reliable financial information.
- Provide other needed information about changes in economic resources and obligation.

- Provide reliable information about changes in net resources.
- Provide financial information that assess in estimating the earnings of a business.
- Disclosing other information according to the needs of the users

1.5 IMPORTANCE OF FINANCIAL ANALYSIS

1. **Judging the operational efficiency of the business:** It is very important that the company must know the operational efficiency of its management. Analyst analyzes the financial statements, match the amount of manufacturing, selling, distribution and financial expenses of the current year with the corresponding expenses of the previous year and assess the management efficiency of the business.
2. **Helps in evaluating Return on Investment:** Financial analysis can help you to evaluate your return on investment and also give you an edge over the competition in a down market.
3. **Indicating the trend of achievements:** Financial statements of the previous years can be compared and the trend regarding various expenses, purchases, sales, gross profit and net profit can be ascertained, cost of good sold, values of assets and liabilities can be compared and the future prospects of the business can be indicated.
4. **Assessing the growth potential of the business:** The trend and dynamic analysis of the business provides us sufficient information indicating the growth potential of the business. Effective measures can be applied as remedial (corrective) measures, if the trend predicts gloomy picture.
5. **Measuring the profitability:** Analysis can improve profitability, allow you to set benchmarks, assist your organization in optimizing productivity, and allow you to get a thorough look at your finances situation now and into the future.

6. **Intra firm and inter firm comparison of the performance:** Analysis of financial statements can be made with the previous year's performance of the same firm and also with the performance of other firms. Intra-firm analysis provides an opportunity of self appraisal whereas inter-firm analysis presents the operational efficiency of the firm as compared to other firms. Weakness can be detected by making comparison and corrective measure can be applied.
7. **Forecasting, budgeting and deciding future line of action:** Analysis of financial statements predicts the growth potential of the business. Comparison of actual performance with the desired performance shows our shortcomings. The analysis provides sufficient information regarding the profitability, performance and financial soundness of the business on the basis of these information's, analyst can make effective forecasting, budgeting and planning.
8. **Simplified, systematic and intelligible presentation of facts:** Analysis of financial statements is an effective tool for simplified, systematizing and summarizing the monotonous figures. An average person can draw conclusion from these ratios. The facts can be made more attractive by graphs and diagrams, which can be easily understood.
9. **Pinpoints strengths and weakness:** Financial analysis can be an important tool in getting the most bangs out of your buck. It can really helps in pinpointing the strengths and weaknesses and adjusting the planning strategy accordingly.

1.6 PARTIES INTERESTED IN FINANCIAL ANALYSIS

- **Creditors:** Anyone who has lent funds to a company is interested in its ability to pay back the debt, and so will focus on various cash flow measures.
- **Investors:** Both current and prospective investors examine financial

statements to learn about a company's ability to continue issuing dividends, or to generate cash flow, or to continue growing at its historical rate.

- **Management:** The company controller prepares an ongoing analysis of the company's financial results, particularly in relation to a number of operational metrics that are not seen by outside entities
- **Regulatory authorities:** If a company is publicly held, its financial statements are examined by the Securities and Exchange Commission to see if its statements conform to the various accounting standards and the rules of the SEC.

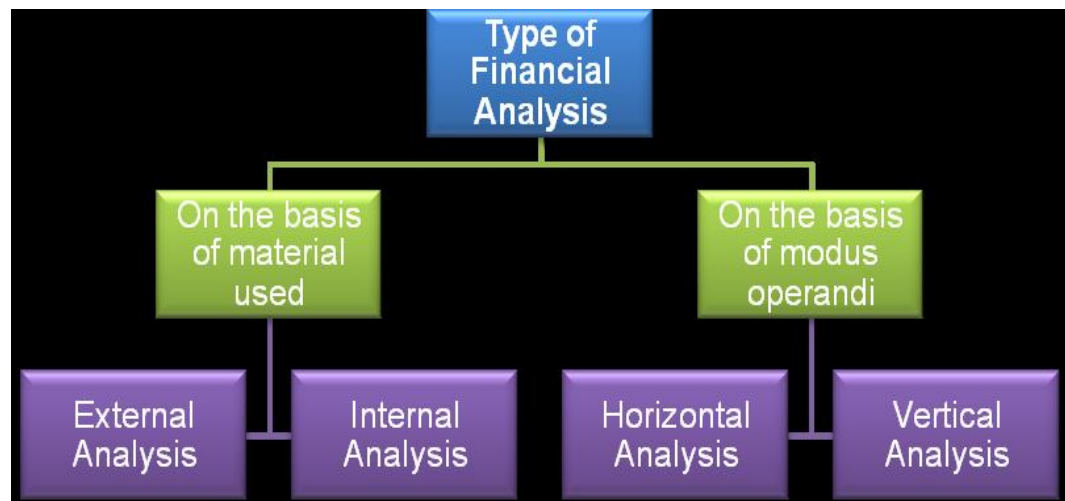
1.7 TYPES OF FINANCIAL ANALYSIS

Financial analysis can be classified into different categories depending upon:

- The material used, and
- The method of operation followed in the analysis or the modus operandi of analysis

This is shown with the help of following figure

Fig. 1 TYPES OF FINANCIAL ANALYSIS



1) On the basis of material used

According to material used, financial analysis can be of two types:

- a) External analysis, and
- b) Internal analysis

a. External Analysis

As outsiders who do not have access to the detail internal accounting records of the business firm, therefore this analysis is done by them. Outsiders include investors, potential investors, creditors, potential creditors, credit agencies, government agencies, and the general public. These parties generally obtain data for analysis from the published financial statements.

b. Internal Analysis

This analysis is conducted by insiders who have access to the internal accounting records of a business firm. It is being conducted by internal analysts such as executives, employees, government officials; etc. Financial analysis for managerial purposes is the internal type of analysis that can be affected depending upon the purpose to be achieved.

2) On the basis of modus operandi

According to the method of operation followed in the analysis, financial analysis can also be of two types:

- a) Horizontal Analysis
- b) Vertical Analysis

a. Horizontal Analysis

Analysis of changes in different components of the financial statements over different periods with the help of series of the statements is known as 'Horizontal Analysis'. It is also known as 'Dynamic Analysis'.

b. Vertical analysis

Vertical analysis refers to the study of relationship of the various items in the financial statements of one accounting period. Since this sort of analysis examines relationships as between different components for a given point of time and does not shed light on changing behaviour of the above relationships, it is also regarded as 'Static Analysis'. Common-size statements are the form of vertical analysis.

1.8 SUMMARY

Financial analysis is the evaluation of a business in order to determine its profitability, liabilities, strengths and future earnings potential. A wide variety of techniques may be utilized to assess an organization's financial viability including the most common methodologies of horizontal analysis, vertical analysis, and ratio analysis. Most analytical methods involve the company's financial statements, internal or external audits, and investigations. Financial analysis is a critical aspect of all commercial activity as it provides actionable insights into the organization's health and future potential. Not only does this information provide investors and lenders with critical data that may affect the price of stocks or interest rates, but these reports also allow company managers to gauge their performance with regard to expectations or industry growth. From a management point of view, financial analyses are critical to the success of the company because they highlight weaknesses and strengths that directly affect competitiveness.

1.9 GLOSSARY

An analysis of financial statements is the process of critically examining in detail accounting information given in the financial statements. For the purpose of analysis, individual items are studied, their interrelationships with other related figures are established, the data is sometimes rearranged to have the better understanding of the information with the help of different techniques or tools for the purpose.

1.10 SELF ASSESSMENT QUESTIONS

Q1) What do you mean by Financial analysis?

Ans _____

Q2) Highlight the importance of financial analysis.

Ans _____

1.9 LESSON END EXERCISE

Q1) Discuss the various parties involved in financial analysis.

Ans _____

Q2) Explain the types of financial analysis.

Ans _____

1.10 SUGGESTED READINGS

1. Khan & Jain Financial Management
2. I. M. Pandey Financial Management
3. James C. Van Horne Financial management and policy
4. "Financial Analysis: 17 Areas to Review." Business Owner January-February 1999.

5. Helfert, Erich A. Techniques of Financial Analysis. Irwin, 1997.
6. Jones, Allen N. "Financial Statements: When Properly Read, They Share a Wealth of Information." Memphis Business Journal. February 5, 1996.
7. Larkin, Howard. "How to Read a Financial Statement." American Medical News. March 11, 1996

MAJOR FINANCIAL DECISION AREAS AND BASIC FACTORS INFLUENCING FINANCIAL DECISIONS**STRUCTURE**

- 2.1 Introduction
- 2.2 Objectives
- 2.3 Major financial decision areas
- 2.4 Basics factor influencing financial decisions
- 2.5 Summary
- 2.6 Glossary
- 2.7 Self Assessment Questions
- 2.8 Lesson End Exercise
- 2.9 Suggested Readings

2.1 INTRODUCTION

Financial decision is a process which is responsible for all the decisions related with liabilities and stockholder's equity of the company as well as the issuance of bonds. The financing decision involves two sources from where the funds can be raised: using a company's own money, such as share capital, retained earnings or borrowing funds from the outside in the form debenture, loan, bond, etc. The objective of financial decision is to maintain

an optimum capital structure, i.e. a proper mix of debt and equity, to ensure the trade-off between the risk and return to the shareholders. The Debt-Equity Ratio helps in determining the effectiveness of the financing decision made by the company. While taking the financial decisions, the finance manager has to take the following points into consideration:

- The Risk involved in raising the funds. The risk is higher in the case of debt as compared to the equity.
- The Cost involved in raising the funds. The manager choose the source with minimum cost.
- The Level of Control, the shareholders, want in the organization also determines the composition of capital structure. They usually prefer the borrowed funds since it does not dilute the ownership.
- The Cash Flow from the operations of the business also determines the source from where the funds shall be raised. High cash flow enables to borrow debt as interest can be easily paid.
- The Floation Cost such as broker's commission, underwriters fee, involved in raising the securities also determines the source of fund. Thus, securities with minimum cost must be chosen.

Thus, a company should make a judicious decision regarding from where, when, how the funds shall be raised, since, more use of equity will result in the dilution of ownership and whereas higher debt results in higher risk, as fixed cost in the form of interest is to be paid on the borrowed funds.

2.2 OBJECTIVES

The objectives of this lesson are:

- To understand the concept of financial decisions.
- To discuss the major financial decision areas.
- To discuss the basic factors influencing financial decisions.

2.3 MAJOR FINANCIAL DECISION AREAS

In a business enterprise three types of financial decisions, viz. investment decision, financing decision, dividend decisions are taken. We shall discuss in brief nature and contents of each of these decisions.

1. Investment Decisions

Investment Decision relates to the determination of total amount of assets to be held in the firm, the composition of these assets and the business risk complexions of the firm as perceived by its investors. It is the most important financial decision. Since funds involve cost and are available in a limited quantity, its proper utilisation is very necessary to achieve the goal of wealth maximisation. The investment decisions can be classified under two broad groups:

- (i) Long-term investment decision and
 - (ii) Short-term investment decision.
- (i) The long-term investment decision is referred to as the capital budgeting and the short-term investment decision as working capital management. Capital budgeting is the process of making investment decisions in capital expenditure. These are expenditures, the benefits of which are expected to be received over a long period of time exceeding one year. The finance manager has to assess the profitability of various projects before committing the funds. The investment proposals should be evaluated in terms of expected profitability, costs involved and the risks associated with the projects. The investment decision is important not only for the setting up of new units but also for the expansion of present units, replacement of permanent assets, research and development project costs, and reallocation of funds, in case, investments made earlier do not fetch result as anticipated earlier.
- (ii) Short-term investment decision, on the other hand, relates to the allocation of funds as among cash and equivalents, receivables and inventories. Such a decision is influenced by tradeoff between liquidity

and profitability. The reason is that, the more liquid the asset, the less it is likely to yield and the more profitable an asset, the more illiquid it is. A sound short-term investment decision or working capital management policy is one which ensures higher profitability, proper liquidity and sound structural health of the organisation.

2. Financing Decisions

Once the firm has taken the investment decision and committed itself to new investment, it must decide the best means of financing these commitments. Since, firms regularly make new investments; the needs for financing and financial decisions are ongoing. Hence, a firm will be continuously planning for new financial needs. The financing decision is not only concerned with how best to finance new assets, but also concerned with the best overall mix of financing for the firm. A finance manager has to select such sources of funds which will make optimum capital structure. The important thing to be decided here is the proportion of various sources in the overall capital mix of the firm. The debt-equity ratio should be fixed in such a way that it helps in maximising the profitability of the concern.

The raising of more debts will involve fixed interest liability and dependence upon outsiders. It may help in increasing the return on equity but will also enhance the risk. The raising of funds through equity will bring permanent funds to the business but the shareholders will expect higher rates of earnings. The financial manager has to strike a balance between various sources so that the overall profitability of the concern improves. If the capital structure is able to minimise the risk and raise the profitability then the market prices of the shares will go up maximising the wealth of shareholders.

3. Dividend Decision

The third major financial decision relates to the disbursement of profits back to investors who supplied capital to the firm. The term dividend refers to that part of profits of a company which is distributed by it among its shareholders. It is the reward of shareholders for investments made by them

in the share capital of the company. The dividend decision is concerned with the quantum of profits to be distributed among shareholders. A decision has to be taken whether all the profits are to be distributed, to retain all the profits in business or to keep a part of profits in the business and distribute others among shareholders. The higher rate of dividend may raise the market price of shares and thus, maximise the wealth of shareholders. The firm should also consider the question of dividend stability, stock dividend (bonus shares) and cash dividend.

2.4 BASIC FACTOR INFLUENCING FINANCIAL DECISIONS

A finance manager has to exercise a great skill and prudence while taking financial decisions since they affect financial health of an enterprise over a long period of time. It would, therefore, be in fitness of things to take the decisions in the light of external and internal factors. We shall now give a brief account of the impact of these factors on financial decisions.

i. External Factors

External factors refer to environmental factors within which a business enterprise has to operate. These factors are beyond the control and influence of the management. A wise management adopts policies that will be most suited to the present and prospective socio-economic and political conditions of the country.

The following external factors enter into decision making process:

- a. State of Economy:** At a time when the entire economy is enveloped into state of uncertainty and there is no ray of hope of recovery in the ensuing years, and considerable amount of risk is associated with investment it would be worthwhile on the part of a finance manager neither to take up new investment activities nor to carry further the expansion programmes. On the contrary, if it is found that the economy is likely to recover from the current gloomy state of affairs, the finance

manager should not miss the chance of exploiting investment opportunities. For that matter, he should after evaluating the economic viability of project in hand; select the most profitable project in advance so that when the opportunity crops up the same is seized upon. Economic condition of the country influences financing decision also. In times of prosperity when investors have keen desire to invest more and more savings the firm can garner desired amount of funds from the market by floating securities. But it should be remembered that the firm will have to offer higher interest rate (dividend rate) because interest rates tend to harden under pressure of demand. This would consequently increase cost of capital of the firm. To minimise cost of financing finance manger should insist more on debenture financing as benefits on trading on equity would tend to minimise cost. In times of depression, raising outside capital poses grave problem. Under such condition, greater emphasis should be laid on internal financing and for that purpose reserve position of the company will have to be strengthened. Dividend policy of a firm should also be attuned to changing economic conditions. If it lurks that the business is entering upon a period of depression, conservatism should be followed, for the business may need all of its cash resources to carry it safely through the period of decline until its sales soar. During boom period there is tendency among firms to offer higher dividend rate to mobilise funds from the market. The management is, therefore, constrained to declare dividend at higher rate. This should not pose any financial problem before the management since earning of the firm improves sharply in times of prosperity. There is also a strong possibility for the management to adopt conservative dividend policy during boom periods so that the firm may get sufficiently large amount of resources to finance growth requirements.

- b. Structure of Capital and Money Markets:** Where institutional structure of capital and money markets is well developed and organised with a multitude of financial institutions supplying long-term as well

as short-term financial assistance and investors are venturesome evincing keen interest in security dealings in stock market, business entrepreneurs will not have to encounter much problem in procuring even substantially large amount of capital. Various alternate sources are available and businessmen have a freedom to decide about the optimal financing mix so that cost of capital is reduced. Furthermore, the firm's ability to adjust sources of funds in response to major changes in need for funds increases. Not only does it enable entrepreneurs to use the type of funds that is most readily available at a given period of time but it also enhances their bargaining power when dealing with a prospective supplier of funds. In the absence of organised capital market entrepreneurs find it difficult to procure large amount of resources from the market. They have to raise capital from closely held circles. In such a state of affairs, policy of internal financing is pursued so as to enable the firm to draw upon its resources in times of need for funds.

- c. **State Regulations:** A finance manager must take investment decisions within the legal framework provided by the state. In a socialist country like India, entrepreneurs are not free to take up any venture they like. For example in India, Industrial Policy Resolution 1956, spells out clearly the industrial fields in which the Govt. will enter and those where private sector will have freedom to operate. Through industrial licencing system the Government seeks to ensure that the private sector business entrepreneurs do not intrude into prohibited areas. Under such circumstances a finance manager has to consider the viability of only those projects which are permissible by the Government. As per SEBI guidelines, a new company set up by entrepreneurs without a track record is permitted to issue capital to public only at par. Other companies have freedom in pricing their public issues, provided certain conditions are fulfilled. The equity capital to be subscribed, in any issue to the public, by promoters should not be less than 25 percent of

the total issue of equity capital for amounts up to ₹ 100 crore and 20 percent of the issue for amounts above ₹ 10 crore.

- d. Taxation Policy:** Taxation is the most predominant factor influencing business decisions since it takes away bigger slice of business income. While deciding to invest in projects, a finance manager has to keep in view the existence of tax incentives. For example, recently the Government of India decided to provide tax holiday facility to entrepreneurs seeking to invest in roads, bridges, airports, ports and rail systems for ten years. Tax holiday facility for five years has also been provided to those engaged in providing telecommunication services. Further, a finance manager, has to decide as to which method of depreciation should be followed that may reduce tax burden. There are numerous methods of charging depreciation, important being Straight Line method, Straight Line method, Diminishing Balance method and Annuity method. From the stand point of taxation, Straight Line method is very useful since in this method depreciation is charged at twice the normal depreciation rate which ultimately reduces the tax liability. It may be argued in this regard that tax savings generated in the initial years because of charging depreciation at higher rate will be compensated by the increased tax liability in the subsequent years when depreciation will be charged at lower rate. However, on a closer scrutiny it would appear that the present value of tax savings in initial years would always be higher than the present value of the additional tax liability in the subsequent years. Thus taxation influences the choice of method of depreciation. Likewise, tax liability of a firm fluctuates depending upon method of inventory valuation. There are different methods of inventory valuation, viz., LIFO, FIFO. A finance manager must ascertain in advance as to which method will be helpful in minimising the tax burden. Taxation also influences the capital structure decision. Other things being equal, debt financing is always cheaper from taxation point of view because interest on debt is a tax deductible expenditure while dividends are not. Taxation enters into

dividend decision too. High corporate tax rates lower the amount of earnings left for dividend distribution which, in consequence, tend to lower dividend rate. However, recent studies have revealed that high rates would not necessarily influence dividend rate particularly when tax burden is shifted on consumers. This tendency is widely prevalent in India. Very often the government in its bid to promote corporate savings levies special tax on those companies who declare dividend at a higher rate. For example, in India dividend tax @ 7.5% was levied in 1964 and companies declaring dividend in excess of 10 per cent were required to pay this tax. In 1968 this tax was taken back. Taxation also plays an important part in deciding the form of dividend. Generally, dividend is distributed in the form of cash and shares. Dividend distributed in shares is popularly known as bonus shares. While dividend received by shareholders in cash is subject to tax in their hands, bonus shares are exempted from the tax. That is why shareholders particularly those in the high income tax bracket prefer to receive dividends in shares rather than in cash.

- e. **Requirements of Investors:** While taking financing decision a finance manager should also give due consideration to the requirements of potential investors. There may be different types of investors with varying degree of safety, liquidity and profitability notions. Investors who are conservative and liquidity conscious would like to hold such securities as may assure them certainty of return and return of principal amount after the stipulated period of time. There may be, on the other hand, investors who are not as liquidity conscious, venturesome and who have greater preference for profitability. Such type of investors would prefer to invest their savings in equities. Thus, the management seeking to raise substantially large amount of capital for this undertaking has to issue different types of securities so as to cater to as large a number of investors as may be possible. Further, investors' psychology changes with the variation in economic and business conditions. In times of economic turmoil and business depression even

venturesome investors would like to hold senior securities while during the period of economic prosperity shares receive premium even at the hands of those investors who are not so venturesome. Finance manager should, therefore, be well aware of the prevailing temper of the investing class. Dividend policy must be geared to investors in general and existing stockholders and potential stockholders in particular. This helps in maximisation of the market value of the firm. Problem of ascertaining optimum allocation of business earnings between retention and dividends because of the diverse investment goals, tax brackets and alternate investment opportunities of the current and potential investors may prompt management to rationalize the soundness of such other factors as influence dividend policy as risk avoidance or maintenance of market price.

- f. **Lending Policy of Financial Institutions:** Lending policy of financial institutions may also influence investment decisions of a firm. If financial institutions follow the policy of concessional financing to priority projects and decide to grant loans to non- priority projects on a very strict terms and conditions, naturally the finance manager while taking investment decisions would provide greater weightage to the former group of projects in relation to the later ones, if other things remain the same. Further, while deciding about the sources of funds that have to be tapped for raising capital, lending policy of the financial institutions should be carefully examined. Sometimes, financial institutions grant financial assistance on such terms and conditions as may not be acceptable to the management. For instance, financial corporations in India usually insist on maintenance of debt-equity ratio for medium and large scale project as 1.5:1 and promoter's contribution of 20-25 percent of the project cost while considering loan application of a firm. Under such a condition, a firm seeking loan from the financial institutions must maintain the ratio of debt to equity at a level desired by them. The finance manager must, therefore, make suitable adjustment in financing mix of the firm in such ways as to conform to

the desired pattern. The finance manager will have, therefore, to examine into the expediency of getting loans from the institutions under the afore-stated condition.

(ii) Internal Factors:

Internal factors refer to those factors which are related with internal conditions of the firm such as nature of business, size of business, expected return, cost and risk, asset structure of business, structure of ownership, expectations about regular and steady earnings, age of the firm, liquidity in company funds and its working capital requirements, restrictions in debt agreements, control factor and attitude of the management. Within the economic and legal environment of the country finance manager must take financial decision, keeping in mind the numerous characteristics of the firm. Impact of each of these factors upon financial decisions will now be discussed in the following lines.

1. Nature of Business:

Nature of business may influence the pattern of investment in a firm, firm's make-up of capitalisation and the firm's dividend policy. In manufacturing and public utility concerns bulk of the funds have to be employed in acquiring fixed assets while in trading concerns substantially large amount of funds is invested in current assets, and fixed assets claim a nominal proportion. As among manufacturing industries, fixed assets requirements in capital goods industries would always be higher than in consumer goods industries. Impact of nature of business activities on make-up of capitalisation should also be closely examined. It is generally found that firms engaged in production of staple goods will have stability in their level of earnings as demand of their products is very likely to be uniformly steady both in times of business depression and boom. In view of this, they could place heavier reliance on debt for acquiring additional funds for the business.

Contrary to this, level of business earnings is fluctuating in the case

of industrial undertakings engaged in production of non-essential products because demand of their products changes in consonance with economic oscillations. Management of such companies would not choose to burden themselves with fixed charges. Similarly, public utility concerns and industrial concerns manufacturing essential products because of their steady and slow rising earnings may pursue liberal dividend policy to declare higher dividend rate. But trading concerns and those dealing in luxurious products would be committing blunder in pursuing such dividend policy. Prudent dividend policy in such concerns is one that lays more emphasis on greater retention of earnings so that the firm could build huge reserves in periods of prosperity and the same could be utilised to maintain dividend rate at times when earnings of the firm nose-dive.

2. Size of Business:

Firms engaged in the same line of activity may have different investment patterns depending primarily on the scale of their operations. Relatively larger amounts of funds are required to acquire fixed assets in larger concerns because these companies automate their process of production which smaller firms cannot afford. Furthermore, small firms with their limited amount of capital can carry on their affairs by renting or leasing plant and equipment and building while larger firms usually construct their own buildings to house the factory and acquire plant and machinery to carry on production work. Smaller firms because of their poor credit position have limited access to capital and money market in contrast to their larger counterparts. Investors are usually averse to invest in shares and debentures of smaller organisations. Furthermore, these smaller organisations do not have adequate amount of fixed assets to offer as security for securing loan. This is why management in the smaller organisations has to arrange capital from closely held circles.

Even if smaller firms are in comfortable position to raise equity share

capital, their owners would be hesitant to place issues for public offering with a view to maintaining their control over the organisation. On the contrary, larger concerns find it easier to procure needed funds from different sources of capital and money markets. Management in such concerns, therefore, considers it useful to employ more and more doses of debt to meet business requirements since this course of action would tend to reduce the cost of capital. Dividend decision of a firm is also influenced by its size. Because of difficult access to external sources of financing, smaller organisations have to depend on internal sources of financing and for that matter the management may pursue conservative dividend policy to retain larger proportion of business earnings. The management does not encounter any problem in persuading the shareholders who are few in number to agree to their policy. The shareholders should also have no objection in such policy because this will help minimize their tax liability. However, in larger concerns having large number of shareholders the management cannot always adopt a particular policy because wishes of the shareholders would not be common.

3. Expected Return, Cost and Risk:

Major factors influencing investment decision are expected return on the project, its cost and the risk associated with the project. Where dispersion of outcomes is known and all projects are equal in risk, finance manager would naturally go for that investment proposal which leads to highest revenues in relation to cost. Where different projects have varying degrees of riskiness, allowance will have to be made for the absorption of risk. This is usually done by adjusting the discount rate, i.e., rate of interest which is employed to discount future net cash flows of the project to present values. Thus, the greater the dispersion of outcomes, higher the discount rate is employed which means that returns will be reduced at a higher rate because of the allowance made for the risk assigned to the eventuality of their realisation.

For a risk-less investment, risk-free discount rate is employed. As risk increases, higher and higher discount rates are employed. In this way after making appropriate adjustments for risk factor final course of action is chosen. A finance manager should take into consideration earning prospects of investment projects in hand while taking dividend decision. Supposing a firm has large number of investment projects with vast earning potentialities sufficient to exhaust its earnings and the shareholders of the firm have strong preference for current dividends a finance manager in such situation must impress upon the shareholders about the strong need to retain more and more earnings and pursue strict dividend policy. However, where the projects in hand promise only normal return, the management should follow liberal dividend policy to keep up with preferences of shareholders. Contrary to this, if the shareholders are indifferent between dividends and capital gains a finance manager must accept all those investment projects that would carry income above the break-even point and funds for these projects should be arranged out of retained earnings.

4. Asset Structure of Firm:

Firms with sufficient amount of fixed assets must rely on debt to take advantage of cheaper source of financing. For example, public utilities and steel companies can depend heavily on debentures for raising capital as they can mortgage their assets for securing loan. But trading concerns whose assets are mostly receivables and inventory values which are dependent on the continued profitability of the firm should place less reliance on long-term debt and should depend more on short-term debt for their financial requirements.

5. Structure of Ownership:

In private companies whose ownership is concentrated in a few hands the management can find it easier to persuade the owners to accept strict dividend policy in the interest of the firm. But in public limited companies having large number of shareholders with varying desires

the finance manager must insist on the pursuance of liberal dividend policy.

6. Probabilities of Regular and Steady Earnings:

While planning about the make-up of capitalisation and deciding about the relationship between debt and equity the finance manager must visualize the trends of earnings of the firm for the past few years. Where the firm's past earnings have been reasonably stable and the same tendency is likely to continue in future, reliance on debt may be desirable. Where earnings of the firm have been irregular in the past but when averaged over a period of years give a fair margin over the preferred stock dividend, the management may issue preferred shares to raise funds. When earnings of the firm fluctuated violently in the past and the future earnings cannot be predicted with reasonable certainty, it will incur risk in issuing debt.

Accordingly, common stock must be issued. When earning of the firm fluctuated violently in the past and the future earnings cannot be predicted with reasonable certainty, it will incur risk in issuing debt. Accordingly, common stock must be issued. Degree of stability in level of earnings is a potent factor influencing dividend policy. But such a policy will prove dangerous to companies whose earnings are subject to great fluctuations. In such companies it would be prudent to declare lower dividend rate even when the business earnings are fairly high in order to use them to maintain the dividend rate in times of adversities.

7. Age of the Firm:

Investors are generally loath to employ their funds in new ventures because of relatively greater risks involved. Lenders too feel shy of lending because of their poor capital base. Consequently, new enterprises have to encounter considerable problems in assembling funds from the market. They approach underwriters and stock brokers

and pay them higher commission and brokerage for sale of their securities. Thus, a new firm will have small share of debt in its total capitalisation. Even if new enterprises are in comfortable position to garner funds by issue of debentures, a finance manager should, as far as possible, avoid bringing in heavy dose of debt, for in that case a large chunk of business income might be eaten away by interest on loans leaving a little amount for dividend distribution and retention for further financing.

The company's ability to raise funds by means of debt in the ensuing years might be circumscribed by restriction in debt covenants. In sharper contrast to this, existing ventures may not face considerable problem in raising funds from the market because of high credit standing in market. Such concerns usually float debentures for their additional long-term financial requirements with a view to reaping benefit of trading on equity. They also draw upon a part of the reserves built out of the past earnings for covering their additional financial needs. Thus, there is every likelihood of relatively greater amount of dilution of debt in the capitalisation of older firms. Age of the firm goes far to determine its dividend policy. A new and growing concern whose access to capital market is limited must follow strict dividend policy to keep away a larger portion of the business earnings for financing growth requirements. Existing ventures, however, need not follow such policy.

8. Liquidity Position of the Firm and Its Working Capital Requirements:

A finance manager must consider cash position of the firm and firm's needs for funds to meet maturing obligations and working and fixed capital requirements while taking dividend decisions. Dividends are generally paid out of cash. Care should, therefore, be exercised by the finance manager to make sure that cash is readily available to distribute dividends. Availability of large surplus does not always mean the

availability of cash in the firm particularly when a large amount of sale has been done on credit. By the time sale proceeds tied in receivables are collected the firm may need funds to buy materials to process production. Thus, despite the presence of profit and even the availability of cash, working capital requirements of the firm may be so imminent that may warrant the pursuance of conservative dividend policy.

Again, if a company has sufficient amount of cash resources in hand at the time when some loans taken in the past are due it would be advisable to finance manager to conserve cash to meet the past obligations and adjust dividend pattern accordingly. In many cases firms rely on their earnings for financing the acquisition of fixed assets. In such circumstances too the management must not be liberal in dividend distribution at least for some years even though a sizeable profit has been earned.

9. Restrictions in Debt Agreements:

The provisions of debt contracts should be carefully examined while deciding about forms of raising capital and establishing dividend policy since most indentures contain provisions that prevent the use of additional debt or issue of debentures of the earlier type. They also restrict the payment of dividends and sometimes disallow their payment until certain conditions are fulfilled. Needless to say, finance manager should make available to the Board of Directors a brief of all contractual provisions that affect the capital structure and dividends in any way.

10. Management Attitude:

Above all, financial decisions are influenced by the attitude of the management. Management attitudes that most directly influence the choice of financing and dividend policy are those concerning control of the enterprise and risk. Management desiring to maintain control

of the firm would like to raise additional funds needed by means of debentures and preferred stock which do not affect controlling position of the management in the firm. However, if company borrows more than what can be serviced by it; there is every risk of losing all control to creditors. It is, therefore, better to sacrifice a measure of control by some additional equity financing rather run the risk of all control to creditors by bringing in additional doses of debt. In such a situation, finance manager should not be very much liberal in dividend distribution.

Management attitude towards risk also determines the pattern of capitalisation of the firm. Conservative management would always prefer to tread on beaten path and would always avoid incurring fixed obligations for raising additional capital even though recourse to debt financing may be advantageous. The above discussion peters out that the financial decision should not be taken in isolation. A multitude of external and internal factors must be taken into account . It is practically inexpedient to consider all the factors at a tie since they are antagonistic to each other .A prudent and skilful manager strives to strike a satisfactory balance among these factors in the light of income, risk and control factors.

2.5 SUMMARY

Thus, Financial decision is important to make wise decisions about when, where and how should a business acquire fund. Because a firm tends to profit most when the market estimation of an organization's share expands and this is not only a sign of development for the firm but also it boosts investor's wealth. Consequently, this relates to the composition of various securities in the capital structure of the firm. These decisions are crucial for the well-being of a firm because they determine the firm's ability to obtain plant and equipment. When needed to carry the required amount of inventories and receivables, to avoid burdensome fixed charges when profits and sales decline and to avoid losing control of the company. Financial decisions are

taking by a finance manager alone or in conjunction with his other executive colleagues of the enterprise. In principle, finance manager is held responsible to handle all such problems as involve money matters.

2.6 GLOSSARY

- **Investment Decision** : These are also known as Capital Budgeting Decisions. A company's assets and resources are rare and must be put to their utmost utilization. A firm should pick where to invest in order to gain the highest conceivable returns. This decision relates to the careful selection of assets in which funds will be invested by the firms. The firm puts its funds in procuring fixed assets and current assets. When choice with respect to a fixed asset is taken it is known as capital budgeting decisions.
- **Financial Decisions** Financial decisions refer to decisions concerning financial matters to a business concern. Decisions regarding the magnitude of funds to invest to enable a firm to accomplish its ultimate goal, kind of assets to acquire. The pattern of capitalization, the pattern of distribution of firm's income and similar other matters are including in financial decisions.
- **Dividend Decision** Dividends decisions relate to the distribution of profits earned by the organization. The major alternatives are whether to retain the earnings profit or to distribute to the shareholders.

2.7 SELF ASSESSMENT QUESTIONS

Q1 What are investment decisions?

Ans _____

Q2 Define dividend decisions.

Ans _____

Q3 Discuss the external factors influencing financial decisions.

Ans

2.8 LESSON END EXERCISE

Q1. What do you mean by financial decisions? Discuss the major areas of financial decisions.

Q2. Discuss in detail the basic factors influencing financial decisions.

2.9 SUGGESTED READING

1. Khan & Jain Financial Management
2. I. M. Pandey Financial Management
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4. Diana, R. Harrington, Brent D. Wilson, Corporate Financial Analysis, Texas Business Publications, 1983, p 26.
5. Bolten, Steven, E., Managerial Finance : Principles and Practice, Boston : Koughton Mifflin Company, 1976,
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RATIO ANALYSIS AND PERFORMANCE**STRUCTURE**

- 3.1 Introduction
- 3.2 Objectives
- 3.3 Ratio analysis and performance
 - 3.3.1 Importance of ratio analysis
 - 3.3.2 Management's point of view
 - 3.3.3 Owner's point of view
 - 3.3.4 Lender's point of view
- 3.4 Summary
- 3.5 Glossary
- 3.6 Self Assessment Questions
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- 3.8 Suggested Readings

3.1 INTRODUCTION

Ratio analysis is an accounting tool, which can be used to measure the solvency, the profitability, and the overall financial strength of a business, by analysing its financial accounts (specifically the balance sheet and the profit and loss account). Accounting ratios are very easy to calculate and they enable

a business to highlight which areas of its finances are weak and therefore require immediate attention. Ratio analysis is a very powerful analytical tool useful for measuring performance of an organization. The ratio analysis helps the managements to analyze the past performance of the firm and to make future projections. Ratio analysis is extremely helpful in providing a business strength and weakness in two ways.

- Ratio provide an easy way to compare present performance with past
- Ratio depict the areas in which a particular business is completely advantaged or disadvantaged through comparing ratios to those of other business of the some size within the same industry.

Ratio analysis of business enterprises centers on efforts to derive quantitative measures or guides concerning the firm to meet its future financial obligations or expectations Ratio analysis simply defined “refers to the anlysis and interpretation of financial statements through ratio.” Ratio is an expression of relationship between one figure and other figure which are mutually interdependent. Thus ratio is one figure expressed in terms of another. A ratio shows the interrelationship which exists among various accounting data. Ratio analysis is a medium to understand the financial weakness and soundness of an organization. Keeping in mind the objective of analysis, the analyst has to select appropriate data to calculate appropriate ratios. Interpretation depends upon the caliber of the analyst.

3.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of ratio analysis
2. To discuss the importance of ratio analysis.
3. To understand the performance of ratio analysis.
4. To discuss the various ratios.

3.3 RATIO ANALYSIS AND PERFORMANCE: MANAGEMENT'S POINT OF VIEW, OWNER'S POINT OF VIEW, LENDER'S POINT OF VIEW

Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. A ratio is a statistical yardstick that provides a measure of the relationship between two variables or figures.

Ratio analysis is the application of ratios in comparing similar variables. Ratio analysis is the process of systematically manipulating figures from the financial statements of a company to produce information that are used as part of investment decision making process. It is the application arithmetic on financial information that is contained in the annual report of a business entity.

Strictly speaking, a ratio is a relation between two items of same properties (i.e same size, same units, same weight, same height, same number, etc). This then presupposes that a ratio can only be applied to like items. Comparing dissimilar items would not produce the result that is hoped for. The amount of energy and resources put into computing and comparing items of a financial statement of a company would be useless if there is no similarity in properties of the variables used in the ratio analysis.

This relationship can be expressed as a percent or as a quotient. Ratios are simple to calculate and easy to understand. The persons interested in the analysis of financial statements can be grouped under three heads,

- i) Owners or Investors
- ii) Creditors and
- iii) Financial executives.

Although all these three groups are interested in the financial conditions and operating results, of an enterprise, the primary information that each seeks to obtain from these statements differs materially, reflecting the purpose that the statement is to serve.

Investors desire primarily a basis for estimating earning capacity. Creditors are concerned primarily with liquidity and ability to pay interest and redeem loan within a specified period. Management is interested in evolving analytical tools that will measure costs, efficiency, liquidity and profitability with a view to make intelligent decisions.

3.3.1 Importance of ratio analysis

The ratio analysis is one of the most powerful tools of financial analysis. It is used as a device to analyze and interpret the financial health of enterprise. A ratio is known as a symptom like blood pressure, the pulse rate of the temperature of an individual. It is with help of ratios that the financial statements can be analysed more clearly and decision made from such analysis. The use of ratios is not analysis for knowing financial position of a firm like supplier, banks, investors, shareholders, financial institutions etc. The ratio analysis provides guides and clues especially in spotting trends towards better or poor performance. In the words of J. Batty “ratio can also assist management in its basic functions of forecasting, planning, co-ordination control and communication.”

The importance of ratios analysis is discussed below:

- 1. Simplifies accounting figures:** Accounting figures in many cases fail to provide information in a desired way. Ratios simplify, summarize and systematize accounting figures which can easily be understood by those do not know the language of accounting.
- 2. Measures liquidity position:** Ratio analysis helps in measuring the liquidity position of the firm. Liquidity position of firm is said to be satisfactory if it is able to meet its current obligation as and when they mature. Various liquidity ratios are used for the purpose of credit analysis by banks and short term lenders.
- 3. Measuring long-term solvency:** Ratio analysis is equally important in evaluating the long term solvency of the firm. It is measured by capital structure of leverage ratios.

4. **Measures operational efficiency:** Ratios are useful tools in the hands of management to evaluate the firm's performance over a period of time by comparing the present ratios with the past ratios. Various activity or turnover ratio measure the operational efficiency of the firm. These ratios are used, in general, by bankers, investors and other supplier of credit.
5. **Measures profitability:** The management as well as owners of firm is primarily concerned with the overall profitability of the firm. Profit and loss amount reveals the profit earned or loss incurred during a period but fails to convey the capacity of the firm to earn in terms of per rupee invested or per rupee of sales. By calculating various profitability ratios an analyst can measure earning capacity of the firm
6. **Facilities inter firm and intra firm compositions:** Ratio analysis is the basis for comparing the efficiency of various firms in the industry and various division of a business firm.
7. **Trend analysis:** Ratio analysis enables a firm to take the time dimensions into account. Trend analysis of ratios reveals whether financial position of the firm is improving or deteriorating over years. With the help of such analysis, one can ascertain whether the trend is favorable or adverse. For example any particular ratio may be less than general ratio but the trend may be increasing. On the contrary, present level may be satisfactory but trend may be declining.
8. **Managerial uses:** Ratio analysis is an invaluable aid to management is discharging its basis function such as planning, communication, control co-ordination and decision making.

Ratios are tools that are used by trained professionals in their bid to deliver value to those that have entrusted them with the management of their businesses and investments. Ratio analysis is the application of the tools (ratios) in a productive and efficient way with the aim of understanding relationships that exists amongst different variables. For optimal result, ratio

analysis has to be combined with other management accounting tools like variance analysis and contribution analysis. Ratio, in general, shows a proportional relationship between two different numbers or quantities. It may be a relationship between two amounts that is represented by a pair of numbers showing how much greater one amount is than the other, that is, the ratio of something to something. When undertaken by a business management in the process of financial analysis in order to identify the financial strengths and weaknesses of a business entity

3.3.2 Ratio Analysis and Performance: Management's Point Of View

Effective planning and Financial Management are the keys to running a financially successful business Ratio analysis is a useful management tool that assists in effective planning and running a financially successful business Ratios, on the one hand, help greatly in summarizing the large amount of financial data by making the interpretation of financial statements easier; they enable to make qualitative judgment about a business firm's financial performance on the other. It is through the ratio analysis that the liquidity, solvency, profitability and the activity of a business entity may be identified in an accurate manner.

Ratio Analysis is a powerful tool of financial analysis. Having simplified the understanding of Financial Statements, ratios reveal the inter relationship between various financial figures which in turn enables analyst to gain insights in making forward-looking and projections accordingly. Though the ratio analysis is made on the basis of the accounting data which is historical in nature, but the study of trends can also facilitate in effective planning and controlling and forecasting.

Besides, establishing a relationship between two figures and adding significance, ratios facilitate to make comparisons between a firm's past and present performance, while they also aid greatly in comparing one business firm with another. Ratios are calculated on the basis of accounting data that in turn may be classified in a number of ways. They provide what is wanted

or needed in a particular situation or by a particular group of people depending upon their interests in business. The information about the liquidity position, that is, the ability of a business to meet its current obligations, is needed by short term creditors, whereas the long term creditors are interested to know the solvency position of a business.

As regards the performance of a business, the management needs to evaluate all the aspects of a business that are helpful in identifying the activities as well as the performance of a business entity. It is true that the ratios are just supplementary to the absolute figures taken from the Income statement and the balance sheet, but they reveal absolutely true story of a business entity that is not to be directly expressed in the absence of Ratio Analysis. Thus, the ratio analysis plays a significant role in the process of Financial Analysis through which a business is enabled to find good prospects and perform better while it's also facilitated for ranking management's ability.

3.3.3 Ratio Analysis and Performance: Owner's Point Of View

Financial ratios are important, but often overlooked by small business owners. When accurate figures are applied, these calculations are useful to determine a firm's performance and financial situation. Comparing financial ratios with industry benchmarks can be critical in identifying areas of strength and weakness. In some instances, ratio analysis can even predict future bankruptcy. This list examines ten of the most important financial ratios for benefits of owners

- 1. Accounts Payable Turnover:** This activity ratio shows how quickly a company pays money owed to its suppliers. A ratio of 5 suggests that the firm used and paid off credit five times during the year, or once every 73 days. This ratio increases when more purchases are made or a company decreases its accounts payable. A high ratio means the company is paying off its creditor quickly, and a low ratio indicates vice versa. The formula for account payable turnover is:

$$\text{Accounts Payable Turnover} = \frac{\text{COGS}}{\text{Accounts Payable}}$$

2. **Return on Equity:** This profitability ratio measures income earned for each rupee invested in the company. It provides an indicator of financial leverage, and if there are discrepancies with return on assets, the firm may be taking on too much debt. The higher this ratio, the more money a company is generating for shareholders. The formula for return on equity is:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Stockholders Equity}}$$

3. **Debt-to-Equity Ratio:** This solvency ratio measures the amount of debt a company uses to finance its assets. A ratio of 1.0 indicates the firm uses the same amount of debt as equity, meaning creditors have claim to all assets, leaving nothing for shareholders in the event of liquidation. The greater this ratio, the more debt is being used instead of equity in the business.

The formula for debt to equity ratio is:

$$\text{Debt-to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholders Equity}}$$

4. **Accounts Receivable Turnover:** This activity ratio measures how quickly a firm collects its accounts receivable. This evaluates the company's ability to issue credit to its customers and collect from them. A high ratio means the company is efficient in collecting its bills and has trustworthy clients, while lower ratios can lead to accounts unnecessarily tying up working capital. The formula for account receivable turnover is:

$$\text{Accounts Receivable Turnover} = \frac{\text{Sales}}{\text{Accounts Receivable}}$$

5. **Current Ratio:** This liquidity ratio indicates how well a company

can pay its bills. If the ratio is more than 1.0, the firm has more short term assets than short term liabilities. A ratio less than 1.0 means the company could be vulnerable in the economy. However, a current ratio that is high may indicate the company is carrying too much inventory or not making enough sales. The formula for current ratio is:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

- 6. Return on Assets:** This profitability ratio is used to determine how effectively a firm's assets are being used to generate profits. The higher this ratio, the better a company is using its assets to make money. There are no ceilings for this ratio, unlike the current ratio, where high numbers could mean an underlying problem. The formula for return on assets is:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

- 4. Net Profit Margin:** This profitability ratio shows a firm's ability to convert sales into earnings for the company. It determines a company's overall profitability and performance, taking into account profit and overhead expenses.

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}}$$

- 5. Inventory Turnover:** This activity ratio shows how quickly the company is selling their products. A higher ratio means sales are good and the firm is more effectively managing its inventory, resulting in less company resources tied up in inventory. However, an unusually high ratio can be a sign that inventory is too lean, and the company may not be able to keep up with demand. In industries with perishable goods, buyers should seek sellers with the highest inventory turnover.

$$\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Inventory}}$$

6. **Quick Ratio:** This liquidity ratio is important in that it determines a firm's ability to generate cash. Similar to the current ratio, a result of less than 1.0 indicates the company cannot cover its short term debts with cash, securities, and accounts receivable. A ratio greater than 1.0 is a good indicator that the firm is doing well.

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

7. **Gross Profit Margin:** This profitability ratio is arguably one of the most used and is important in determining pricing with product costs. A gross profit margin of 50% shows that half of the revenues generated by the business are used to pay for cost of goods sold. Firms with a higher result will typically have a competitive advantage over others in their industry, since they are able to charge more for their product.

$$\text{Gross Profit Margin} = \frac{\text{Sales} - \text{COGS}}{\text{Sales}}$$

3.3.4 Ratio analysis and performance: lender's point of view

Lenders use ratio analysis as a tool to quantitatively understand and measure a business's performance, as it is a method by which a company's operations can be evaluated using the balance sheet, income statement, and statement of cash flows. Commercial lending is more of an art than a science, and although the underwriting process may appear confusing, it is not the mystery that it may seem to be. Rather, it is simply a process of gathering company information, analyzing financial data, and making informed judgments.

Banks operate on very thin margins, are highly regulated, and lend depositor and shareholder money. Consequently, there is little room for write-offs of bad loans. To assist in assessing the viability of a commercial loan, lenders calculate various ratios to monitor a business and its ability to repay

a loan. Lenders use ratio analysis as a tool to quantitatively understand and measure a business's performance, as it is a method by which a company's operations can be evaluated using the balance sheet, income statement, and statement of cash flows.

While there are many financial ratios that may be calculated and evaluated, three of the more important ratios in a commercial loan transaction are:

- Debt-to-Cash Flow Ratio (typically called the Leverage Ratio),
- Debt Service Coverage Ratio, and
- Quick Ratio.

The debt-to-cash flow ratio or leverage ratio measures the number of years of cash flow it will take for the borrower to retire the debt, and is calculated by dividing the borrower's debt by its cash flow. The leverage ratio is applicable and important across almost any lending sector. A lower number is more attractive to the lender.

Similar to the leverage ratio is the debt service coverage ratio (DSCR), which is a common financial covenant in many credit facilities. The DSCR measures a company's ability to service its current debts by comparing its net income with its total debt service obligations. To calculate the DSCR, net operating income is divided by the total debt service. There is latitude in which items (e.g., EBITDA, EBITDAR, capital leases, guarantees, etc.) are included in the ratio. Lenders may look for a DSCR of 1.25 or more as the higher the ratio, the greater the ability of the borrower to repay the loan.

The quick ratio, also called the acid test ratio, is a liquidity ratio that measures the ability of a company to pay its current liabilities when they come due with only quick assets. Quick assets are current assets that can be converted to cash in the short-term (typically within 90 days). Cash, cash equivalents, short-term investments or marketable securities, and current accounts receivable are considered quick assets. If a company has enough quick assets to cover its total current liabilities, the company more likely

will be able to pay off its obligations without having to sell any long-term or capital assets.

Ratio analysis is a useful tool to facilitate the identification of trends and provides a practical way to compare a business to others in its industry. Management should incorporate relevant ratios in its regular financial and operational reviews of the business.

3.3 SUMMARY

Ratio analysis is indispensable part of interpretation of results revealed by the financial statements. It provides users with crucial financial information and points out the areas which require investigation. Ratio analysis is a technique which involves regrouping of data by application of arithmetical relationships, though its interpretation is a complex matter. It requires a fine understanding of the way and the rules used for preparing financial statements. The ratio analysis if properly done improves the user's understanding of the efficiency with which the business is being conducted. The numerical relationships throw light on many latent aspects of the business. If properly analysed, the ratios make us understand various problem areas as well as the bright spots of the business. The knowledge of problem areas help management takes care of them in future. The knowledge of areas which are working better helps you improve the situation further. It must be emphasised that ratios are means to an end rather than the end in them. Their role is essentially indicative and that of a whistle blower.

3.4 GLOSSARY

- **Current Ratio:** Current ratio is the proportion of current assets to current liabilities. Current assets include current investments, inventories, trade receivables (debtors and bills receivables), cash and cash equivalents, short-term loans and advances and other current assets such as prepaid expenses, advance tax and accrued income, etc. Current liabilities include short-term borrowings, trade payables

(creditors and bills payables), other current liabilities and short-term provisions.

- **Debt-Equity Ratio:** Debt-Equity Ratio measures the relationship between long-term debt and equity. If debt component of the total long-term funds employed is small, outsiders feel more secure. From security point of view, capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy. Normally, it is considered to be safe if debt equity ratio is 2 : 1. However, it may vary from industry to industry.
- **Inventory Turnover Ratio:** It determines the number of times inventory is converted into revenue from operations during the accounting period under consideration. It expresses the relationship between the cost of revenue from operations and average inventory
- **Liquidity ratios:** It measure the firm's ability to meet current obligations;

3.5 SELF ASSESSMENT QUESTIONS

Q1. Define ratio analysis.

Ans _____

Q2. Give the significance of ratio analysis.

Ans _____

3.6 LESSON END EXERCISE

Q1 Discuss in detail the ratio analysis and its performance from different point of view

Ans _____

Q2. Explain the various types of ratios.

Ans _____

3.7 SUGGESTED READINGS

1. N.P. Srinivasan, Management Accounting, Sterling Publishers Private Ltd, New Delhi, 1988, P.48.
2. Dr. N.K. Sharma, Management Accounting, RBSA Publishers, Jaipur, 1993, P11.
3. Manmohan, And Shiv. N Goyal, Principles of Management Accounting, Shitya Bhawan, Agra, 1984, P.495
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5. H.K. Kulshrastra, Theory and Practice of Management Accounting, Prentice. Hall of India, Ltd., 197S, New Delhi

PROJECTION OF FINANCIAL REQUIREMENTS & SUSTAINABLE GROWTH AND PROFORMA FORECAST

STRUCTURE

- 4.1 Introduction
- 4.2 Objectives
- 4.3 Financial projection
 - 4.3.1 Key elements of financial projection
 - 4.3.2 Utility of financial projection
 - 4.3.3 Techniques of financial projection
- 4.4 Sustainable growth and proforma forecasts
- 4.5 Summary
- 4.6 Glossary
- 4.7 Self Assessment Questions
- 4.8 Lesson End Exercise
- 4.9 Suggested Readings

4.1 INTRODUCTION

A Financial projection in its basic form, is a forecast of future revenues and expenditures. A financial projection is used by governments, nonprofits,

and corporations everywhere. These projections may use historical as well as internal and external factors to determine future revenues and expenses. A financial projection is essentially an educated estimate of the revenues and expenditures of the business at a specific point in the future. Financial projections are important for several reasons. They enable us to forecast the predicted growth and success of the business so that we can make essential decisions regarding production, investments, and expansion. They also form a vital part of the business plan if we are trying to attract investors, as they demonstrate the predicted ability of our business to make the most of market opportunities and handle threats, so our financial projections have a direct impact on the valuation of our business.

There are generally two types of financial projection, and most businesses use both of these:

Short-term projections: these account for the first year of business. They are usually broken down month by month.

Mid-term projections: these usually cover the coming three years, and are broken down into yearly projections.

Both types are important, especially for start-ups and small- to medium-sized businesses wanting to attract investment..

A financial projection is also a prospective financial statement presenting the expected financial position, results of operations, and cash flows of our business, to the best knowledge of the person or people responsible for preparing it. However, instead of just being based on the most likely actions of your business and most probable market conditions, a financial projection will include one or more hypothetical assumptions which might be less likely to happen.

4.2 OBJECTIVES

The objectives of this lesson are:

- To understand the concept of financial projection.

- To know about the various key elements of financial projection.
- To discuss the utility of financial projection.
- To understand the various techniques of financial projection.
- To understand the concept of sustainable growth and proforma forecast.

4.3 FINANCIAL PROJECTION

Planning for the future is one of the key aspects of organizational management and is critical to the success of all businesses, irrespective of their size. This technique is called projecting, and it includes estimating important factors, such as sales volumes, expenses, investment and profit, that could influence outcomes for a business. In its simplest form, a financial projection is a forecast of future revenues and expenses. Typically, the projection will account for internal or historical data and will include a prediction of external market factors. In general, we will need to develop both short- and mid-term financial projections. A short-term projection accounts for the first year of our business, normally outlined month by month. A mid-term financial projection typically accounts for the coming three years of business, outlined year by year. Financial projections are based on compiling the internal and external accounting data you already use in the day-to-day management of your business. By projecting your revenue and expenses, we can get a more accurate view for how successful your business can be. Creating financial projections is not an easy task but is a very important part of developing a sound strategy. The financials tell you what goals to keep and what to cut.

Projections can also be a guide to help our business grow without running out of cash. To generate and support additional revenues, additional cash is always required. Financial projections help to assess what additional assets are needed to support increased revenue and the potential impact on our balance sheet. The projected financial plan indicates how much additional debt or equity we need to remain solvent and healthy. Financial projections should include a forecasting of the income statement, the balance sheet, and

the cash flow statement. Projections are made by the month for the first year and then by the year for the next two years.

4.3.1 Key Elements of Financial Projection

- 1. Income Statement:** An Income Statement shows your revenues, expenses and profit for a particular period. If we are developing these projections prior to starting our business, this is where we will want to do the bulk of your forecasting. The key sections of an income statement are:
 - i. Revenue** – This is the money we will earn from whatever goods or services we provide.
 - ii. Expenses** – Be sure to account for all of the expenses we will encounter, including **Direct Costs** (i.e. materials, equipment rentals, employee wages, your salary, etc.) and **General and Administrative Costs**(i.e. accounting and legal fees, advertising, bank charges, insurance, office rent, telecommunications, etc.).
 - iii. Total Income** – Our revenue minus your expenses, before income taxes.
 - iv. Income Taxes**
 - v. Net Income** – Our total income without income taxes.
 - vi. Cash Flow Projection:** A Cash Flow Projection will demonstrate to a loan officer or investor that we are a good credit risk and can pay back a loan if it's granted. The three sections of a Cash Flow Projection are:
 - **Cash Revenues** – This is an overview of our estimated sales for a given time period. Be sure that we only account for cash sales we will collect and not credit.
 - **Cash Disbursements** – Look through our ledger and list all of the cash expenditures that we expect to pay that month.

- **Reconciliation of Cash Revenues to Cash Disbursements** – This one is pretty easy: we just take the amount of cash disbursements and subtract it from total cash revenue. If we have a balance from the previous month, we'll want to carry this amount over and add it to our cash revenue total.
2. **Balance Sheet:** This overview will present a picture of our business' net worth at a particular time. It is a summary of all our business' financial data in three categories: assets, liabilities and equity.
 - I. **Assets** – These are the tangible objects of financial value owned by your company.
 - II. **Liabilities** – These are any debts your business owes to a creditor.
 - III. **Equity** – The net difference between organization's total liabilities minus its total assets

4.3.2 Utility of financial projection.

Financial projections can be used in a variety of ways, but they're usually used to attract investors or when applying for a bank loan or line of credit. Some of the situations are discussed as under

1. **Creating a business plan:** One of the first things potential investors or banks want to see is a financial projection for the business, even if it isn't operational yet.
2. **Hoping to attract investors:** When looking to invest in a business, investors typically look for financial viability. No one will invest in a business without a financial projection that outlines variables such as expenses, revenue, and growth patterns.
3. **Applying for a loan or line of credit:** Again, banks or other financial institutions are interested in the financial health of your business. This means providing them not just with current financial statements that outline current business performance, but also where we see our business next year, and the year after.

4. **To get a better handle on the business:** When one may not be in the market to attract investors or obtain a bank loan, but they do want to be able to map out their potential growth and create budgets allowing their business grow and thrive. Financial projections can help here, too.

Other uses:

- Perceive an unbiased view of company's economic status and the path it will likely take in the future.
- Prepare for expenses and revenue based on supply and demand patterns in the market.
- Establish goals by developing intentional commitments for long-term success.
- Set up points of achievement to ensure your business is growing as predicted.
- Compare the development of the market with the rate at which your business is flourishing.
- Reveal growth deviations from your projections early on to efficiently mitigate any concerns.

4.3.1 Techniques of financial projection

The various techniques of financial projection are discussed as under.

1. Sales forecast

This is usually a spreadsheet which predicts our expected sales over a specific period. If we are an established business, we will probably be covering the next three years. We can break these down monthly for year one, and either monthly or quarterly for years two and three. Each different line of sale should be presented in a different section showing the number of unit sales, pricing, cost of sales and gross margin, based on past and current sales.

If we are a start-up business, we will only be forecasting sales for our

first year, month by month. The presentation should be the same. However, as we do not have any previous sales figures to base our predictions on, we should provide our best estimates based on a thorough understanding of our industry and market trends. If we can demonstrate that we have done our homework rather than just guessing, potential investors will be impressed.

2. Expenses budget

This is where we need to show how much it will cost the business to make the predicted amounts of sales. This section should be broken down into *fixed costs and variable costs*.

The fixed costs are those that are more or less the same every month. These can include things like:

Payroll

Office rent

Phone and internet costs

Insurance

The variable costs are those that are different every month or only occur occasionally. Examples can include:

Advertising and promotional activities

Cost of raw materials

Credit card fees

Seasonal workers

We will also need to work out the amounts of taxes and interest we expect to pay, based on the predicted numbers of sales

3. Cash flow statement

Cash flow statement shows the actual amounts of money we expect will be moving in and out of your business during the period you are forecasting. If we are an established business making predictions for the next

three years, we should base these figures on our previous profit and loss statements and balance sheets to produce realistic estimates.

If we are a new business forecasting for our first year, we will need to do some research as we do not have any previous figures to base our estimates on. We should look carefully at our sales forecast and expenses budget to make our best assessments. We also need to remember that we will not get paid straight away for every sale – some of our invoices may not be paid for two or three months, so we need to account for this. We should work on the assumption that only 80 percent or less of our invoices will be paid within 30 days.

4. Income projection statement

This is a forecasted profit and loss statement detailing your expected profits or losses over the next three years. We should work these out using the figures we have used in our sales forecast, expenses budget and cash flow statement. A figure for each year should be included, as well as a total for the three-year period. The proforma of income projection statement is discussed are as under :

Income Statement

[Name]

[Time Period]

Financial Statements

Revenue

Gross Sales	
Less: Sales Returns and Allowances	
Net Sales	

Cost of Goods Sold

Beginning Inventory	
Add: Purchases	
Freight-in	
Direct Labor	
Indirect Expenses	
Inventory Available	0
Less: Ending Inventory	
Cost of Goods Sold	

Gross Profit (Loss)

Expenses

Advertising	
Amortization	
Bad Debts	
Bank Charges	
Charitable Contributions	
Commissions	
Contract Labor	
Depreciation	
Dues and Subscriptions	
Employee Benefit Programs	
Insurance	
Interest	
Legal and Professional Fees	
Licenses and Fees	
Miscellaneous	
Office Expense	
Payroll Taxes	
Postage	
Rent	
Repairs and Maintenance	
Supplies	
Telephone	
Travel	
Utilities	
Vehicle Expenses	
Wages	
Total Expenses	

Net Operating Income

Other Income

Gain (Loss) on Sale of Assets	
Interest Income	
Total Other Income	

Net Income (Loss)

Fig. 1 Income Projection statement

5. Balance sheet

The projected balance sheet needs to account for all the assets and liabilities of the business. These are items which can't be included in your sales and expenses figures. For example, our assets would include any property or equipment our business owns, unsold inventory, and any invoices that have not yet been paid. Our liabilities are amounts that our business owes to other people, such as the amount we owe on a business loan or invoices from our suppliers that we have not paid yet. The balance is the difference between the total value of your assets and the total value of your liabilities.

6. Break even projection

The point at which our business breaks even is when the amount of money it is making overtakes the amount it is spending, including interest. If our business is viable and we have worked out our figures accurately, we can use our financial forecasts to work out the predicted date when we expect it to break even. This is extremely important for potential investors, who want to see evidence that our business will grow.

4.4 SUSTAINABLE GROWTH AND PROFORMA FORECAST

The sustainable growth rate in a business is the maximum growth rate a business can achieve without having to increase its financial leverage or debt financing. Stated another way, it is the maximum growth rate that can be achieved given the company's profitability, asset utilization, dividend payout, and debt ratios. In simple terms and with reference to a business, sustainable growth is the realistically attainable growth that a company could maintain without running into problems. A business that grows too quickly may find it difficult to fund the growth. A business that grows too slowly or not at all may stagnate. Finding the optimum growth rate is the goal. A Sustainable growth rate (SGR) is the maximum growth rate that a company can sustain without having to increase financial leverage. In essence, finding

a company's sustainable growth rate answers the question: how much can this company grow before it must borrow money?

The models used to calculate sustainable growth assume that the business wants to:

- 1) maintain a target capital structure without issuing new equity;
- 2) maintain a target dividend payment ratio; and
- 3) increase sales as rapidly as market conditions allow

Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate. Indeed, the sustainable growth rate formula is directly predicated on return on equity.

To calculate the sustainable growth rate for a company, one must know how profitable the company is based on a measure of its return on equity (ROE). One must also know what percentage of a company's earnings per share it pays out in dividends, which is called the dividend-payout ratio. With these figures one can multiply the company's ROE by its plowback ratio, which is equal to 1 minus the dividend-payout ratio.

THE CHALLENGE OF ATTAINING SUSTAINABLE GROWTH

Creation of sustainable growth is a prime concern of small business owners and big corporate executives alike. Obviously, however, achieving this goal is no easy task, given rapidly changing political, economic, competitive, and consumer trends. Each of these trends presents unique challenges to business leaders searching for the elusive grail of sustainable growth. Customer expectations, for example, have changed considerably over the last few generations. Modern consumers have less disposable wealth than

their parents, which makes them more discriminating buyers. This fact coupled with the legacy of a decade of quality and cost reduction programs, means that companies must try to attract customers by redefining value and keep those customers by beating their competitors in enhancing value. Similarly, competition is keen in nearly all industries, which have seen unprecedented breakdowns in the barriers that formerly separated them.

The growth challenge is articulated differently by different companies and within different industries. For some, developing and launching new products and services to meet the evolving needs of their customers is the issue. For others, capitalizing on global opportunities is key. Some companies look to new business areas that will represent the next major thrust for their business. And for a few companies, all of these strategic efforts are simultaneously used, along with ongoing efforts to rebuild organizational capabilities.

Economists and business researchers contend that achieving sustainable growth is not possible without paying heed to twin cornerstones: growth strategy and growth capability. Companies that pay inadequate attention to one aspect or the other are doomed to failure in their efforts to establish practices of sustainable growth (though short-term gains may be realized). After all, if a company has an excellent growth strategy in place, but has not put the necessary infrastructure in place to execute that strategy, long-term growth is impossible. The reverse is true as well.

USING THE SUSTAINABLE GROWTH RATE

The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth.

According to economists, if a company's sales expand at any rate other

than the sustainable rate, one or more of the basic business ratios must change. If a company's actual growth rate temporarily exceeds its sustainable rate, the required cash can likely be borrowed. When actual growth exceeds sustainable growth for longer periods, management must formulate a financial strategy from among the following options:

- 1) sell new equity;
- 2) permanently increase financial leverage (i.e, take on more debt);
- 3) reduce dividends;
- 4) increase the profit margin; or
- 5) decrease the percentage of total assets to sales.

In practice, companies are often reluctant to undertake these measures. Firms dislike issuing equity because of high issue costs, possible dilution of earnings per share, and the unreliable nature of equity funding on terms favorable to the issuer. A firm can only increase financial leverage if there are assets that can be pledged and if its debt-to-equity ratio is reasonable in relation to its industry. The reduction of dividends typically has a negative impact on the company's stock price. Companies can attempt to liquidate marginal operations, increase prices, or enhance manufacturing and distribution efficiencies to improve the profit margin. In addition, firms can source more activities from outside vendors or rent production facilities and equipment, which has the effect of improving the asset turnover ratio. Increasing the profit margin is difficult, however, and large sustainable increases may not be possible. Therefore, it is possible for a firm to grow too rapidly, which in turn can result in reduced liquidity and the unwanted depletion of financial resources.

The sustainable growth model is particularly helpful in situations in which a borrower requests additional financing. The need for additional loans creates a potentially risky situation of too much debt and too little equity. Either additional equity must be raised or the borrower will have to reduce

the rate of expansion to a level that can be sustained without an increase in financial leverage.

Mature firms often have actual growth rates that are less than the sustainable growth rate. In these cases, management's principal objective is finding productive uses for the cash flows that exist in excess of their needs. Options available to business owners and executives in such cases include returning the money to shareholders through increased dividends or common stock repurchases, reducing the firm's debt load, or increasing possession of lower earning liquid assets. Note that these actions serve to decrease the sustainable growth rate. Alternatively, these firms can attempt to enhance their actual growth rates through the acquisition of rapidly growing companies.

Growth can come from two sources: increased volume and inflation. The inflationary increase in assets must be financed as though it were real growth. Inflation increases the amount of external financing required and increases the debt-to-equity ratio when this ratio is measured on a historical cost basis. Thus, if creditors require that a firm's historical debt-to-equity ratio stay constant, inflation lowers the firm's sustainable growth rate.

In order for a business to grow and not run into problems with financing, it has to grow at a sustainable growth rate. Businesses have to be able to finance their growth with either debt or equity financing. If they do not have enough financing but have runaway growth, they may find it difficult to get financing to sustain that growth. On the other hand, a business that grows too slowly will stagnate.

Growth Capability and Growth Strategy

Attaining the sustainable growth rate for our business is a little like searching for the holy grail. It's out there, but it is hard to find. You have to consider all the factors external to your business that interfere with your search, including political, economic, international and consumer trends. The environment in which you do business is very competitive for most businesses and most industries. We have to beat your competition by adding value in a different way to your product or service.

We need to address two primary issues: growth capability and growth strategy. Growth capability refers to your firm's infrastructure. Growth strategy refers to that business plan we need to have in place. Unless we have both of these issues covered, long-term growth will be impossible.

How to Calculate Sustainable Growth Rate

The formula for a sustainable growth rate is:

$$\text{SGR} = \text{Retention Ratio} \times \text{Return on Equity}$$

where: Retention Ratio = 1 - dividend payout ratio and Return on Equity = Net Income/Total Shareholder's Equity

The retention ratio is the flip side of the dividend payout ratio. If the firm pays out 20 percent of its earnings in dividends, then its retention ratio is 80 percent. The Return on Equity (ROE) is what the firm earns on the shareholder's investment in the firm. Multiply the two together, and we have the sustainable growth rate.

Proforma forecast

A pro-forma forecast is a financial forecast based on pro-forma income statements, balance sheet, and statement of cash flows. Pro-forma forecasts are usually created from pro-forma financial statements and are forecasted using basic forecasting procedures. A pro-forma forecast is a financial forecast based on pro-forma income statements, balance sheet, and statement of cash flows. Pro-forma forecasts are usually created from pro-forma financial statements and are forecasted using basic forecasting procedures. When making these forecasts, revenues will usually provide the initial groundwork for the forecast, and expenses and other items are calculated as a percentage of future sales.

Pro-forma financials used in the pro-forma forecast will usually reflect the predicted state of the business after a large or important transaction has taken place. The inclusion of anticipated future events in the pro-forma financial statements allows the company a unique opportunity to sculpt the

presentation of the company's financial situation in a way that normally wouldn't be allowed under Generally Accepted Accounting Principles (GAAP) rules. Often, events depicted in the pro-forma financial statements have yet to occur, so the actual company financial picture may be very different than the picture presented. Forecasts made from these financial statements may or may not contain an even higher degree of deviation from the actual state of the company.

A pro-forma forecast, similar to any sort of pro-forma report, is not required to abide by GAAP. As a result, they often reflect the best-case scenario, which the firm would like to portray to investors. It takes a skilled analyst to unpack the marketing from the actual numbers. Of course, the analyst can always just use the audited financial statements in their analysis as opposed to pro-forma statements and forecasts. Although, these forecasts can be a valuable clue as to how the subject company intends to increase its value and what type and nature of growth they are aiming for.

Example of a Pro-Forma Forecast

For example, XYZ Company is a publicly-traded maker of widget presses. After many years of research and development, they have applied for a patent on a fantastic new type of widget press technology. If they are granted the patent, they will be the only company who can use this fantastic new technology for 10 years. This new technology will allow XYZ Company to manufacture widget presses at half their current cost and several times more quickly. This could potentially make them the preferred provider in the space and help them gain market share.

To demonstrate this potential good fortune on the company's financial statements, XYZ Company may draw up pro-forma financial statements which show the predicted effects of lower costs and increased sales on the company's financial situation. Pro-forma forecasts made off of the assumption that this patent will be granted might show larger than normal yearly sales increases as XYZ Company steals market share from its less technologically advanced

and more expensive competitors. Of course, if the patent isn't granted, all of this would be highly inaccurate.

4.5 SUMMARY

An important part of the business planning process is the preparation of financial statements to predict the outcome of an organization's results in future periods. Financial projections help you to assess what additional assets are needed to support increased revenue and the potential impact on our balance sheet. Financial projections are based on compiling the internal and external accounting data you already use in the day-to-day management of your business. By projecting your revenue and expenses, you can get a more accurate view for how successful your business can be. Creating financial projections is not an easy task but is a very important part of developing a sound strategy. The financial analyst tell you what goals to keep and what to cut. Projections can also be a guide to help your business grow without running out of cash. To generate and support additional revenues, additional cash is always required. Financial projections help you to assess what additional assets are needed to support increased revenue and the potential impact on your balance sheet. The projected financial plan indicates how much additional debt or equity you need to remain solvent and healthy. Financial projections should include a forecasting of the income statement, the balance sheet, and the cash flow statement. Projections are made by the month for the first year and then by the year for the next two years.

4.6 GLOSSARY

- **Financial projection:** A forecast of future revenues and expenses for a business, organization, or country. A financial projection will typically take into account both internal information such as historical income and cost data, and estimates of the development of external market factors, providing estimated figures in addition to projections of the general financial condition of the company in the future.

- **Cash flow statement:** A cash flow statement is a financial statement that provides aggregate data regarding all cash inflows a company receives from its ongoing operations and external investment sources. It also includes all cash outflows that pay for business activities and investments during a given period.
- **Sales Forecasting:** Sales forecasting is the process of estimating future sales. Accurate sales forecasts enable companies to make informed business decisions and predict short-term and long-term performance.
- **Sustainable growth rate:** The sustainable growth rate in a business is the maximum growth rate a business can achieve without having to increase its financial leverage or debt financing. Stated another way, it is the maximum growth rate that can be achieved given the company's profitability, asset utilization, dividend payout, and debt ratios.

4.7 SELF ASSESSMENT QUESTIONS

Q1. Discuss the key elements of financial projection.

Ans _____

Q2. Define proforma forecast.

Ans _____

4.8 LESSON END EXERCISE

Q1 Discuss the utility of financial projection.

Ans _____

Q2 Write a detailed note on sustainable growth and proforma forecast.

Ans _____

4.9 SUGGESTED READINGS

1. Analysis for financial management- By Robert C. Higgins, McGraw Hill Education
2. Financial Management and Analysis- By Frank j. Fabozzi and Pamela P. Peterson, John Wiley & Sons.
3. Financial Analysis Tools and Techniques- By Erich a. Helfert, McGraw Hill Education

FINANCIAL INFORMATION SYSTEM**STRUCTURE**

- 5.1 Introduction
- 5.2 Objectives
- 5.3 Meaning of financial information system
- 5.4 Nature of financial information system
- 5.5 Role of financial information system in decision making
- 5.6 Designing suitable financial information system
- 5.7 Summary
- 5.8 Glossary
- 5.9 Self Assessment Questions
- 5.10 Lesson End Exercise
- 5.11 Suggested Readings

5.1 INTRODUCTION

A financial information system (FIS) is a business software system used to input and track financial and financial data. The system generates reports and alerts that assist managers in effectively running the business. This term is used for a system that accumulates and analyses financial data in order to make good financial management decisions in running the business.

The basic objective of the financial information system is to meet the firm's financial obligations as they come due, using the minimal amount of financial resources consistent with an established margin of safety. Outputs generated by the system include accounting reports, operating and capital budgets, working capital reports, cash flow forecast, and various what - if analysis reports. The evaluation of financial data may be performed through ratio analysis, trend evaluation, and financial planning modelling

A financial information system (FIS) accumulates and analyzes financial data used for optimal financial planning and forecasting decisions and outcomes. An FIS is used in conjunction with a decision support system, and it helps a firm attain its financial objectives because they use a minimal amount of resources relative to a predetermined margin of safety. An FIS can be thought of as a financial planner for electronic commerce that can also produce large amounts of market and financial data at once obtained from financial databases worldwide.

5.2 OBJECTIVES

The objectives of this lesson are:

- To understand the concept of financial information system.
- To discuss the nature of financial information system.
- To understand the role of financial information system.
- To discuss how to design suitable financial information system

5.3 MEANING OF FINANCIAL INFORMATION SYSTEM

Financial information is needed by managerial decision –makers to help them plan and control the activities of the economic activity. It is also needed by outsiders –owners, creditors, investors, the government and the public-who have supplied funds to the business or who have some other interest that will be served by information about its financial position and operating results.

So as to create financial information in a form which will be useful to many people who use this information, three major steps have to be taken, viz, recording financial events of a business as they occur, classifying these events into groups so that the mass of detailed information will be in compact and usable form, summarizing the classified information into financial reports or financial statements. Some means in the form of accounting forms, records, instructions, manuals, flowcharts, programmes, and reports have therefore, to be developed so that information is properly recorded and supplied to the interested parties on a regular and prompt basis.

Financial information system is, thus, concerned with recording, applying, measuring and communicating the financial events of an enterprise to the users.

5.4 NATURE OF FINANCIAL INFORMATION SYSTEM

The nature of financial information system is discussed as under:

1. Financial information system, an integral part of accounting system, is concerned with financial events only. It does not furnish all possible information about a business. Information such as flow of goods, personal qualities of management, etc., are not reported by financial system.
2. Another distinguishing feature of the financial information system is that it does not apply to business but also to individuals and organizations which are not profit-making institutions such as government, hospitals, trusts and churches and universities.
3. It is required by different stakeholders of the enterprise including owners, creditors, suppliers, government, management, social reformer etc.
4. It provides information for decision-making, planning and control by the management of a business.
5. Another important feature of financial information system is that it is

based on principles and techniques of both financial accounting and management accounting so as to supply requisite information to various stakeholders of the organization.

6. It also provide information about the organization to external parties such as creditors, suppliers, government, etc., who are keenly interested in its financial activity but are outside the management group of the business.
7. It reports the results, periodically, in a realistic and concise form which is comprehensible to the users.
8. It provides a summary statement of the results of business operation for a period of time, disclosing the various accomplishments and efforts made by the business during that time period.

5.5 ROLE OF FINANCIAL INFORMATION SYSTEM IN DECISION MAKING

Finance is the lifeline of every business. The role of finance manager has undergone a sea change over the last two decades. The traditional role of a finance manager involved activities relating to preparation of financial reports regarding the performance of the enterprises and its financial position along with raising of funds to meet the needs of the enterprise. As a result accountants were considered suitable for the job of finance manager .However, today's finance manager is concerned with the total amount of capital employed with the enterprise, allocation of funds to various activities and measurement of the outcomes of these activities in the light of common goals of the enterprise .This involves investment decision, financing decision, dividend decision ,portfolio management ,asset management etc. In addition,, finance management has the responsibility of maintaining proper accounting records regarding performance of various components of the enterprise for the purpose of reporting to a variety of users of the accounting information. Thus the finance manager performs function leading to liquidity, profitability

and proper management of assets. The activities of a finance manager, thus fall into following major domains.

1. General Ledger Accounting
2. Financial planning & budgeting
3. Assets and liability management
4. Profitability Analysis
5. Cash and Fund flow Management
6. Evaluation of funds and investments
7. Cost analysis
8. Responsibility and Profitability Reporting

The information requirements of a finance manager with respect to each of the above areas of activity are discussed in the following sections.

1. General Ledger Accounting Information:

The first application of IT in Finance department began and still begins with automation of general ledger accounting procedures IT infrastructures are quite nature in well-managed enterprises with regard to automation of invoicing, debtor accounting, inventory accounting, payroll accounting ,assets accounting and other related operations. Increasing use of IT infrastructure for these activities has not only improved the accuracy levels but also the promptness in a availability of up-to-date information, resulting in higher degree of reliability and batter compliance with the statutory and other reporting obligation of the finance manager. Another major tangible benefit of use of IT in general ledger accounting is the reduction in the costs of manpower and space for storage of accounting information for further analysis in financial decision making. Modern financial accounting software packages new offer reports on financial decision making. Modern financial accounting software packages new offer reports on financial ration analysis budgetary control, credit management, ageing analyzing of debtors, etc. in addition to

the ‘varnilla’ type general ledger reports, such as statement of accounts of assets acquisition and disposal, etc.

2. Financial planning and budgeting

Allocation of funds to various activities in the business is one of the major functions of a finance manager. Budget as financial plans involve prediction of outcome of various business strategies and anticipating the changes in the market forces that influence the performance of the enterprises. These predictions are made on the assumptions regarding the future. The outcomes of the activities need to be interactively investigated so that a corrective action could follow without loss of time. A Prompt corrective action can help mitigate the possible damage to the interest of the enterprise when the predictions go wrong for reason of unrealistic assumptions or faulty algorithm of the prediction model. Use of IT infrastructure has made it possible to develop real time flexible budgets and investigate the outcomes of activities to enable the finance manager take quicker and informed decisions. Modern IT infrastructure can also help a finance manager to employ more sophisticated budget analysis models in designing budgets and exercising budgetary control. These models not only take into account the quantifiable factors but also incorporate the judgemental factors using fuzzy logic and knowledge engineering techniques.

3. Assets and liability Management:

Profitability is determined by the utilization of resources of an enterprise. The asset management is thus one of the key responsibilities of a finance manager. IT infrastructure can provide information to a finance manager for management of asset and monitoring their utilization on a regular basis. The redundant assets may be discarded, disposed off or re-positioned to ensure that they add value to the achievement of objectives of the enterprise. IT infrastructure can be used for identifying assets with low utilisations factors and generating necessary information for evaluating proposal for hiring of assets as and when needed or exploring possibilities for sub –contracting. Since such decisions require a lot of information, they

generally get low priority in the absence of proper IT infrastructure. Similarly, the finance manager can effectively manage liabilities of the enterprise if the needed information is available regularly.

4. Profitability Analysis:

Profitability analysis is an important activity in the finance department. With the fast changing market scenario, there is a need to keep a constant vigil on the profitability curve and reorient the business processes accordingly. The profitability analysis not only forms the basis of the plan for allocation of funds for various activities but also guides the finance manager in taking decisions, like 'continue or quit', and pricing. IT helps the finance manager to keep a track of the product life cycle and taking decisions regarding product mix. Modern IT infrastructure provides a finance manager with the information required for profitability analysis are most profound in case the enterprise has a large number of products and services to offer or has a large number of profit centres. In such cases, the volume of information outcomes too large and scattered to be number of branches or sales offices find IT infrastructure very useful in profitability analysis. For example, a bank of a reasonable size would be at a loss to understand how to do profitability analysis without proper IT infrastructure.

5. Cash and Fund Flow Management:

Management of cash and fund flows has always been the concern of finance managers. In spite of this being a well-researched area in financial management, mismanagement of cash is a reoccurring phenomenon in business enterprise. FOR an effective cash and funds managements, it is essential to have information regarding the demand and likely availability of liquid resources from operations, investment decisions and financing decisions. Since the information regarding the likely demand and availability of cash and fund from operations is influenced by the dynamics of market forces and host of other factors, it becomes very difficult accurately estimate the demand and availability of funds for each period. Even within the plan period, there is a need to ensure resource leveling as it is done incase of

project management. A large amount of information regarding activities in operating cycle is required for decision making in respect of cash and fund flow management. Advanced techniques for modeling of cash management need to be used to ensure that there are funds just enough to meet the requirements. IT infrastructure can help a lot not only in extracting such information from the databases but also in estimating the demand and availability of funds from various other sources.

6. Evaluation of funds and investments:

Investment decision refers to the selection of assets in which funds should be invested. This would involve evaluation of alternative proposals, selection of financially viable proposals and determination of priority of investment in different activities. Cost of funds or capital is the basic element of the selection criteria. The information required for evaluation of proposals is becoming more and more probabilistic and the estimation is becoming more and more complex as we enter new pastures and unbeaten tracks in business. The cut throat competition is keeping the finance manager away from projects that have more deterministic information available regarding the costs and cash flow from the project. IT infrastructure can help in using more sophisticated models for estimating costs and cash flows, and measurement of risk-return ratios for different projects. Use of different profitability models is feasible with the help of suitable IT infrastructure. In fact for smaller investment proposals, hardly any serious evaluation takes place in the absence of suitable IT infrastructure. With the application of artificial intelligence, it is now possible to evaluate each investment proposal with speed and accuracy almost automatically. This encourages implementation of zero-based budgeting, a technique that has 'the potential of avoiding wasteful expenditure on redundant activities. In fact, zero-based budgeting became a popular technique only after IT infrastructure became available for regular evaluation of each investment proposal, in a short period of time.

7. Cost analysis:

Cost analysis is an important activity that a finance manager undertakes

regularly in order to control the cost and value of inventory. The cost information is also used as an important informational input in pricing decision. As the cost information is required almost on real-time basis, the manual information systems for cost analysis did not offer much value to business decision making. Modern IT infrastructure offers upto date cost information and tools for studying the behavior of various elements of cost. This enables the finance manager take quicker decisions and exercise effective control over costs. With suitable IT infrastructure, it is possible to generate more detailed information regarding cost. It enables managers to control even smaller elements of cost more effectively. Automatic generation of cost variance reports help the managers to get more insight into the changing business situations and take quicker corrective actions. It offers leads for identifying opportunities for reduction of costs and improves profitability.

8. Responsibility and profitability reporting:

Responsibility accounting involves establishment of short-term activity goals as per performance standards for different organizational units called responsibility centre. It is a control technique which involves monitoring the actual performance against the standards, identifying the controllable and uncontrollable costs and revenue factors, and measurement of performance of each responsibility centre in view of the information generated. Responsibility accounting uses flexible budgeting concept for measurement of performance of different units, of the organization. It has gained much of its popularity after the availability of IT infrastructure for maintaining detailed information for its purpose and analysis of variances from plans needed for exercising proper control.

The information needs of finance function can be represented with the help of fig

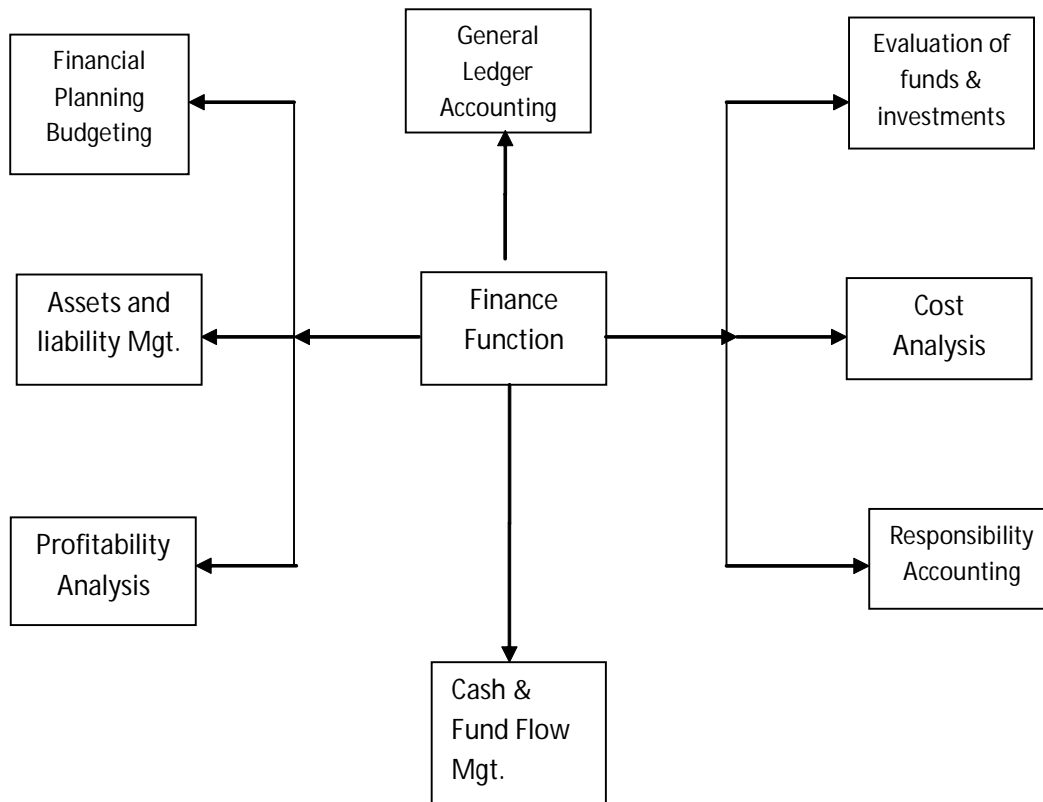


Fig: Finance Function and Information needs

It may be noted that the manual system of accounting and re-orting was also generating information for financial decision making. What the IT has done is that it has changed the framework of analysis and reporting. It has also made use of certain sophisticated techniques of analysis of information viable even for comparatively smaller organisational units. The reporting framework has changed from periodic statements in predefined formats to interactive reports in the desired format. The financial information is up to date and its availability is automatic. The reporting approach is proactive in the sense that the predefined information needs are met without periodic requests from the user. The IT links the different accounting systems as an integrated whole and thus reduces redundancy in stored information.

Use of IT in financial management should also help to ensure consistency in data at different levels in the organisation so that the aggregation of values of all the departments match with the value given by the division, and aggregate values of divisions match with operating company consolidated values for various financial factors.

Figure highlights the need for such data consistency

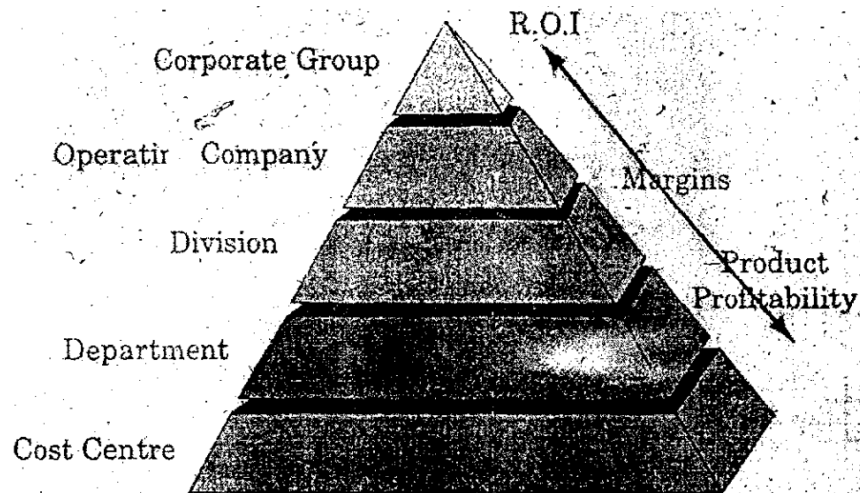


Fig. : Consistency of data at various levels

5.6 DESIGNING SUITABLE FINANCIAL INFORMATION SYSTEM

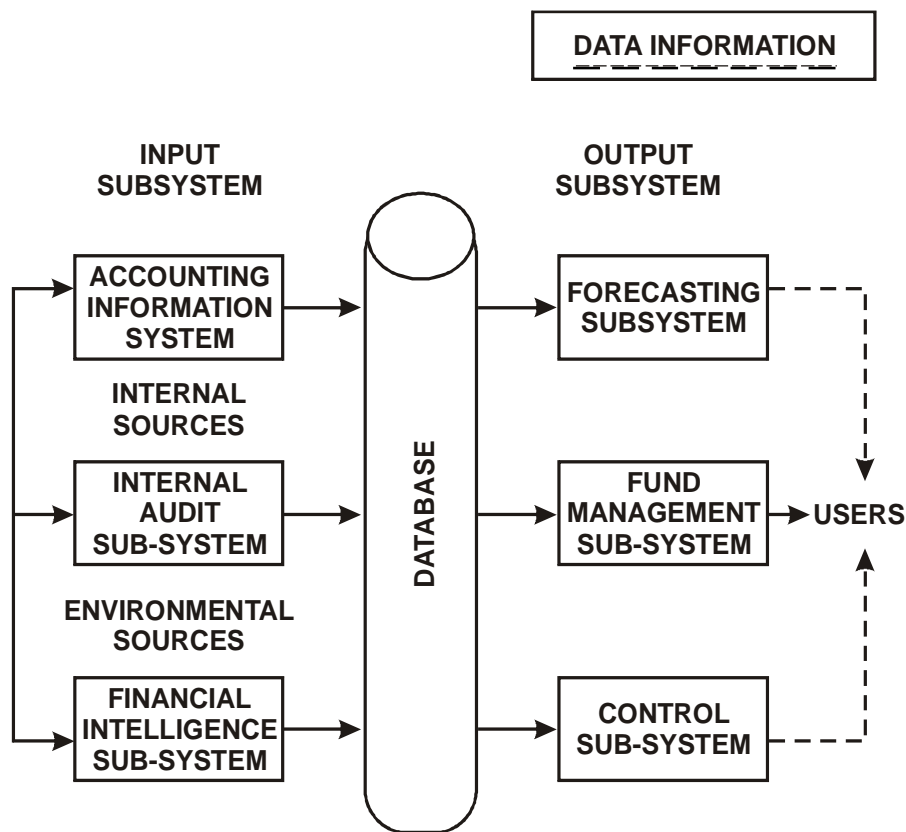
We use the term financial information system to describe the CBIS subsystem that provides information to persons and group both inside and outside the concerning the firm's financial matters. Information is provided in the form of periodic reports, special reports, results of mathematical simulations, electronics communications, and the advice of expert systems.

A model of the financial information system appears in Fig. Like the other functional information systems, the financial information system consists of input and output sub system. Two of the input subsystems, the accounting information system and a subsystem dedicated to gathering

intelligence, are also found in other functional systems. The third, internal audit, consists of the firm's internal auditors who analyze the firm's conceptual system to ensure that they process financial data the proper way.

The three Output subsystems exert an influence on the firm's money flow. The forecasting subsystem projects the firm's long-range activity in an economic environment. The funds management subsystem manages the money flow as it occurs, seeking to keep it balanced and positive. With the control-subsystem, managers can get effective use from resources of all types that are made available to them.

As with the other functional information system, the output subsystem contain various types of software that transform the database contents into information.



Prewritten Financial Software More prewritten application software has been developed for the financial area than for any other. These are mostly data processing packages such as payroll, inventory and accounts receivable. Financial managers and analysts also make good use of electronic spreadsheets, which are examples of personal productivity packages. The spreadsheet rows are excellent for representing such financial data as sales and cost of goods sold, and the columns can represent such time periods as months, quarters, or years. These prewritten software systems enable small firms to achieve good financial control without investing in large information services staffs. The systems also enjoy widespread use in large firms, where their user-friendliness is a main stimulus to end-user computing.

Now that we have described the setting for the financial information system, we will describe each of its subsystems

1. Accounting Information System

We discussed Accounting Information System earlier, and subsequently we have recognized its ability to provide input to the executive, marketing, and manufacturing information systems. In this chapter, we see that it plays the same role in the financial information system. -.

Importance of Accounting Data

Accounting data provides a record of everything of monetary importance that happens in the firm. A record is made of each transaction, describing what happened, when it happened, who participated, and (in many cases) how much money was involved. This data can be analysed in various ways to meet a portion of management's information needs.

AIS is the only input component that appears in all of the functional information systems. The AIS is the foundation upon which all information-oriented CBIS subsystems are built. If the firm does not have good AIS, it cannot be expected to have a good MIS, good DSS, and expert systems.

2. Internal Audit Subsystem

Firms of all sizes rely on external auditors to audit the accounting records to verify their accuracy. External auditors work for such accounting firms as Arthur Andersen and Price Waterhouse. Annual stockholder reports contain a Statement to the Stockholders that such an audit has been conducted.

Larger firms have their own staffs of Internal auditors, who perform the same analysis as external auditors but have a broader range of responsibilities. We include internal auditing as an input subsystem of the financial information system because of its ability to independently evaluate and influence the firm's operations from a financial standpoint.

Figure shows a popular way to position internal auditing in the organization. The board of directors includes an audit committee, which defines the responsibilities of the Internal auditing department and received many of the audit reports. The director of internal auditing manages the internal auditing department and usually reports to the CEO or the CFO. The CFO or Chief Financial Officer, is the person who manages the financial function and typically holds the title of vice-president of finance. This top-level positioning of internal auditing within the organization ensures that it is recognized as an important activity and receives the co-operation of managers on all levels.

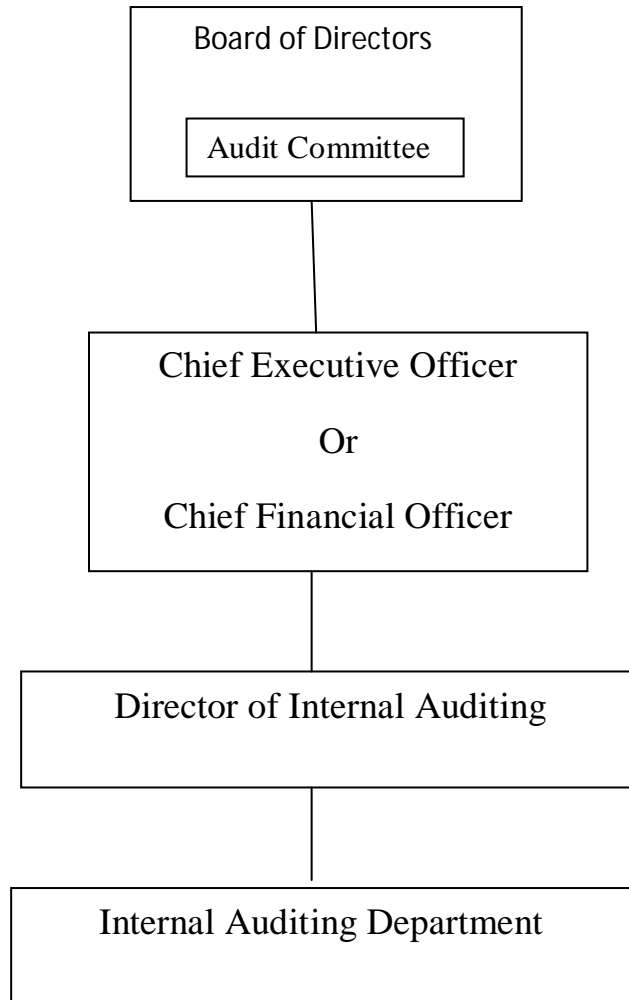


Fig: The position of internal auditing in the organization

Types of Auditing Activity

There are four basic types of internal auditing activity: financial, operational, concurrent and internal control systems design. One internal auditor can engage in all four types.

Financial Auditing: A financial audit verifies the accuracy of the firm's records and is the type of activity performed by external auditors. On some

assignments, the internal auditors work jointly with external auditors. On other assignments, the internal auditors do all the auditing work themselves.

Operational Auditing: An operational audit is not conducted to verify the accuracy of records but rather to validate the effectiveness of procedures. This is the type of work done by the systems analyst during the analysis phase of the system life cycle.

Internal Control Systems Design: In operational and concurrent auditing, the internal auditors study existing systems-. However an auditor should not wait until a system is implemented to exert an influence on it. Internal auditors should increase dramatically as the system life cycle progresses.

3. Financial Intelligence Subsystem

Since the financial function controls the money flow through the firm, information is needed to expedite the flow. The financial subsystem seeks to identify the best sources of additional capital and the best investments of surplus funds. In order to meet this objectives, the financial intelligence subsystem gathers data and information from stockholders and the financial community. Like the other functional intelligence subsystems, it also gathers data and information from the government. Much information that affects the money flow comes from the national government and, to a lesser extent, state or province and local government.

Stockholder Information

All corporations have one or more people who are responsible for stockholders relations. The stockholders relations department is usually located within the financial function. This department maintains the communication link between the firm and its stockholders. Information flows from the firm to the stockholders, primarily in the form of the annual and quarterly reports.

Financial Community Information

The best developed intelligence activity of the firm is most likely the

one involving the financial community. Long before the computer era, managers and staff in the financial function had systems in place that gathered information describing the financial environment. There are two reasons why firms have established this information flow. First, the information is readily available, existing in the form of printed material and databases that contain economic and environmental information. Second, top management recognizes the influence of the economic, environment on the firm and wants to remain alert to changes that must be acted upon.

4. Forecasting Subsystem

Forecasting is one of the oldest mathematical activities in business. It was done years before the computer, using desk calculators. The computer enabled the forecasters to make the calculations much more quick and easy.

In considered the contribution that forecasting can make to the firm, you should keep three basic facts in mind :

All forecasts are projections of the past: The best basis for predicting what will happen in the future is to look at the past. All types of forecasting follow this approach. This is the reason why accounting data is so important in forecasting; it provides the historical base.

All forecasts consist of semi-structure decisions: Forecasting decisions are good example of the semi-structured type of decisions that are supported by the DSS. The decisions are based on some variables that can be easily measured and some that cannot.

No forecasting technique is perfect: Not even the most sophisticated mainframe forecasting package can be expected to predict the future with 100 percent accuracy.

Since managers are aware of these facts, they apply much judgement in using the forecast as a basis for future planning.

Short Term and Long Term Forecasting: Short-term forecasting is performed by the functional areas. The marketing function projects sales for

the near future say the next one to three years. All of the functional areas use the sales forecast as the basis for determining the resources that they will need to support the projected level of activity. For example, the sales forecast is a basis for the MRP projections made by manufacturing.

Long-term forecasting is usually done by an area other than marketing - by the financial function or by a special group that has planning as its only responsibility. Some large corporations have a strategic planning group that reports to the executive level.

5. Funds Management Subsystem

The flow of money from the environment, through the firm, and back to the environment is important because money is used to obtain the other physical resources. The flow can be managed to achieve two goals: (1) to ensure that the revenue inflow is greater than the, expense outflow, and (2) to ensure that this condition remains as stable as possible throughout the year.

6. Control Subsystem

Managers have optional objectives that are to be achieved, such as producing or selling a certain number or value of items. The managers are given an operating budget, an amount of money that is available for use in meeting the operational objectives. The budget usually covers operations for one fiscal year, or financial year.

Budgeting Process

Top-Down Approach: When a top-down approach is taken the firm's executive determine the budget amounts and then impose those amounts on the lower levels. The - rationale is that the executives have the best grasp of the firm's long-term goals and can allocate funds that enable the firm to meet those goals. However, such a budget might be viewed by managers on lower levels as an unrealistic objective, one which is imposed by persons who are out of touch with the day-to-day demands of the business.

Bottom-up Approach: When a bottom-up approach is taken, the

budgeting process begins at the lowest organizational level and works its way up. The logic is that persons on the lower levels are closer to the action and can best determine their resource needs. However, this logic frequently escapes the executive who reason that the lower-level manager will ask for unrealistically high amounts.

Participative Approach: Because of the shortcomings of the top-down and bottom-up approaches, the general practice is to follow a participative budgeting process. That is to say, the persons who will receive the funds participate it setting the levels of those funds. It is a give and take approach, with managers on the various levels negotiating to achieve a budget that is satisfactory to all. Middle-level managers play a key role in this process bringing into focus the long-range views of the executives and the immediate needs of the managers on the lower level.

Budget Reports

The operating budget for a unit, such as a department or division, consists of amounts for each of the basic expense items (salaries, telephone, rent, supplies, and so on). These expense items are usually allocated monthly throughout the fiscal year to correspond with the fluctuating level of activity.

Each manager with budget responsibility receives a monthly report showing actual expenditures for his or her unit compared with the budget. Figures shows a typical format, reflecting performance against both the current months and year to date budget. The year-to-date budget consists of the budget amounts for the months of the fiscal year that have passed.

Performance Ratios

In addition to the budget reports, the control subsystem can produce a number of performance ratios. A performance ratio is a relationship of two or more indicators or an organization's activity that provides a means of measurement. In some cases, the ratios are established by the firm. In other cases, the ratios represent standards that have been established by the firm's particular industry or perhaps business as a whole.

Among the most popular of the ratios is the current ratio. The current ratio measures the extent to which a firm or an organizational unit can cover its short-term debts with assets that are easily converted into cash.

Putting the control Subsystem in Perspective

The computer has consistently provided solid support in the area of control. When an accurate and current database exists, it is a simple process to compare actual and budgeted expenses, produce reports, and compute ratios. The reports and ratios have been provided for so long that managers take them for granted and would feel lost without them.

5.7 SUMMARY

The unit broadly outlines how funds go about projecting the financial statements and determining their overall financial requirements. The projections helps the managers to arrange funds, reformulate their plans if the future looks bleak. The meaning of Financial Information System and its resigning and have also been explained.

5.8 GLOSSARY

A financial information system is an organized approach of collecting and interpreting information, which is usually computerized. A well-run financial information system is essential to a business, since managers need the resulting information to make decisions about how to run the organization.

5.9 SELF ASSESSMENT QUESTIONS

Q1 Define financial information system.

Ans _____

Q2 What role does financial information system play in decision- making?

Ans _____

5.10 LESSON END EXERCISE

- Q1 Explain the nature of financial information system.
- Q2 Discuss in detail the various subsystem of financial information system.
- Q3 Give the meaning of financial information system. Also discuss the role of financial Information system in decision making.

5.11 SUGGESTED READINGS

- | | | |
|----|--------------------|----------------------|
| 1. | I.M. Pandey | Financial Management |
| 2. | Khan & Jain | Financial Management |
| 3. | James C. Van Horne | Financial Management |

CONCEPT CERTAINTY, RISK AND UNCERTAINTY

STRUCTURE

- 6.1 Introduction
- 6.2 Objectives
- 6.3 Concept of Certainty, Risk and Uncertainty
- 6.4 Risk
 - 6.4.1 Causes of Risk
 - 6.4.2 Types of Risk
 - 6.4.3 Risk- Return Relationship
 - 6.4.4 Measurement of Risk
- 6.5 Cost of Uncertainty
- 6.6 Summary
- 6.7 Glossary
- 6.8 Self Assessment Questions
- 6.9 Lesson End Exercise
- 6.10 Suggested Readings

6.1 INTRODUCTION

Decision making is a criterion to select the best alternative of some conflicting situations arisen in the different sectors of our daily life. The importance of decision making skills can be recognized from the daily work of a manager of a manufacturing firm or a business person or an engineering professional who is generally involved in taking a series of decisions. The success or failure of an individual or an organization depends upon the ability of appropriate decision making. It depends on the different factors, like uncertainty of the future, risk factors, etc. Decision making is classified according to the scale of certainty that ranges from full certainty to full uncertainty called the degree of certainty. There are several types of decisions, such as, (i) decisions under certainty, (ii) decisions under risk, (iii) decisions under conflicting situations, (iv) decisions under uncertain conditions, etc. It is therefore necessary to understand the characteristics of good decisions and bad decisions, so that choosing an available decision will be easy. Decision theory is defined as an analytic and systematic approach to the study of decision making. This allows us to first characterize, then decide, and finally construct good decisions. Good decisions are based on reasoning, consider all available data and possible alternative, and employ a quantitative approach. On the other hand, bad decisions are not based on reasoning, do not consider all available data and possible alternatives, and do not employ a quantitative approach. As a consequence of the uncertainty in prevailing conditions, it should be kept in mind that a good decision may sometimes result in an unexpected outcome, but it is still considered to be a good decision if it is made properly. On the other hand, at the same time, a bad decision may occasionally lead to a good outcome (incidentally), but still it is a bad decision. Whether a particular decision is good or bad is not apparent from one occasion. A good decision will benefit in the long run, while a bad decision will lead to a loss in the long run. The systematic approach to good decision making may be summarized in the form of the five steps in decision making as follows:

1. List all the possible alternatives (that is, actions or decisions).

2. Identify the possible outcomes as consequences of every possible action or decision.
3. Identify the profit, payoff, or reward for every possible action, corresponding to each potential outcome.
4. Select one of the decision theory models.
5. Apply the selected model and make our decision accordingly.

It is also necessary to recognize the decision making environments. Is the decision to be made under certainty or uncertainty? It is easier to make decisions under certainty, while it is harder to make decisions under uncertainty. Moreover, the uncertainty can be non-deterministic, where no pattern can be found in the states of nature or probabilistic where states of nature exhibit a certain pattern. As a result of existence of a pattern in states of nature, it is possible to measure the risk posed by the uncertainty in the decision making environment. The situation is then described as in the context of decision making under risk. In the framework of decision making, under assurance the consequences of every decision or action are known, and it is then left to the decision maker to choose the alternative that results in the best possible outcome. By contrast, when decision is to be made under uncertainty, the consequences of the action or decision are not known with certainty. It is then necessary to determine the level of risk one is willing to take in decision making.

6.2 OBJECTIVES

The objectives of this lesson are to:

1. To understand the concept of certainty, risk and uncertainty.
2. To highlight the causes of risk.
3. To discuss the risk-return relationship.
4. To discuss the various techniques used in the measurement of risk.

6.3 CONCEPT OF CERTAINTY, RISK AND UNCERTAINTY

If a finance manager feels he knows exactly what the outcomes of a project would be and is willing to act as if no alternative were in existence, he will be presumably acting under conditions of certainty. Thus, certainty is a state of nature which arises when outcomes are known and determinate. Riskiness of an investment project is defined as the variability of its cash flows from those that are expected. The greater the variability, the riskier the project is said to be. In risky situations the probabilities of an event occurring are known and these probabilities are objectively determinable. The main attribute of risk situation is that the event is repetitive in nature and possesses a frequency distribution. This frequency distribution is used to draw inferences on the basis of objective statistical technique. Thus, risk refers to a set of unique outcomes for a given event which can be assigned probabilities. In contrast, when an event is not repetitive and unique in character and the finance manager is not sure about probabilities themselves, uncertainty is said to prevail. Uncertainty is a subjective phenomenon. In such situation no observations can be drawn from frequency distributions. Capital expenditure projects are often unique. The finance manager may not have store of historical data to draw upon to see as to how the same project had fared in the past. The outcomes in the state of uncertainty are too unsure to be assigned probabilities. It is worth noting that distinction between risk and uncertainty is of academic interest only. Practically, no generally accepted methods exist.

Decision making under certainty

A condition of certainty exists when the decision-maker knows with reasonable certainty what the alternatives are, what conditions are associated with each alternative, and the outcome of each alternative. Under conditions of certainty, accurate, measurable, and reliable information on which to base decisions is available. The cause and effect relationships are known and the future is highly predictable under conditions of certainty. Such conditions exist in case of routine and repetitive decisions concerning the day-operations of the business.to-day

Decision-making under Risk:

When a manager lacks perfect information or whenever an information asymmetry exists, risk arises. Under a state of risk, the decision maker has incomplete information about available alternatives but has a good idea of the probability of outcomes for each alternative. While making decisions under a state of risk, managers must determine the probability associated with each alternative on the basis of the available information and his experience.

Decision-making under Uncertainty:

Most significant decisions made in today's complex environment are formulated under a state of uncertainty. Conditions of uncertainty exist when the future environment is unpredictable and everything is in a state of flux. The decision-maker is not aware of all available alternatives, the risks associated with each, and the consequences of each alternative or their probabilities. The manager does not possess complete information about the alternatives and whatever information is available, may not be completely reliable. In the face of such uncertainty, managers need to make certain assumptions about the situation in order to provide a reasonable framework for decision-making. They have to depend upon their judgment and experience for making decisions.

6.4 RISK

Risk is defined in financial terms as the chance that an outcome or investment's actual gains will differ from an expected outcome or return. Risk includes the possibility of losing some or all of an original investment. Quantifiably, risk is usually assessed by considering historical behaviors and outcomes. In finance, standard deviation is a common metric associated with risk. Standard deviation provides a measure of the volatility of asset prices in comparison to their historical averages in a given time frame. Overall, it is possible and prudent to manage investing risks by understanding the basics of risk and how it is measured. Learning the risks

that can apply to different scenarios and some of the ways to manage them holistically will help all types of investors and business managers to avoid unnecessary and costly losses. Everyone is exposed to some type of risk every day – whether it's from driving, walking down the street, investing, capital planning, or something else. An investor's personality, lifestyle, and age are some of the top factors to consider for individual investment management and risk purposes. Each investor has a unique risk profile that determines their willingness and ability to withstand risk. In general, as investment risks rise, investors expect higher returns to compensate for taking those risks.

A fundamental idea in finance is the relationship between risk and return. The greater the amount of risk an investor is willing to take, the greater the potential return. Risks can come in various ways and investors need to be compensated for taking on additional risk. For example, a U.S. Treasury bond is considered one of the safest investments and when compared to a corporate bond, provides a lower rate of return. A corporation is much more likely to go bankrupt than the U.S. government. Because the default risk of investing in a corporate bond is higher, investors are offered a higher rate of return. Quantifiably, risk is usually assessed by considering historical behaviors and outcomes. In finance, standard deviation is a common metric associated with risk. Standard deviation provides a measure of the volatility of a value in comparison to its historical average. A high standard deviation indicates a lot of value volatility and therefore a high degree of risk. Individuals, financial advisors, and companies can all develop risk management strategies to help manage risks associated with their investments and business activities. Academically, there are several theories, metrics, and strategies that have been identified to measure, analyze, and manage risks. Some of these include: standard deviation, beta, Value at Risk (VaR), and the Capital Asset Pricing Model (CAPM). Measuring and quantifying risk often allows investors, traders, and business managers to hedge some risks away by using various strategies including diversification and derivative positions.

6.4.1 Causes of Risk

1. Credit Risk

Financial markets must constantly guard against credit risk, according to the International Financial Risk Institute. This type of market risk is caused by debtors who cannot meet obligations to pay back loans or make payments on credit accounts, and therefore default or are forced to declare bankruptcy. When a debtor declares bankruptcy, the lender may be able to recover only a portion of the original loan amount. Financial markets attempt to combat credit risk by maintaining stringent requirements for extending credit, such as examining each applicant's credit report for evidence of past financial irresponsibility and maintaining credit score requirements.

2. Problems of Liquidity

Financial markets also face the problem of liquidity, or difficulty in being able to turn assets into cash. This form of financial risk is caused by one or more financial market participants not having enough cash to meet all financial obligations by the due dates of the accounts. The fear with this type of risk is that failure of one financial market participant, such as a corporation, to meet its financial obligations may expose larger financial problems in the market.

3. Settlement Risks

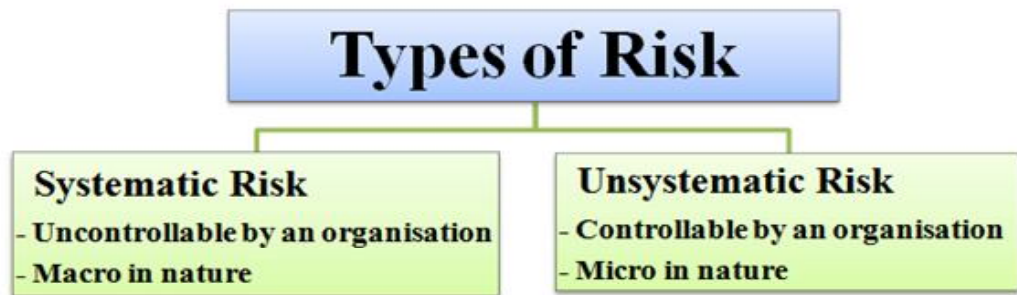
A settlement risk is the chance a creditor takes of a debtor filing for bankruptcy or settling his credit account for less than the full amount owed. This type of financial risk can be caused by a number of factors, from a debtor's own financial circumstances to the terms of a credit account or loan he agreed to repay. A creditor has the right to appeal to the court to not allow a debtor to enter into bankruptcy protection. A creditor may also attempt to secure a judgment against a debtor in an attempt to force the debtor to repay his account.

Other causes of risk:

1. Wrong decision or wrong timing.
2. Term of investment-long term investment is more risky than short-term investment as future is uncertain.
3. Level of investment-Higher the quantum of investment, the higher the risk.
4. Nature of industry- Risk is higher in speculative and cyclical industries while less in defensive and growth industries.
5. Political and legal factors- Risk may arise due to changes in government policy and legislative regulations in a country.

6.4.2 Types of Risk

Risk is divided into two parts i.e. Systematic risk and unsystematic risk. These risk are discussed in detail as under:



A) Systematic Risk:

Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view. It is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization. The types of systematic risk are listed below.

1. Interest rate risk
2. Market risk
3. Purchasingpower or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk arises due to variability in the interest rates from time to time. It particularly affects debt securities as they carry the fixed rate of interest. The types of interest-rate risk are listed below.

- a. Price risk
- b. Reinvestment rate risk.

The meaning of price and reinvestment rate risk is as follows:

- a) Price risk arises due to the possibility that the price of the shares, commodity, investment, etc. may decline or fall in the future.
- b) Reinvestment rate risk results from fact that the interest or dividend earned from an investment can't be reinvested with the same rate of return as it was acquiring earlier.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market. The types of market risk are listed below.

- a. Absolute risk,
- b. Relative risk,
- c. Directional risk
- d. Non-directional risk,
- e. Basis risk and

f. Volatility risk.

The meaning of different types of market risk is as follows:

- a) **Absolute risk** is without any content. For e.g., if a coin is tossed, there is fifty percentage chance of getting a head and vice-versa.
- b) **Relative risk** is the assessment or evaluation of risk at different levels of business functions. For e.g. a relative-risk from a foreign exchange fluctuation may be higher if the maximum sales accounted by an organization are of export sales.
- c) **Directional risks** are those risks where the loss arises from an exposure to the particular assets of a market. For e.g. an investor holding some shares experience a loss when the market price of those shares falls down.
- d) **Non-Directional risk** arises where the method of trading is not consistently followed by the trader. For e.g. the dealer will buy and sell the share simultaneously to mitigate the risk
- e) **Basis risk** is due to the possibility of loss arising from imperfectly matched risks. For e.g. the risks which are in offsetting positions in two related but non-identical markets.
- f) **Volatility risk** is of a change in the price of securities as a result of changes in the volatility of a risk-factor. For e.g. it applies to the portfolios of derivative instruments, where the volatility of its underlying is a major influence of prices.

3. **Purchasing power or inflationary risk**

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period. The types of power or inflationary risk are listed below.

- a. Demand inflation risk and

- b. Cost inflation risk.

The meaning of demand and cost inflation risk is as follows:

- a) **Demand inflation risk** arises due to increase in price, which result from an excess of demand over supply. It occurs when supply fails to cope with the demand and hence cannot expand anymore. In other words, demand inflation occurs when production factors are under maximum utilization.
- b) **Cost inflation risk** arises due to sustained increase in the prices of goods and services. It is actually caused by higher production cost. A high cost of production inflates the final price of finished goods consumed by people.

B) Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are normally controllable from an organization's point of view. It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk. The types of unsystematic risk are listed below.

1. Business or liquidity risk,
2. Financial or credit risk and
3. Operational risk.

Now let's discuss each risk classified under this group.

1. Business or liquidity risk

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc. The types of business or liquidity risk are listed below.

- a. Asset liquidity risk and

b. Funding liquidity risk.

The meaning of asset and funding liquidity risk is as follows:

- a) **Asset liquidity risk** is due to losses arising from an inability to sell or pledge assets at, or near, their carrying value when needed. For e.g. assets sold at a lesser value than their book value.
- b) **Funding liquidity risk** exists for not having an access to the sufficient-funds to make a payment on time. For e.g. when commitments made to customers are not fulfilled as discussed in the SLA (service level agreements).

2. **Financial or credit risk**

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are sourced for the projects. These are as follows:

Owned funds. For e.g. share capital.

Borrowed funds. For e.g. loan funds.

Retained earnings. For e.g. reserve and surplus.

The types of financial or credit risk are depicted and listed below.

- a. Exchange rate risk,
- b. Recovery rate risk
- c. Sovereign risk and
- d. Settlement risk.

The meaning of types of financial or credit risk is as follows:

- a. **Exchange rate risk** is also called as exposure rate risk. It is a form of financial risk that arises from a potential change seen in the exchange rate of one country's currency in relation to another country's currency and vice-versa. For e.g. investors or businesses face it either when

they have assets or operations across national borders, or if they have loans or borrowings in a foreign currency.

- b. Recovery rate risk** is an often neglected aspect of a credit-risk analysis. The recovery rate is normally needed to be evaluated. For e.g. the expected recovery rate of the funds tendered (given) as a loan to the customers by banks, non-banking financial companies (NBFC), etc.
- c. Sovereign risk** is associated with the government. Here, a government is unable to meet its loan obligations, reneging (to break a promise) on loans it guarantees, etc.
- d. Settlement risk** exists when counterparty does not deliver a security or its value in cash as per the agreement of trade or business.

2. **Operational risk**

Operational risks are the business process risks failing due to human errors. This risk will change from industry to industry. It occurs due to breakdowns in the internal procedures, people, policies and systems. The types of operational risk are listed below.

- a. Model risk,
- b. People risk,
- c. Legal risk and
- d. Political risk.

The meaning of types of operational risk is as follows:

- a. Model risk** is involved in using various models to value financial securities. It is due to probability of loss resulting from the weaknesses in the financial-model used in assessing and managing a risk.
- b. People risk** arises when people do not follow the organization's procedures, practices and/or rules. That is, they deviate from their expected behavior.

- c. **Legal risk** arises when parties are not lawfully competent to enter an agreement among themselves. Furthermore, this relates to the regulatory-risk, where a transaction could conflict with a government policy or particular legislation (law) might be amended in the future with retrospective effect.
- d. **Political risk** occurs due to changes in government policies. Such changes may have an unfavorable impact on an investor. It is especially prevalent in the third-world countries.

6.4.3 Risk-Return Relationship

The concept of risk and return analysis is integral to the process of investing and finance. All financial decisions involve some risk. One may expect to get a return of 15% per annum in his investment but the risk of "not able to achieve 15% return" will always be there. Return is simply a reward for investing as all investing involves some risk. The greater the risk, the greater the return expected. The objective of risk and return analysis is to maximize the return by creating a balance of risk. For example, in case of working capital management, the less inventory we keep, the higher the expected return as less of our money is locked as asset.; but we also have a increased risk of running out of raw material when we actually need it for production or maintenance which means we lose sale. Thus all companies try very hard to maintain minimum inventory as possible without effecting smooth production. This is a very common example of risk return trade-off. In fact, risk and return are two key determinants of share prices. Greater the risk assumed higher will be the return. Investment which carry low risk such as government securities will offer a low rate of return. Any rational investor would analyse the risk associated with the particular stock and a thorough knowledge of risk helps him to plan his portfolio so as to minimize the risk associated with the investment. Return on investment may be because of income, capital appreciation or a positive hedge against inflation. The degree of risk depends upon the features of asset, investment instruments, mode of investment etc. the wider the range of possible outcomes, the greater the

risk. The degree of risk in a particular situation is not absolute. It depends on the level of information available with the entity facing the risk. When the complete information is available, the perception of the entity differs. Two different entities may interpret the same information differently or different expectations for the future which would lead to two different sets of probability distribution. Hence the same set of circumstances may translate in to different levels of risk for different people. Further people do not make any distinction between risk and uncertainty. Though risk and uncertainty go together, but they differ in perception. Uncertainty refers to a situation about which the likelihood of possible outcome is not known. It cannot be quantified. The concept of security analysis is based on risk and return. To earn return on investment, investment has to be made for some period which in turn implies passage of time. Dealing with the return to be achieved requires estimate of the return on investment on investment over the time period.

Risk denotes deviation of actual return from the estimated return. The fact that the investors do not hold a single security which they consider most profitable is enough to say that they are interested not only in maximization of return but also minimization of risk. In fact, there is a positive relationship between the amount of risk and expected return, greater the risk, larger the return. One of the most difficult problems for an investor is to estimate the highest level of risk he is able to assume. The principle that potential return rises with an increase in risk. Low levels of uncertainty (low risk) are associated with low potential returns, whereas high levels of uncertainty (high risk) are associated with high potential returns. According to the risk-return tradeoff, invested money can render higher profits only if it is subject to the possibility of being lost. Because of the risk-return tradeoff, we must be aware of your personal risk tolerance when choosing investments for our portfolio. Taking on some risk is the price of achieving returns; therefore, if we want to make money, you can't cut out all risk. The goal instead is to find an appropriate balance - one that generates some profit, but still allows us to sleep at night

Importance of Risk-Return Relationship The relationship between risk and return is a fundamental financial relationship that affects

expected rates of return on every existing asset investment. The Risk-Return relationship is characterized as being a "positive" or "direct" relationship meaning that if there are expectations of higher levels of risk associated with a particular investment then greater returns are required as compensation for that higher expected risk. Alternatively, if an investment has relatively lower levels of expected risk then investors are satisfied with relatively lower returns. This risk-return relationship holds for individual investors and business managers. Greater degrees of risk must be compensated for with greater returns on investment. Since investment returns reflects the degree of risk involved with the investment, investors need to be able to determine how much of a return is appropriate for a given level of risk. This process is referred to as "pricing the risk". In order to price the risk, we must first be able to measure the risk (or quantify the risk) and then we must be able to decide an appropriate price for the risk we are being asked to bear.

The entire scenario of security analysis is built on two concepts of security : Return and risk. The risk and return constitute the framework for taking investment decision. Return from equity comprises dividend and capital appreciation. To earn return on investment, that is, to earn dividend and to get capital appreciation, investment has to be made for some period which in turn implies passage of time. Dealing with the return to be achieved requires estimated of the return on investment over the time period. Risk denotes deviation of actual return from the estimated return. This deviation of actual return from expected return may be on either side - both above and below the expected return. However, investors are more concerned with the downside risk. The risk in holding security deviation of return deviation of dividend and capital appreciation from the expected return may arise due to internal and external forces. That part of the risk which is internal that in unique and related to the firm and industry is called 'unsystematic risk'. That part of the risk which is external and which affects all securities and is broad in its effect is called 'systematic risk'. The fact that investors do not hold a single security which they consider most profitable is enough to say that they are not only interested in the maximization of return, but also minimization of risks. The

unsystematic risk is eliminated through holding more diversified securities. Systematic risk is also known as non-diversifiable risk as this cannot be eliminated through more securities and is also called 'market risk'. Therefore, diversification leads to risk reduction but only to the minimum level of market risk. The investors increase their required return as perceived uncertainty increases. The rate of return differs substantially among alternative investments, and because the required return on specific investments change over time, the factors that influence the required rate of return must be considered.

Chart-A: RELATIONSHIP BETWEEN RISK AND RETURN

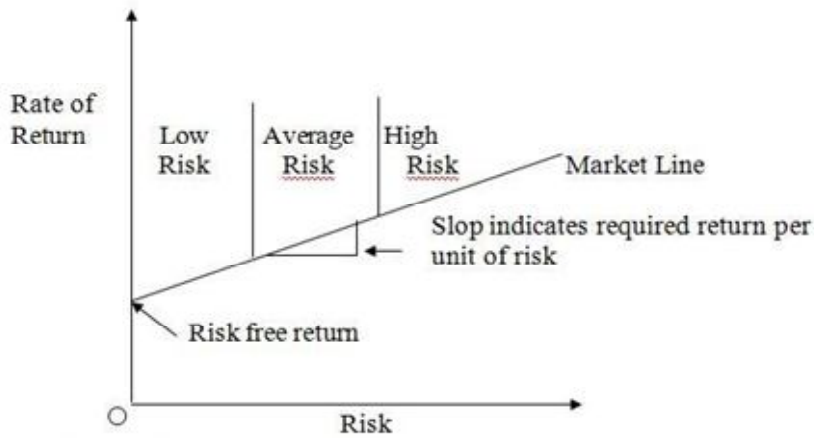
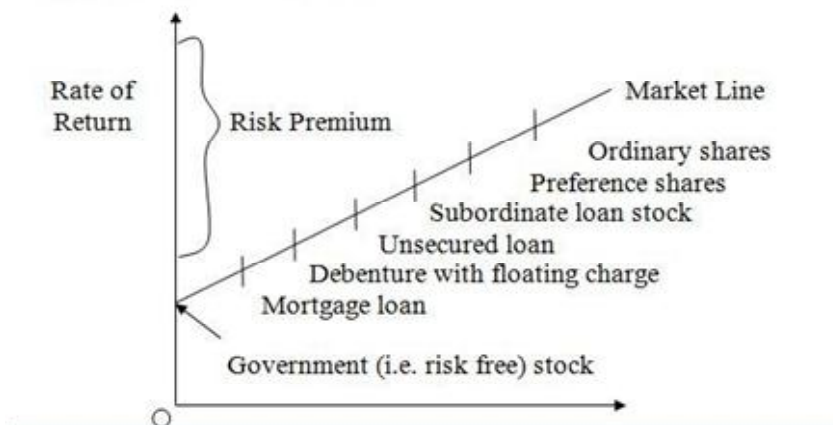


Chart-B: RISK RETURN RELATIONSHIP: DIFFERENT STOCKS



It is now clear that even with the most conservative investments we face some element of risk. However, not investing your money is also risky. For example, putting our money under the mattress invites the risk of theft and the loss in purchasing power if prices of goods and services rise in the economy. When we recognize the different levels of risk for each type of investment asset, we can better manage the total risk in our investment portfolio. A direct correlation exists between risk and return and is illustrated below in Figure form. The greater the risk, the greater is the potential return. However, investing in securities with the greatest return and, therefore, the greatest risk can lead to financial ruin if everything does not go according to plan.

RISK AND RETURN



Figure 1 Relationship between risk and return

Understanding the risks pertaining to the different investments is of little consequence unless we are aware of our attitude toward risk. How much risk we can tolerate depends on many factors, such as the type of person we are, our investment objectives, the amount of our total assets, the size of our portfolio, and the time horizon for our investments. How nervous are we about our investments? Will we check the prices of our stocks daily? If so, we do not tolerate risk well, and our portfolio should be geared toward conservative investments that generate income through capital preservation. The percentage of our portfolio allocated to stocks may be low to zero

depending on your comfort zone. If we are not bothered when our stocks decline in price because with a long holding period we can wait out the decline, our portfolio of investments can be designed with a higher percentage of stocks.

Risk-Return Trade-Off

The risk/return tradeoff could easily be called the "ability-to-sleep-at-night test." While some people can handle the equivalent of financial skydiving without batting an eye, others are terrified to climb the financial ladder without a secure harness. Deciding what amount of risk you can take while remaining comfortable with your investments is very important. In the investing world, the dictionary definition of risk is the chance that an investment's actual return will be different than expected. Technically, this is measured in statistics by standard deviation. Risk means you have the possibility of losing some, or even all, of our original investment. Low levels of uncertainty (low risk) are associated with low potential returns. High levels of uncertainty (high risk) are associated with high potential returns. The risk/return tradeoff is the balance between the desire for the lowest possible risk and the highest possible return. This is demonstrated graphically in the chart below. A higher standard deviation means a higher risk and higher possible return.



Figure 2 Risk- return trade off

A common misconception is that higher risk equals greater return. The risk/return tradeoff tells us that the higher risk gives us the possibility of higher returns. There are no guarantees. Just as risk means higher potential returns, it also means higher potential losses. On the lower end of the scale, the risk-free rate of return is represented by the return on U.S. Government Securities because their chance of default is next to nothing. If the risk-free rate is currently 6%, this means, with virtually no risk, we can earn 6% per year on our money. The common question arises: who wants to earn 6% when index funds average 12% per year over the long run? The answer to this is that even the entire market (represented by the index fund) carries risk. The return on index funds is not 12% every year, but rather -5% one year, 25% the next year, and so on. An investor still faces substantially greater risk and volatility to get an overall return that is higher than a predictable government security. We call this additional return the risk premium, which in this case is 6% (12% - 6%). Determining what risk level is most appropriate for us isn't an easy question to answer. Risk tolerance differs from person to person. Your decision will depend on your goals, income and personal situation, among other factors. Further, the concept that every rational investor, at a given level of risk, will accept only the largest expected return. That is, given two investments at the exact same level of risk, all other things being equal, every rational investor will invest in the one that offers the higher return. The risk-return tradeoff is pervasive throughout economics and finance. It is the reason that riskier bonds pay higher coupons than other bonds. It is also the reason that bonds pay lower returns than most stocks because they are a less risky investment.

Risk is an inherent part of investing. In order to get a reasonable return on an investment, risk has to be present. A riskless asset will produce little or no return. The intelligent investor manages risk by recognizing its existence, measuring its degree in any given investment and realistically assessing his or her capacity to take risk. There is nothing wrong with investing in a high risk fund if the fund's return is equally high.

6.4.4 Measurement of Risk

A number of techniques have been suggested by economists to deal with risk in investment appraisal. Some of the popular techniques used for this purpose are as follows:

- 1. Risk Adjusted Discount Rate Method:** This method calls for adjusting the discount rate to reflect the degree of the risk of the project. The risk adjusted discount rate is based on the presumption that investors expect a higher rate of return on risky projects as compared to less risky projects. The rate requires determination of (i) risk free rates and (ii) risk premium rate. Risk free rate is the rate at which the future cash inflows should be discounted. Risk premium rate is the extra return expected by the investor over the normal rate. The adjusted discount rate is a composite discount rate. It takes into account both time and risk factors.

Illustration:

A project with an outlay of ₹ 4,00,000, its risk adjusted discount rate is estimated at 18 per cent. The data on cash flow is as follows:

<i>Year</i>	<i>Expected Cash flow (Rs.)</i>
1	80,000
2	1,20,000
3	1,60,000
4	1,20,000
5	80,000

Should the project be accepted or rejected?

Accept the project: if $NPV > 1$

Reject the project: if $NPV < 1$

Using the risk adjusted discount rate we find that

$$NPV = \frac{80,000}{1.18} + \frac{1,20,000}{(1.18)^2} + \frac{1,60,000}{(1.18)^3} + \frac{1,20,000}{(1.18)^4} + \frac{80,000}{(1.18)^5} = \text{Rs. } 4,00,000$$

2. **The Certainty Equivalent Approach:** According to this method, the estimated cash flows are reduced to a conservative level by applying a correction factor termed as certainty equivalent coefficient. The correction factor is the ratio of riskless cash flow to risky cash flow. Under the certainty equivalent method the net present value is calculated as:

$$NPV = \sum_{t=1}^n \frac{\alpha_t A_t}{(1+i)^t} - I$$

Where

α_t = Certainty Equivalent Coefficient

A_t = Expected Cash Flow for year t

I = Initial outlay on the project

i = Discount rate

Illustration:

Pioneer Concern is considering a project with initial outlay of ? 18,00,000 with a risk free discount rate of 1.05 per cent. The expected cash flow and certainty equivalent coefficient are given below. What is NPV of the project ?

Year	Expected Cash flow (Rs)	Certainty Equivalent Coefficient
1	4,00,000	0.90
2	6,00,000	0.85
3	8,00,000	0.82
4	10,00,000	0.78

$$NPV = \frac{(4,00,000)(0.90)}{1.05} + \frac{(6,00,000)(0.85)}{(1.05)^2} + \frac{(8,00,000)(0.82)}{(1.05)^3} + \frac{(10,00,000)(0.78)}{(1.05)^4} - 18,00,000$$

3. Sensitivity Analysis: The future is not certain and involves uncertainties and risk, the cost and benefits projected over the lifetime of the project may turn out to be different. This deviation has an important bearing on the selection of a project. If the project can stand the test of changes in the future, affecting costs and benefits, the project would qualify for selection. The technique to find out this strength of the project is covered under the sensitivity analysis of the project. This analysis tries to avoid over estimation or underestimation of the cost and benefits of the project. In sensitivity analysis, we try to find out the critical elements which have a vital bearing on the costs or benefits of the project. In investment decision, one has to consider as many elements of uncertainty as possible on costs or benefits side and then arrive at critical elements which effect the expected costs or benefits of the project. How many variables should be tested to carry out the sensitivity analysis in order to find out its impact on costs or benefits of the projects is a matter of judgement. In sensitivity analysis, one has to consider the changes in the various factors correlated with changes in the other. In order to arrive at the degree of uncertainty, the decision maker has to make alternative calculation of costs or benefits of the project.

Sensitivity analysis is a simulation technique in which key variables are changes and the resulting change in the rate of return is observed. Some of the key variables are cost, prices, project life, market share, etc. Usually this analysis provides information about cash flows under the assumptions:

- (i) Pessimistic,
- (ii) Most likely, and
- (iii) Optimistic.

It explains how sensitive the cash flows are under these three different situations. If the difference is larger between the optimistic and pessimistic cash flows, the more risky is the project.

Illustration:

Pioneer Company Ltd. is attempting to evaluate two projects A and B. Each project requires a net investment of ¹ 10,000 and the annual cash flows from each of the project is estimated at ¹ 2,000 p.a. in the next 15 years. The company's cost of capital may be taken at 10%. In order to arrive at a decision about the selection of the project, the following data have been ascertained regarding the NPV of cash flows of each project.

	<i>Project A</i>	<i>Project B</i>	<i>Discount factor at 10%</i>	
Initial Investment	Rs. 10,000	Rs. 10,000	<i>Project A</i>	<i>Project B</i>
Estimated cash flows for each of 15 years.				
Pessimistic	Rs. 1,500	Rs.—	7.606	7.606
Most likely	Rs. 2,000	Rs. 2,000	7.606	7.606
Optimistic	Rs. 2,500	Rs. 4,000	7.606	7.606
	<i>PRESENT VALUE</i>		<i>NPV</i>	
	<i>Project A</i>	<i>Project B</i>	<i>Project A</i>	<i>Project B</i>
Pessimistic	Rs. 11,409	Rs.—	Rs. 1,409	Rs. 10,000
Most likely	Rs. 15,212	Rs. 15,212	Rs. 5,212	Rs. 5,212
Optimistic	Rs. 19,015	Rs. 30,424	Rs. 9,015	Rs. 20,424

The above analysis shows that project B is more risky.

4. **Probability Theory Approach:** Yet another method for dealing with risks is to estimate the value for a result. Each value of prospective result is assigned a probability. Here one has to see a range of possible cash flows from the most optimistic to the most pessimistic for each pertinent year. Probability means the likelihood of happening an event. It may be objective or subjective. An objective probability is based on a large number of observations under independent and identical conditions repeated over a period of time. A subjective probability is based on personal judgement. In capital budgeting decisions the probabilities are of a subjective type since they are based on a single event.

Process of Assigning Probabilities:

Here let us see the process of assigning probabilities.

It is subject to certain rules and they are:

- (i) List of events collectively expansive
- (ii) Events must be mutually exclusive
- (iii) The numerical probabilities must add up to 1.

Basic Probability Theorem:

We must see certain basic theorems relating to a probability theory. These are as follows:

- (i) The probability of an event is always a number between 0 and 1 inclusive. If an event is sure to occur, its probability is by definition equal to 1. If it is certain that it will not occur its probability is 0.
- (ii) If 'n' events are equally likely and only one of them may happen, then the probability of that event is $1/n$.
- (iii) If two events are mutually independent and the probabilities of one is P_1 while that of other P_2 , the probability of the events occurring together is the product of P_1, P_2 .
- (iv) If the events are mutually exclusive and the probability of the one is P_1 while that of the other is P_2 , the probability of either one or the other occurring is the sum P_1+P_2 .

Illustration:

Pioneer Company Ltd. has given the following possible cash inflows for two of their projects A and B. Both the projects will require an equal investment of ¹ 5,000. Let us compute expected monetary values for the projects A and B.

Possible event	Project A			Project B		
	Cash in flow	Probability	Expected value	Cash in flow	Probability	Expected value
A	Rs. 4,000	.10	Rs. 400	Rs. 12,000	.10	Rs. 1,200
B	Rs. 5,000	.20	Rs. 1000	Rs. 10,000	.15	Rs. 1,500
C	Rs. 6,000	.40	Rs. 2400	Rs. 8,000	.50	Rs. 4,000
D	Rs. 7,000	.20	Rs. 1400	Rs. 6,000	.15	Rs. 900
E	Rs. 8,000	.10	Rs. 800	Rs. 4,000	.10	Rs. 400
Total			Rs. 6,000			Rs. 8,000

The above table shows that Project B has higher monetary value as compared to Project A. Therefore, Project B is preferable.

5. Standard Deviation: Subjective judgment of the decision makers plays a crucial role in practice to resolve the problem which may turn out to be imprecise or biased. There is no precise way to find the probabilities of different outcomes. This limitation is overcome by adoption of standard deviation approach. The standard deviation is defined as the square root of the mean of the squared deviations of all the items from the mean and it is usual to denote it by the small Greek "Sigma", σ . In the case of capital budgeting, this measure is used to compare the variability of possible cash flows of different projects from their respective mean or expected values.

Steps to be followed for calculating the S.D. of the possible cash flows:

- (i) Compute the mean value of the possible cash flows.
- (ii) Find out the deviation between the mean value and the possible cash flows.
- (iii) Square the deviations.
- (iv) Multiply the squared deviations by the assigned probabilities to get the weighted squared deviations.
- (v) The sum of the weighted squared deviations and their square root are calculated. The result gives the S.D.

Illustration:

On the basis of the data given in probability theory approach find out which project is more risky by adopting S.D. approach.

Project A

Possible events	Cash inflows	Deviation from Mean(Rs. 6000)	Deviations squared	Probability	Probability Deviation squared
A	4,000	-2,000	40,00,000	.10	4,00,000
B	5,000	-1,000	10,00,000	.20	2,00,000
C	6,000	0	0	.40	0
D	7,000	1,000	10,00,000	.20	2,00,000
E	8,000	2,000	40,00,000	.10	4,00,000

$$\Sigma P\text{def}^2 = 12,00,000$$

$$\sigma = \sqrt{P\text{def}^2} = \sqrt{12,00,000} = 1,095$$

Project B

Possible events	Cash inflows	Deviation from Mean (Rs. 8,000)	Deviations squared	Probability	Probability Deviation squared
A	12,000	4,000	1,60,00,000	.10	16,00,000
B	10,000	2,000	40,00,000	.15	6,00,000
C	8,000	0	0	.50	0
D	6,000	-2,000	40,00,000	.15	6,00,000
E	4,000	-4,000	1,60,00,000	.10	16,00,000

$$\sigma = \sqrt{EP\text{def}^2} = \sqrt{44,00,000} = 2,098$$

A project having a larger standard deviation will be more risky as compared to a project having smaller standard deviation. In the above illustration, the standard deviation for project A is 1,095 while that of project B is 2,098. Hence project B is more risky.

6. **Coefficient of Variation:** Standard deviation is expressed in the units of the original distribution and is called absolute measure of dispersion. Therefore, absolute measure must be reduced to a form which is free from the original unit of measurement. This can be done by expressing it in relation to the average from which variation is measured. This measure of relative variation is obtained by dividing the absolute measure by that average and is called a coefficient of variation. The co-efficient of variation can be calculated as follows:

$$\text{Coefficient of Variation} = \text{Standard Deviation/Expected (or Mean) Cash Flow} = \sigma/\text{Erf}$$

On the basis of the data given in the standard deviation approach, the standard deviation for project A is 1095, while that for project B is 2098. The coefficient of variation of project B is more as compared to project A. Hence project B is more risky.

6.5 COST OF UNCERTAINTY

Economists often make the distinction between risk and uncertainty. Risk is normally defined as the likelihood of a negative outcome upon which a probability can be assigned. Uncertainty on the other hand exists when outcomes are out there to which no probability can be reasonably assigned. Since no one is certain how pervasive and deep the default rate will be on the so-called subprime mortgages that kept the housing boom going long after the actual demand was satisfied in many areas, the securities which contain these risky mortgages cannot be priced. When a security cannot be priced, it cannot be bought or sold and it certainly cannot be used for collateral to access more capital. What we see happening in the markets is the effect of this uncertainty. As people who own these securities want their money freed up to avoid further losses, in many cases no price is available to sell them and therefore there are few if any buyers. These instruments were sold under the expectation that the default rate was relatively known and the return and cost were built into the price (that was risk). Those risks were often hedged with other instruments which generally would have transferred the risk of a normal default pattern to those who were willing to accept a heightened prospect of returns for the assumption of the risk.

As paralysis sets in due to an inability to sell, hedge funds, some banks which offer hedge fund investments and many mortgage companies that are supposed to stand behind the instruments are unable to perform. To the extent that these instruments were pledged as collateral for other loans, banks have been calling those loans or demanding injections of other equity like cash to bring the collateral value up to where it should be with respect to the amount of the loan outstanding. Since firms have invested the loan money, often in stocks

and other instruments, they go into wave after wave of selling or unwinding those investments to pay up collateral values or allow troubled securities to be sold. When we hear that the FED is injecting liquidity from time to time, it means the government is stepping in to purchase some of these securities that otherwise would be frozen in uncertainty. The panic spreads when the common investor sells their equity holdings trying to avoid loss of value. As stock prices fall to prices well below their actual value, others step in to purchase these bargain stocks. This creates a price increase for the stock. But many investment advisors are telling clients to do what the hedge funds are doing, namely “selling into” any strength in the market to get as much cash as possible. This selling into strength causes stocks to plunge just about every afternoon when morning optimism/bargain hunting has put a gain back into the market. So the cycle of fear and panic continues and will continue until uncertainty becomes risk and these assets can be priced again.

6.6 SUMMARY

Managers make problem solving decisions under three different conditions: certainty, risk, and uncertainty. All managers make decisions under each condition, but risk and uncertainty are common to the more complex and unstructured problems faced by top managers. Decisions are made under the condition of certainty when the manager has perfect knowledge of all the information needed to make a decision. This condition is ideal for problem solving. The challenge is simply to study the alternatives and choose the best solution.

6.7 GLOSSARY

Systematic risk: Systematic risk is also referred to as non-diversifiable risk or market risk. Systematic risk is the fluctuations in the returns on securities that occur due to macroeconomic factors. These factors could be the political, social or economic factors that affect the business. Systematic risk can be caused due to unfavorable reasons such as an act of nature like a

natural disaster, changes in government policy, international economic components, changes in the nation's economy, etc.

- **Unsystematic risk:** The fluctuations in returns of a company arising due to micro-economic factors are termed as unsystematic risks. These risk factors exist within the company and can be avoided if necessary action is taken. The risk factors can include the production of undesirable products, labor strikes, etc.
- **Risk return trade off:** Higher risk is associated with greater probability of higher return and lower risk with a greater probability of smaller return. This trade off which an investor faces between risk and return while considering investment decisions is called the risk return trade off.

6.8 SELF ASSESSMENT QUESTIONS

Q1. Define systematic risk with suitable examples

Ans

Q2. Discuss the various causes of risk

Ans

Q3. Give the definition of risk, certainty and uncertainty

Ans

6.9 LESSON END EXERCISE

Q1 Explain the concept of risk. How risk can be measured?

Ans _____

Q2 Discuss in detail the types of risk.

Ans _____

Q3 Explain in detail the relationship between risk and return.

Ans _____

6.10 SUGGESTED READING/ REFERENCES

1. R. M. Shrivastava Financial Management
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UTILITY THEORY AND RISK ANALYSIS IN INVESTMENT DECISION

STRUCTURE

- 7.1 Introduction
- 7.2 Objectives
- 7.3 Utility theory and risk analysis in investment decisions
 - 7.3.1 Benefit and limitations of Utility Theory
- 7.4 Summary
- 7.5 Glossary
- 7.6 Self Assessment Questions
- 7.7 Lesson End Exercise
- 7.8 Suggested Readings

7.1 INTRODUCTION

In theory, three possible attitudes toward risk are present: aversion to risk, indifference to risk, and preference for risk. Risk aversion characterizes individuals who seek to avoid or minimize risk. Risk neutrality characterizes decision makers who focus on expected returns and disregard the dispersion of returns (risk). Risk seeking characterizes decision makers who prefer risk. Given a choice between more risky and less risky investments with identical

expected monetary returns, a risk averter selects the less risky investment and a risk seeker selects the riskier investment. Faced with the same choice, the risk-neutral investor is indifferent between the two investment projects. Some individuals prefer high-risk projects and the corresponding potential for substantial returns, especially when relatively small sums of money are involved. Entrepreneurs, innovators, inventors, speculators, and lottery ticket buyers are all examples of individuals who sometimes display risk-seeking behavior. Risk-neutral behavior is exhibited in some business decision making. However, most managers and investors are predominantly risk averters, especially when substantial amount of money are involved

7.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of utility theory.
2. To focus on benefits and limitation of utility theory.
3. To understand the concept of risk averter, risk seeker and risk neutral.

7.3 UTILITY THEORY AND RISK ANALYSIS IN INVESTMENT DECISIONS

Even after using different methods of measurements of risk it may be difficult to know whether to accept the risk or not .The decision is to based ultimately on management’s subjective evaluation of risk.Utility theory has been developed to measure an individual’s attitude towards varying amounts of gains and losses. The same has been developed by Milton Friedman and L.J.Savage. The core of this theory is the concept of diminishing marginal utility of money. People’s preferences toward risk greatly differ. Most individuals generally prefer the less risky situation (that is, the situation with less variability in outcomes or rewards). In other words, most individuals seek to minimise risk and are called risk averter or risk averse.However, some individuals prefer risk and are therefore called risk-seekers or risk

lovers. Some other individuals are indifferent toward risk and are called risk-neutral. But it is important to note that these different preferences toward risk depend on whether for an individual marginal utility of money diminishes or increases or remains constant. As shall be explained below, for a risk averse individual marginal utility of money diminishes as he has more money, while for a risk-seeker marginal utility of money increases as money with him increases. In case of risk-neutral individual marginal utility of money remains constant as he has more money.

Risk Averter:

To explain the attitude toward risk we will consider a single composite commodity, namely, money income. An individual's money income represents the market basket of goods that he can buy. It is assumed that the individual knows the probabilities of making or gaining money income in different situations. But the outcomes or payoffs are measured in terms of utility rather than rupees. In Fig. 1 we have drawn a curve OU showing utility function of money income of an individual who is risk-averse. It will be seen from this figure that the slope of total utility function OL; decreases as the money income of the individual increases. Note that we measure money income on the X-axis and utility on the Y-axis. It will be seen from Fig. 1 that as money income of the individual increases from 10 to 20 thousand rupees, his total utility increases from 45 units to 65 (that is, by 20 units) and when his money increases from 20 thousand to 30 thousand rupees, his total utility increases from 65 to 75 units (that is, by 10 units).

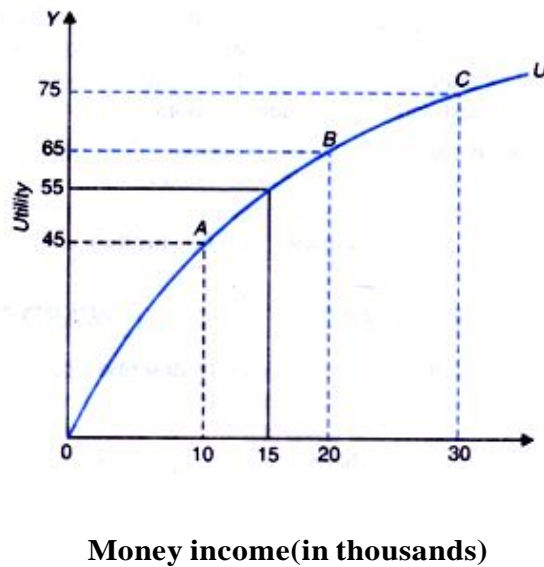


Figure1. Utility function of a risk averter

Thus in this concave utility function depicted in Fig. 1 marginal utility of money of an individual decreases as his money income decreases and therefore it represents the case of risk-averse individual. Suppose the individual is currently employed on a fixed monthly salary basis of ₹ 15000. There is no uncertainty about the income from this present job on a the fixed salary basis and hence no risk. Now, suppose that the individual is considering to join a new job of a salesman on a commission basis. This new job involves risk because his income in this case is not certain. This is because if he proves to be a successful salesman his income may increase to ₹ 30 thousand per month but if he does not happen to be a good salesman his income may go down to ₹ 10 thousand per month. Suppose in this new job there is 50-50, chance of either earning ₹ 30 thousands or ₹ 10 thousands (that is, each has a probability of 0.5). When there is uncertainty, the individual does not know the actual utility from taking a particular action. But given the probabilities of alternative outcomes, we can calculate the expected utility. Whether the individual will choose the new risky job or retain the present salaried job with a certain income can be known by comparing the expected

utility from the new risky job with the utility of the current job. It will be seen from the utility function curve OU in Fig.1 that the utility of money income of ₹ 15,000 with certainty is 55. Further, in case of new risky job if he is proved to be a successful salesman and his income increases to ₹ 30 thousands, his utility from ₹ 30 thousands is 75, and if he fails as a good salesman, his income falls to ₹ 10 thousands which yields him utility of ₹ 45. (Note that in the new risky job, the expected income is 20,000 which is given by $E(X) = 0.5 \times 10,000 + 0.5 \times 30,000 = ₹ 20,000$). Given that the probability of success or failure as a salesman is 0.5, the expected utility of the new job is given by,

$$\begin{aligned} E(U) &= 0.5 U(10,000) + 0.5 U(30,000) \\ &= 0.5 \times 45 + 0.5 \times 75 \\ &= 22.5 + 37.5 \\ &= 60.0 \end{aligned}$$

Thus with the present job with a fixed salary of ₹ 15,000 with no uncertainty is 55 whereas the expected utility of the new job or salesman on commission basis is 60. Though the individual is risk-averse as revealed by the nature of his utility function of money income, but since the expected utility of the risky job is greater than the utility of the present job with a certain income he will choose the risky job. Let us now slightly change the data. Suppose that if the individual in his new job proves to be successful and earns ₹ 30,000, double the present assured income of ₹ 15,000 but if he fails in his new risky job of a salesman on commission basis, his income falls to zero, then the expected utility of the risky job is given by,

$$\begin{aligned} E(U) &= 0.5 U(0) + 0.5 U(30,000) \\ &= 0 + 0.5 \times 75 \\ &= 37.5 \end{aligned}$$

Now the expected utility from the new risky job is less than the utility of 55 from the present job with an assured income of ₹ 15,000 (Note that in

the risky job also, expected income is ₹ 15,000 [$E(x) = 0.5 \times 0 + 0.5 \times 30,000 = 15000$], Note again that Figure 1 we are considering the choice of a risk averse individual for whom marginal utility of money declines as he has more of it. We are now in a position to provide a precise definition of risk-averse individual. Precisely speaking, a person who prefers a certain given income to a risky job with the same expected income is called risk averter or risk-averse. Risk aversion is the most common attitude toward risk. Risk Lover On the other hand, a person is risk-preferred or risk-loving who prefers a risky outcome with the same expected income as a certain income. In case of a risk-loving individual, marginal utility of income to the individual increases as his money income increases as shown by the convex total utility function curve OU in Fig. 2. Suppose this risk-loving individual has a present job with a certain income of ₹ 20 thousands. It will be seen from Fig. 2 that the utility of ₹ 20 thousands is 43 units to this individual. Now, if he is offered a risky job with his income of ₹ 30 thousands if he happens to be highly efficient and ₹ 10 thousands if he happens to be not so efficient in the new job with the equal probability of 0.5 in these two jobs, then the expected utility from the new job is given by

$$E(U) = 0.5 U(10,000) + 0.5 U(30,000)$$

It will be seen from Fig. 2 that the utility of ₹ 10 thousands to this individual is 10 while utility of ₹ 30 thousands to him is 83. Therefore,

$$\begin{aligned} E(U) &= 0.5 (10) + 0.5 (83) \\ &= 5 + 41.5 \\ &= 46.5 \end{aligned}$$

Since the expected utility from the new risky job is 46.5 which is greater than the utility of 43 from the present job with a certain income of ₹ 20 thousands, the risk-loving individual will prefer the new risky job even though the expected income in the new risky job is also ₹ 20,000 as $(0.5 \times 10,000) + 0.5 (30,000) = ₹ 20,000$. As mentioned above, most of the individuals are risk averse but there is a good deal of evidence of people who

are risk seekers. It is risk-loving individuals who indulge in gambling, buy lotteries, engage in criminal activities such as robberies, big frauds even at risk of getting heavy punishment if caught.

Risk-Neutral:

A person is called risk neutral, if he is indifferent between a certain given income and an uncertain income with the same expected value. An individual will be risk neutral if his marginal utility of money income remains constant with the increase in his money. The total utility function of a risk neutral person is shown in Fig. 3. It will be seen from this figure that utility of a certain income of ₹ 20 thousands is 80. Now, in a risky job when income increases to ₹ 30 thousands if he proves to be a successful salesman, the utility of ₹ 30 thousands is 120 units.

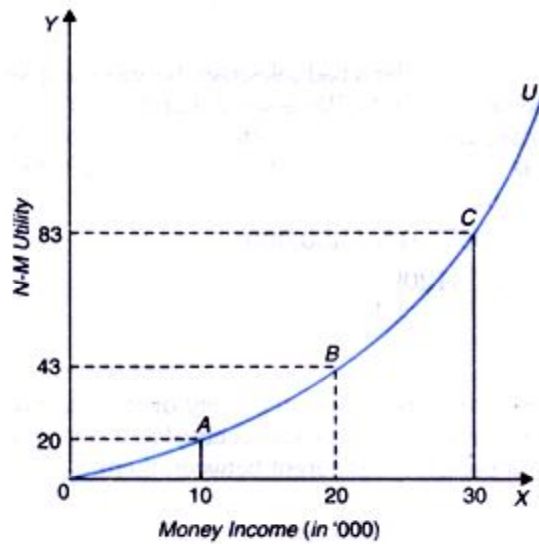


Figure 2: Utility function of a Risk-Seeker

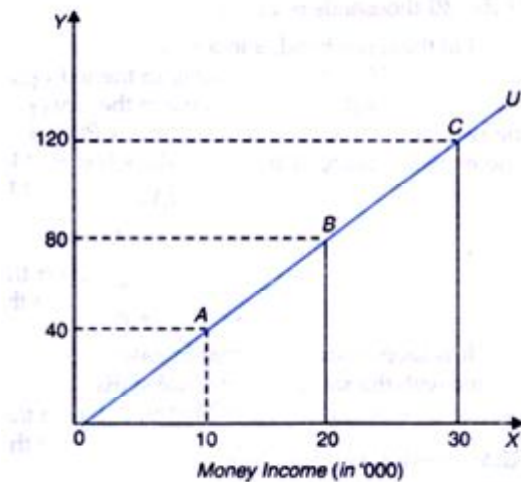


Figure 3 Utility function of Risk- Neutral

On the other hand, if in a new risky job, he proves to be a bad salesman, his income goes down to ₹ 10,000 whose utility to the individual is 40 units. We assume that there is equal probability of high and low income in the new risky job. Note that expected value of income in the new job with an uncertain income is 20,000 as $(0.5 \times 10,000 + 0.5 (30,000) = 20,000$. The expected utility of the new risky job is given by

$$\begin{aligned}
 E(U) &= 0.5 U(10,000) + 0.5 U(30,000). \\
 &= 0.5 (40) + 0.5 (120) \\
 &= 20 + 60 \\
 &= 80
 \end{aligned}$$

It is seen from above that in case of risk-neutral person expected utility of an uncertain income with the same expected value (₹ 20,000 in the present case), is equal to utility of an assured or a certain income. That is, risk-neutral person is indifferent between them.

Risk Aversion and Fair Bets: People differ greatly in their attitudes

towards risk. In Bernoulli's hypothesis we have seen that a person whose marginal utility of money declines will refuse to accept a fair gamble. A fair game or gamble is one in which the expected value of income from a gamble is equal to the same amount of income with certainty. The person who refuses a fair bet is said to be risk averse. Thus, the risk averter is one who prefers a given income with certainty to a risky gamble with the same expected value of income. Risk aversion is the most common attitude towards risk. It is because of the attitude of risk aversion that many people insure against various kinds of risk such as burning down of a house, sudden illness of a severe nature, car accident and also prefer jobs or occupations with stable income to jobs and occupations with uncertain income. This attitude of risk aversion can be explained with Neumann-Morgenstern method of measuring expected utility. It may be noted that marginal utility of income of a risk-averter diminishes as his income increases. In Figure 4 Neumann-Morgenstern utility function curve $U(I)$ has been drawn. It will be seen from this figure that N-M utility curve starts from the origin and has a positive slope throughout indicating that the individual prefers more income to less. Further the N-M utility curve shown in Figure 4 is concave which shows the marginal utility of income of a person diminishes as his income increases. Therefore, the utility curve in Figure 4 represents the case of a risk averter or the attitude of risk aversion. With ₹ 2,000 income, the person's utility is 50 which rises to 70 when his income increases to ₹ 3,000. As his income further increases to ₹ 4,000, his utility rises to 75.

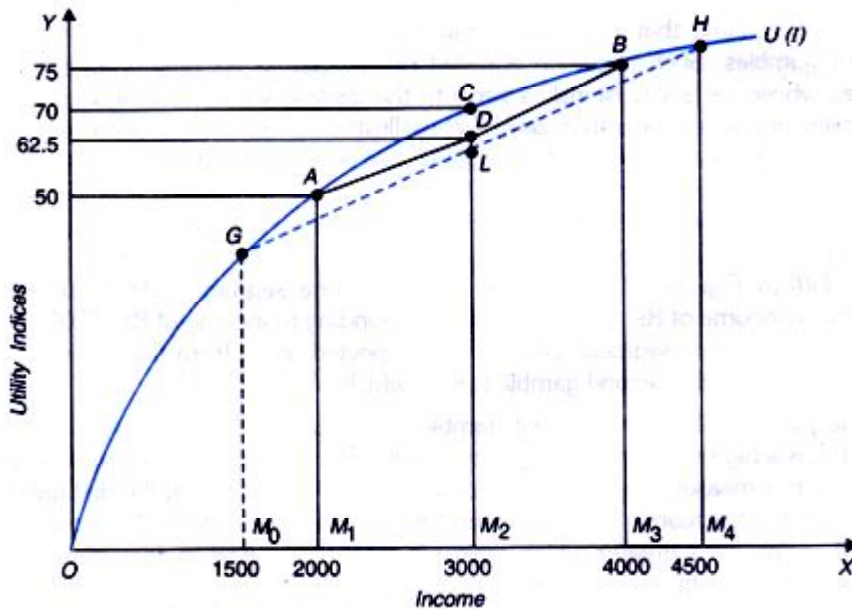


Figure 4: The Neumann-Morgenstem Concave Utility Curve of a Risk-Averter

Now suppose the person's current income is ₹ 3,000 and he is offered a fair gamble in which he has a 50-50 chance of winning or losing ₹ 1,000. Thus, the probability of his winning is 1/2 or 0.5. If he wins the game, his income will rise to ₹ 4,000 and if he loses the gamble, his income will fall to ₹ 2,000.

The expected money value of his income in this situation of uncertain outcome is given by:

$$E(V) = 1/2 \times 4000 + 1/2 \times 2000 = ₹ 3000$$

If he rejects the gamble he will have the present income (i.e., ₹ 3,000) with certainty. Though the expected value of his uncertain income prospect is equal to his income with certainty a risk averter will not accept the gamble.

This is because as he acts on the basis of expected utility of his income in the uncertain situation (that is, ₹ 4,000 if he wins and ₹ 2,000 if he loses) can be obtained as under:

$$\text{Expected Utility (EU)} = \pi U (\text{₹ } 4000) + 1 - \pi U (\text{₹ } 2000)$$

As will be seen from Figure 4 the utility of the person from ₹ 4,000 is 75 (point B on the utility curve and utility from 2000 is 50 (point A in Figure 4), the expected utility from this uncertain prospect will be:

$$\begin{aligned} E(U) &= 1/2 (75) + 1/2 (50) \\ &= 37.5 + 25 = 62.5 \end{aligned}$$

In the N-M utility curve $U(I)$ in Figure 4 the expected utility can be found by joining point A (corresponding to ₹ 2,000) and point B (corresponding to ₹ 4,000) by a straight line segment AB and then reading a point on it corresponding to the expected value of the gamble ₹ 3,000, the expected value of the utility is $M_2D (= 62.5)$ which is less than M_2C or ₹ 70 which is the utility of income of ₹ 3,000 with certainty. Therefore, the person will refuse to accept the gamble (that is, he will not gamble). It should be carefully noted that his rejection of gamble is due to diminishing marginal utility of money income for him. The gain in utility from ₹ 1,000 in case he wins is less than the loss in utility from ₹ 1000 if he loses the gamble. That is why his expected utility from the uncertain income prospect has been found to be lower than the utility he obtains from the same income with certainty. It follows from above that in case marginal utility of money income diminishes a person will avoid fair gambles. Such a person is called risk averter as he prefers an income with certainty (i.e., whose variability or risk is zero) to the gamble with the same expected value (where variability or risk is greater than zero). Let us illustrate it with another example. Suppose to our person with a certain income of ₹ 3,000, two fair gambles are offered to him. First, a 50:50 chance of winning or losing ₹ 1000 as before and the second a 50:50 chance of winning or losing ₹ 1,500. With the even chance of winning and losing the expected value of income in the second gamble will be $1/2(1500) + 1/2 (4500) = ₹ 3000$. On the N- M utility curve $U(I)$ in Figure 4, we draw a straight line segment GH joining point G (corresponding to income of ₹ 1500) and H corresponding to income of ₹ 4500). It will be seen from this straight-line segment GH that the expected utility from the expected

money value of ₹ 3,000 from the second gamble is M_2L which is less than M_2D of the first gamble.

Thus the person will prefer the first gamble which has lower variability to the second gamble which has a higher degree of variability of outcome. It should be remembered that risk in this connection is measured by the degree of variability of outcome. In the first gamble, the degree of variability of outcome is less and therefore the risk is less and in the second gamble, the degree of variability is greater which makes it more risky. And in case of income with certainty there is no variability of outcome and therefore involves no risk at all. A risk-averse person therefore prefers the income with certainty to any gamble with the same expected money value as the income with certainty.

7.3.1 Benefits and Limitations of Utility Theory

The utility approach to risk analysis in capital has certain advantages. First, the risk preferences of the decision-maker are directly incorporated in the capital budgeting analysis. Second, it facilitates the process of delegating the authority for decision. If it is possible to specify the utility function of the superior the decision-maker, the subordinates can be asked to take risks consistent with the risk preferences of the superior. However, the use of utility theory in capital budgeting is not common. It suffers from a few limitations. First, in practice, are encountered in specifying a utility function. Whose utility function should be used as a guide in making decisions? For small firms, the utility function of the owner or one dominant shareholder may be used to guide the decision making process of the firm. Second, even if the owner's or a dominant shareholder's utility function be used as a guide, the derived utility function at a point of time is valid only for that one point of time. Third, it is quite difficult specify the utility function if the decision is taken by a group of persons. Individuals differ in their risk preferences. As a result, It is very difficult to derive a consistent utility function for the group. The above discussion leads us to an unmistakable conclusion that business managers are predominantly risk averters who cannot remain

indifferent between risk free and riskier projects. This is why a prudent financial manager considers both risk factor and utility function together while choosing worthwhile capital investment projects.

7.4 SUMMARY

Based on the above analysis, due to the full consideration of different decision makers' attitudes towards risk based on personal factors such as personality and status, the use of utility theory in marketing risk management is indeed an incomparable advantage of other decision-making techniques. In management problem decisions, different decision makers may often assign different utility values to the same expected profit and loss value due to differences in personal economic conditions, personality temperament, and risk appetite. Therefore, in order to apply utility theory in decision-making, each decision maker's different utility value assignment criteria can be described in the form of a function. Considering the influence of the magnitude of the risk, the utility value can be determined for each possible outcome.

7.5 GLOSSARY

- **Risk averse:** A risk averse investor is an investor who prefers lower returns with known risks rather than higher returns with unknown risks. In other words, among various investments giving the same return with different level of risks, this investor always prefers the alternative with least interest. A risk averse investor avoids risks. He stays away from high-risk investments and prefers investments which provide a sure shot return. Such investors like to invest in government bonds, debentures and index funds.
- **Risk neutral:** Risk neutral is a term that is used to describe investors who are insensitive to risk. The investor effectively ignores the risk completely when making an investment decision. If we present a risk neutral investor with two possible investments that carry different levels of risk, he or she considers just the expected return from each investment – their risks are irrelevant to him or her.

- **Risk seeker:** Risk-seeker or risk-lover describes a person who cannot get enough risk. He or she prefers an investment with an uncertain outcome rather than one with the same expected returns and certainty that they will be delivered.

7.6 SELF ASSESSMENT QUESTIONS

Q1 If finance managers are risk averters, does that mean they will not take risks? Explain

Ans _____

Q2 What is the difference between risk averse and risk neutral?

Ans _____

7.7 LESSON END EXERCISE

Q1 Discuss in detail the utility theory and risk analysis in investment decisions.

Ans _____

Q2 Explain the benefit and limitation of utility theory.

Ans _____

7.8 SUGGESTED READINGS

- R. M. Shrivastava Financial Management
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DESICION TREE ANALYSIS**STRUCTURE**

- 8.1 Introduction
- 8.2 Objectives
- 8.3 Decision Tree Analysis
 - 8.3.1 Advantages of Decision Tree Analysis
 - 8.3.2 Disadvantages of Decision Tree Analysis
- 8.4 Summary
- 8.5 Glossary
- 8.6 Self Assessment Questions
- 8.7 Lesson End Exercise
- 8.8 Suggested Readings

8.1 INTRODUCTION

Decision making is a regular exercise in our daily life. One has to make decisions in their personal as well as professional life on number of occasions but professional decisions affects whole organization, both in terms of future of organization and achieving the goals that have been embarked. One bad decision can ruin whole planning and preparation that have been made in realizing the targets. That's why decision making is termed as a

tedious task. There are many techniques which are used as an aid to meet this challenging yet essential task. One of those technique is “Decision Tree Analysis”. A decision tree is a graphical representation of decisions and their corresponding effects both qualitatively and quantitatively. The structure of the methodology is in the form of a tree and hence named as decision tree analysis. The Decision Tree Analysis is a systematic representation of several decisions followed by different chances of the occurrence. Simply, a tree-shaped graphical representation of decisions related to the investments and the chance points that help to investigate the possible outcomes is called as a decision tree analysis.

8.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of decision tree analysis.
2. To highlight the advantages and disadvantages of decision tree analysis.
3. To discuss the types of nodes and their functions.

8.3 DECISION TREE ANALYSIS

Decision Tree Analysis is another useful technique for tackling risky investment proposals. Under this approach, all probabilistic estimates of potential outcomes and their effects are taken into consideration, i.e. all the possible outcome are weighed in probabilistic terms and are evaluated thereafter. In short, the approach is particularly applicable where decision at point of time affect the decisions at a subsequent date, i.e. current investment decision has implication against future investment decisions. In other words, these investment decisions involve a sequence of decisions over time. A decision tree is a pictorial representation in tree form which indicates the magnitude, probability and interrelationship of all possible outcomes. In other words, it is a graphic display of the relationship between a present decision and possible future events, future decisions and their consequences. The

sequence of events is mapped out over time in a format resembling branches of a tree.

Thus, the decision tree reveals the sequential cash flow and the NPV of the proposed projects under different circumstances. It must be remembered in this respect that its outstanding feature is to link events chronologically with forecast probabilities. Therefore, it presents us a systematic appearance of decisions and their forecasted results.

Construction of a Decision Tree:

While constructing a decision tree the following steps should carefully be considered:

(i) Definition of the Proposal:

The investment proposals should be defined e.g. to enter a new market or to produce a new product.

(ii) Identification of Alternatives:

This decision alternative should be identified, i.e. there may be more than two alternatives. For instance, a company is considering purchase of a plant for manufacturing a new product.

It may have the following alternatives:

- (a) Purchase a large plant,
- (b) Purchase a small plant,
- (c) Purchase a medium size plant, or
- (d) Not to purchase a plant at all.

Each alternative may have different consequences.

(iii) Graphing the Decision Tree:

The decision-tree is then graphed indicating (a) decision points, (b) decision branches, (c) other data.

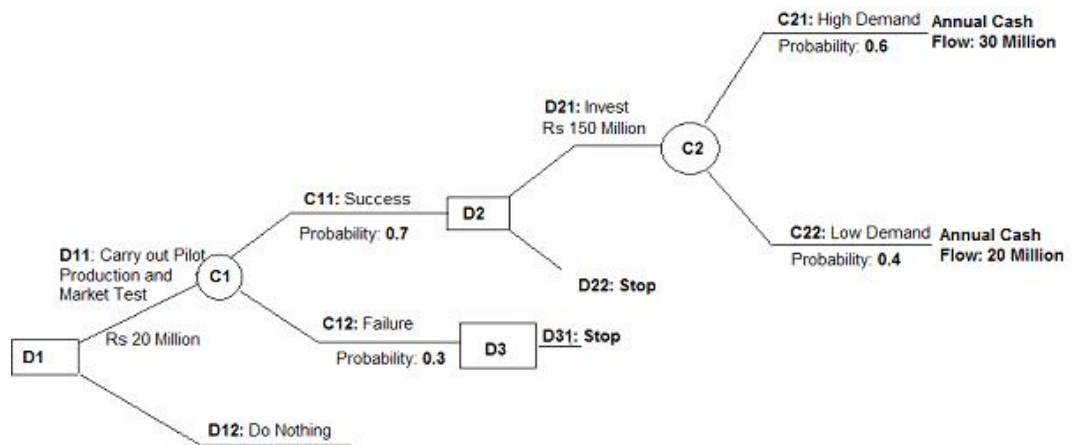
(iv) Forecasting Cash Flows:

The necessary data, viz. projected cash flow, probability distribution, total expected present value etc., should be located on the decision tree branches for the purpose of taking up decisions.

(v) Evaluating Results:

After ascertaining the expected value for each decision the results are analysed. The firm should proceed with the profitable alternative, i.e. the best alternative should be selected.

The decision tree shows Decision Points, represented by squares, are the alternative actions along with the investment outlays, that can be undertaken for the experimentation. These decisions are followed by the chance points, represented by circles, are the uncertain points, where the outcomes are dependent on the chance process. Thus, the probability of occurrence is assigned to each chance point.



Once the decision tree is described precisely, and the data about outcomes along with their probabilities is gathered, the decision alternatives can be evaluated as follows:

1. Start from the extreme right-hand end of the tree and start calculating NPV for each chance points as you proceed leftward.
2. Once the NPVs are calculated for each chance point, evaluate the alternatives at the final stage decision points in terms of their NPV.
3. Select the alternative which has the highest NPV and cut the branch of inferior decision alternative. Assign value to each decision point equivalent to the NPV of the alternative selected.
4. Again, repeat the process, proceed leftward, recalculate NPV for each chance point, select the decision alternative which has the highest NPV value and then cut the branch of the inferior decision alternative. Assign the value to each point equivalent to the NPV of selected alternative and repeat this process again and again until a final decision point is reached.

Thus, decision tree analysis helps the decision maker to take all the possible outcomes into the consideration before reaching a final investment decision.

Type of Nodes & their Functions

Various types of nodes are used in decision tree analysis, these are described as follows.

1. **Decision node** -This node has a square shape. It indicates the places where we have to select one out of various options. Branches coming out represent available set of alternatives.
2. **Chance node**-This node has a circular shape. It symbolizes that the event occurring is outside the thinking of decision maker.
3. **Terminal Node**- This node has a triangular shape. It shows final outcomes. The branch coming out from decision node is called decision branch which represents course of action and branch coming out from chance node is called chance branch which represents state of nature.

8.3.1 Advantages of Decision Tree Analysis

Business organizations need to consider various parameters during decision making. A decision tree analysis is one of the prominent ways of finding out the right solution to any problem.

Let us now understand its various benefits below:

1. **Depicts Most Suitable Project/Solution:** It is an effective means of picking out the most appropriate project or solution after examining all the possibilities.
2. **Easy Data Interpretation and Classification:** Not being rocket science, decision tree eases out the process of segregation of the acquired data into different classes.
3. **Assist Multiple Decision-Making Tools:** It also benefits the decision-maker by providing input for other analytical methods like nature's tree.
4. **Considers Both, Categorical and Numerical Data:** This technique takes into consideration the quantitative as well as the qualitative variables for better results.
5. **Initiates Variable Analysis:** Its structured phenomena also facilitates the investigation and filtration of the relevant data.

8.3.2 Disadvantages of Decision Tree Analysis

Decision tree analysis has multidimensional applicability. However, its usage becomes limited due to its following shortcomings.

1. **Inappropriate for Excessive Data:** Since it is a non-parametric technique, it is not suitable for the situations where the data for classification is vast.
2. **Difficult to Handle Numerous Outcomes:** If there are multiple possible results of every decision, it becomes tedious to compile all these on a decision tree.

3. **Chances of Classification Errors:** A less experienced decision tree maker usually makes a mistake while putting the variables into different classes.
4. **Impact of Variance:** Making even a slightest of change becomes problematic since it results in a completely different decision tree.
5. **Unsuitable for Continuous Variables:** Incorporating many open-ended numerical variables increases the possibility of errors.
6. **Sensitive towards Biasness:** A decision tree maker may lay more emphasis on preferable variables which may divert the direction of analysis.
7. **Expensive Process:** Collection of sufficient data, its classification and analysis demand high expense, being a resource-intensive process.

8.4 SUMMARY

In operations research, decision tree analysis holds an equal significance as that of PERT analysis or CPM. It presents a complex decision problem, along with its multiple consequences on paper. This enables the decision-maker to figure out all the possible options available with him/her and thus, simplifies the task.

8.5 GLOSSARY

- **Decision tree analysis:** Decision tree analysis is a powerful decision-making tool which initiates a structured nonparametric approach for problem-solving. It facilitates the evaluation and comparison of the various options and their results, as shown in a decision tree. It helps to choose the most competitive alternative.
- **Decision tree notation:** A set of graphic symbols and conventions used to describe elements in a decision tree. Commonly used decision tree notation includes decision nodes, endpoints, branches and double-hatch marks.

- **Decision branch:** A decision branch represents a particular decision alternative. In a decision tree two or more decisions branches are line drawn to the right from a decision node
- **Decision node:** A decision node represents a location on a decision tree where a decision between at least two possible alternatives can be made. Decision nodes are indicated by small squares in a decision tree.
- **Chance node:** A chance node identifies in a decision tree where a degree of uncertainty exists. A chance node represents at least two possible outcomes. Chance nodes are shown by small circles in a decision tree.

8.6 SELF ASSESSMENT QUESTIONS

Q1 What do you mean by decision tree analysis?

Ans _____

Q2 Explain the advantages of decision tree analysis.

Ans _____

8.7 LESSON END EXERCISE

Q1 Describe the decision tree approach with the help of an example.

Q2 Discuss the advantages and disadvantages of decision tree analysis.

Q3 Explain in detail the type of nodes in decision tree and their functions.

8.8 SUGGESTED READINGS

1. R. M. Shrivastava Financial Mnagement
2. Khain& Jain Financial Management
3. Van Home Financial Theory and Corporate policy
4. Brown, R. V., S. Kahr, and C. Peterson, Decision Analysis for the manager (New York: Holt, 1974).
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CAPITAL ASSET PRICING MODEL

STRUCTURE

- 9.1 Introduction
- 9.2 Objectives
- 9.3 Capital asset pricing model
 - 9.3.1 Assumptions of capital pricing asset model
 - 9.3.2 Capital market line
 - 9.3.3 Security market line
 - 9.3.4 Advantages of capital pricing asset model
 - 9.3.5 Disadvantages of capital pricing asset model
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- 9.4 Summary
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- 9.8 Suggested Readings

9.1 INTRODUCTION

Investing in any asset has risks that can be minimized by using financial tools to determine expected returns. The capital asset pricing model (CAPM) is one of these tools. This model calculates the required rate of return for an asset using the expected return on both the market and a risk-free asset, and the asset's correlation or sensitivity to the market. The CAPM was developed to explain how risky securities are priced in market and this was attributed to experts like Sharpe and Lintner. Markowitz theory being more theoretical, CAPM aims at a more practical approach to stock valuation. It is no doubt based on the mean-variance approach to risk for assessment of investment as developed by Markowitz. It explains the behavioural pattern of investors in building up portfolios. The CAPM of Sharpe (1964) is an equilibrium model built on the theoretical foundations of Markowitz's mean-variance portfolio theory. It describes how the market clearing prices and returns of capital assets set if investors act according to the prescriptions of Markowitz's theory. The model is developed under the assumption of the existence of an efficient capital market where security transactions are costless and information is freely available to all investors instantaneously. CAPM, in such an idealised market environment, bifurcates total risks involved in investments into two orthogonal parts, risk associated with the overall market conditions called 'market risk' or 'systematic risk' and risk specific to the asset called 'unique risk' or 'unsystematic risk'. The unsystematic portion of the risk can be eliminated by holding well-diversified portfolios but the systematic portion cannot be eliminated even if one virtually holds all assets in the economy.

9.1 OBJECTIVES

The objectives of this lesson are :

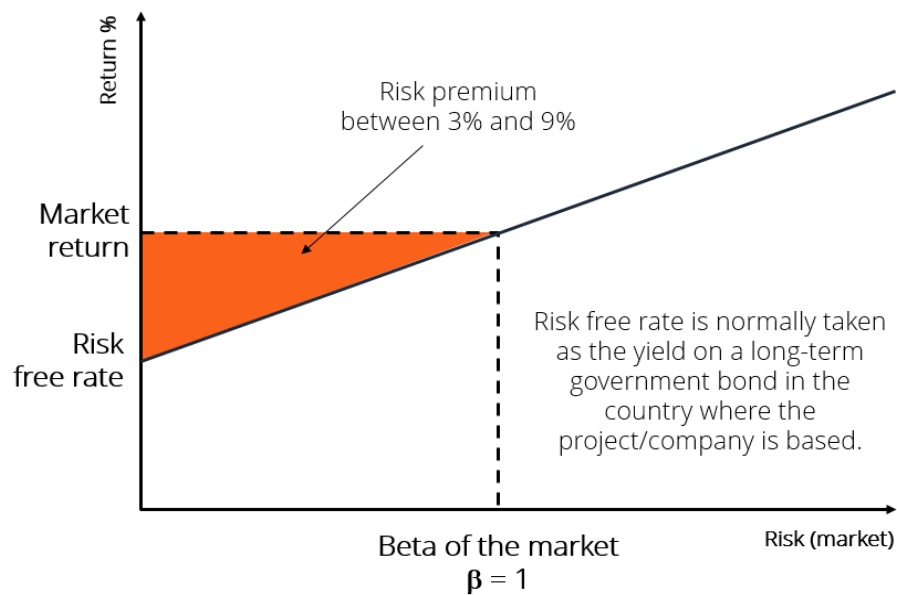
1. To understand the concept of Capital Asset Pricing Model (CAPM).
2. To highlight the advantages and disadvantages of CAPM.

3. To discuss the asset price implication of CAPM
4. To understand the concept of Security market line and capital market line.

9.2 CAPITAL ASSET PRICING MODEL

The Capital Asset Pricing Model (CAPM) is a model that describes the relationship between the expected return and risk of investing in a security. It shows that the expected return on a security is equal to the risk-free return plus a risk premium, which is based on the beta of that security. Below is an illustration of the CAPM concept.

Capital Asset Pricing Model



CAPM Formula and Calculation

CAPM is calculated according to the following formula:

$$R_a = R_{rf} + [B_a \times (R_m - R_{rf})]$$

Where:

Ra = Expected return on a security

Rrf = Risk-free rate

Ba = Beta of the security

Rm = Expected return of the market

Note: “Risk Premium” = (Rm – Rrf)

The CAPM formula is used for calculating the expected returns of an asset. It is based on the idea of systematic risk (otherwise known as non-diversifiable risk) that investors need to be compensated for in the form of a risk premium. A risk premium is a rate of return greater than the risk-free rate. When investing, investors desire a higher risk premium when taking on more risky investment

CAPM Formula

Expected Return =

Risk-Free Rate + (Beta x Market Risk Premium)

i.e. 12.5% = 2.5% + (1.25 x 8.0%)

Expected Return

The “Ra” notation above represents the expected return of a capital asset over time, given all of the other variables in the equation. “Expected return” is a long-term assumption about how an investment will play out over its entire life.

Risk-Free Rate

The “Rrf” notation is for the risk-free rate, which is typically equal to

the yield on a 10-year US government bond. The risk-free rate should correspond to the country where the investment is being made, and the maturity of the bond should match the time horizon of the investment. Professional convention, however, is to typically use the 10-year rate no matter what, because it's the most heavily quoted and most liquid bond.

Beta

The beta (denoted as “Ba” in the CAPM formula) is a measure of a stock's risk (volatility of returns) reflected by measuring the fluctuation of its price changes relative to the overall market. In other words, it is the stock's sensitivity to market risk. For instance, if a company's beta is equal to 1.5 the security has 150% of the volatility of the market average. However, if the beta is equal to 1, the expected return on a security is equal to the average market return. A beta of -1 means security has a perfect negative correlation with the market.

Market Risk Premium

From the above components of CAPM, we can simplify the formula to reduce “expected return of the market minus the risk-free rate” to be simply the “market risk premium”. The market risk premium represents the additional return over and above the risk-free rate, which is required to compensate investors for investing in a riskier asset class. Put another way, the more volatile a market or an asset class is, the higher the market risk premium will be.

CAPM Example – Calculation of Expected Return

Let's calculate the expected return on a stock, using the Capital Asset Pricing Model (CAPM) formula. Suppose the following information about a stock is known:

It trades on the NYSE and its operations are based in the United States

Current yield on a U.S. 10-year treasury is 2.5%

The average excess historical annual return for U.S. stocks is 7.5%

The beta of the stock is 1.25 (meaning its average return is 1.25x as volatile as the S&P500 over the last 2 years)

What is the expected return of the security using the CAPM formula?

Let's break down the answer using the formula from above in the article:

Expected return = Risk Free Rate + [Beta x Market Return Premium]

Expected return = 2.5% + [1.25 x 7.5%]

Expected return = 11.9%

Assumptions of the Capital Asset Pricing Model Theory:

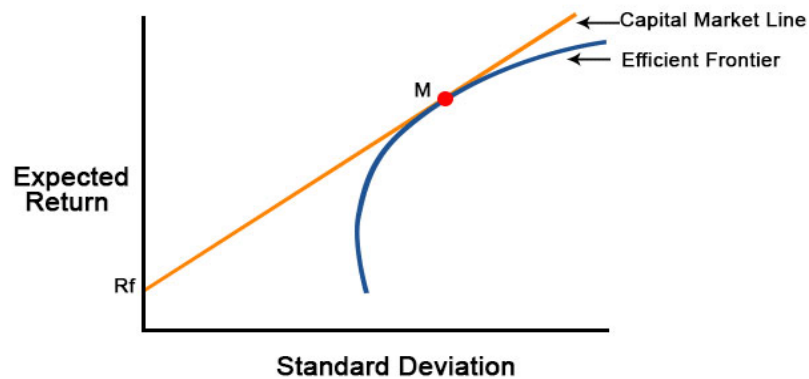
The assumptions of Capital pricing model theory are discussed as under:

- (a) Decision of the investor depends on their judgement of risk and return of securities and these are measured by standard deviations.
- (b) All investors are infinitely divisible units and can be freely purchased and sold.
- (c) Shares can be sold short at any time in the stock market and without any limit.
- (d) Individual investors do not effect the prices of security. All investors operate under perfect competition.
- (e) Transaction costs are nil.
- (f) The investor makes an investigation of securities without taking into consideration the amount of tax to be paid.
- (g) At any time there is a risk-less rate at which investor can buy or lend any quantity of funds.
- (h) All investors have the same planning horizons, expectations, expected returns variance and covariance of all securities

9.3.2 CAPITAL MARKET LINE

The Capital Market Line is a graphical representation of all the portfolios that optimally combine risk and return. CML is a theoretical concept that gives optimal combinations of a risk-free asset and the market portfolio. The CML is superior to Efficient Frontier in the sense that it combines the risky assets with the risk-free asset.

Capital Market Line



- The slope of the Capital Market Line(CML) is the Sharpe Ratio of the market portfolio.
- The efficient frontier represents combinations of risky assets.
- If we draw a line from the risk-free rate of return which is tangential to the efficient frontier, we get the Capital Market Line. The point of tangency is the most efficient portfolio.
- Moving up the CML will increase the risk of the portfolio and moving down will decrease the risk. Subsequently, the return expectation will also increase or decrease respectively.

All investors will choose the same market portfolio given a specific mix of assets and the associated risk with them.

Capital Market Line Formula

The Capital Market Line (CML) formula can be written as follows:

$$ER_p = R_f + SD_p \times \frac{ER_m - R_f}{SD_m}$$

where,

- ER_p =Expected Return of Portfolio
- R_f = Risk-Free Rate
- SD_p = Standard Deviation of Portfolio
- ER_m = Expected Return of the Market
- SD_m =Standard Deviation of Market

The Capital Market Line (CML) draws its basis from the capital market theory as well as the capital asset pricing model. It is a theoretical representation of different combinations of a risk-free asset and a market portfolio for a given Sharpe Ratio. As we move up along the capital market line, the risk in the portfolio increases and so does the expected return. If we move down along the CML, the risk decreases as does the expected return. It is superior to the efficient frontier because the ef only consists of risky assets/market portfolio. The CML combines this market portfolio with this market portfolio. We can use the CML formula to find the expected return for any portfolio given its standard deviation. The assumption for the CML is based on the assumptions of the capital market theory. But these assumptions often don't hold true in the real world. The Capital Market Line is often used by analysts to derive the amount of return that investors would expect for taking a certain amount of risk in the portfolio.

9.3.3 Security Market Line

Security market line (SML) is the graphical representation of the Capital Asset Pricing Model (CAPM) and gives the expected return of

the market at different levels of systematic or market risk. It is also called ‘characteristic line’ where the x-axis represents beta or the risk of the assets and y-axis represents the expected return.

Security Market Line Equation

The Equation is as follows:

$$\text{SML: } E(R_i) = R_f + \beta_i [E(R_M) - R_f]$$

In the above security market line formula:

- $E(R_i)$ is the expected return on the security
- R_f is the risk-free rate and represents the y-intercept of the SML
- β_i is a non-diversifiable or systematic risk. It is the most important factor in SML. We will discuss this in detail in this article.
- $E(R_M)$ is expected return on market portfolio M.
- $E(R_M) - R_f$ is known as Market Risk Premium

The above equation can be graphically represented as below:

Security market line (SML) is the graphical representation of the Capital Asset Pricing Model (CAPM) and gives the expected return of the market at different levels of systematic or market risk. It is also called ‘characteristic line’ where the x-axis represents beta or the risk of the assets and y-axis represents the expected return.

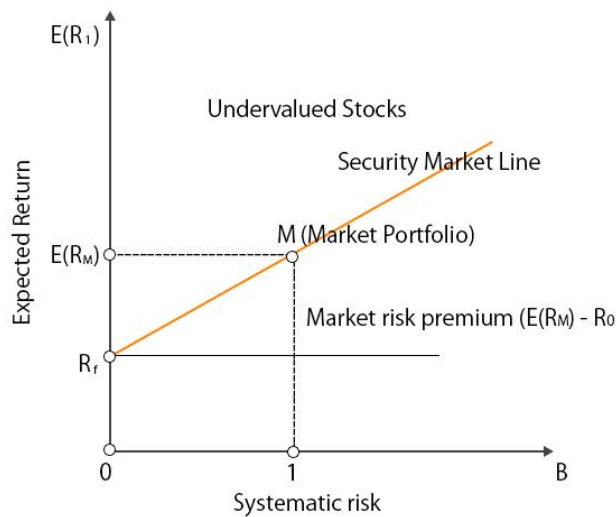


Fig. 1 : Security Market Line

Characteristics of Security Market Line (SML) are as below

1. SML is a good representation of investment opportunity cost which provides the combination of risk-free asset and the market portfolio.
2. Zero-beta security or zero-beta portfolio has an expected return on the portfolio which is equal to the risk-free rate
3. The slope of the Security Market Line is determined by market risk premium which is: $(E(R_M) - R_f)$. Higher the market risk premium steeper the slope and vice-versa
4. All the assets which are correctly priced are represented on SML
5. The assets which are above the SML are undervalued as they give the higher expected return for a given amount of risk.
6. The assets which are below the SML are overvalued as they have lower expected returns for the same amount of risk.

9.3.4 Advantages of CAPM

- CAPM takes into account only the systematic or market risk or not

the security's only inherent or systemic risk. This factor eliminates the vagueness associated with an individual security's risk and only the general market risk which has a degree of certainty becomes the primary factor. The model assumes that the investor holds a diversified portfolio and hence the unsystematic risk is eliminated between the stock holdings.

- It is widely used in the finance industry for calculating the cost of equity and ultimately for calculating the weighted average cost of capital which is used extensively to check the cost of financing from various sources. It is seen as a much better model to calculate the cost of equity than the other present models like the Dividend growth model (DGM)
- It is a universal and easy to use model. Given the extensive presence of this model, this can easily be utilized for comparisons between stocks of various countries.

9.3.5 Disadvantages of Capital Asset Pricing Model

- Only the returns and risks involved in the securities are the decision making factors for an investor. There is no accountability of the long term growth or qualitative factors around a stock that could influence the investor to take an alternative step.
- There is perfect competition in the market and no single investor can influence the prices or the returns of a stock. There is no limit on the short selling of a stock neither is their control on the divisibility of the purchase and selling units.
- There are nil taxes with regards to the returns earned or any borrowing costs with respect to the amount that is additionally utilized to earn interest on the investment.
- Finally, the model assumes that the investor is risk-averse and he is supposed to act a rational being and maximize his utility.

9.3.6 The Asset Pricing Implications of CAPM

The CAPM has asset pricing implications because it tells what required rate of return should be used to find the present value of an asset with any particular level of systematic risk (beta). In equilibrium, every asset's expected return and systematic risk coefficient should plot as one point on the CAPM. If the asset's expected rate of return is different from its required rate of return, that asset is either under priced or overpriced. This implication is useful only if the beta coefficients are stable over time. However, in reality, the betas of assets do change with the passage of time as the assets' earning power changes. The job of security analyst is, thus, to find the assets with dis-equilibrium prices, because it will be profitable to buy under priced assets and sell short the overpriced assets.

With the help of CAPM, every investor can analyse the securities and determine the composition of his portfolio. Since, there is a complete agreement among investors on the estimates of expected return, variances and covariances and risk free rate, efficient set of portfolio should be the same for all the investors. Since all the investors face the same efficient set, the only reason they choose different portfolios is that they have different indifference curves. An indifference curve is the locus of all possible portfolios that provide the investor with the same level of expected utility. Expected utility will increase as one moves from lower indifference curve to a higher indifference curve. But on the same indifference curve, any point on the curve gives the same utility. Such curves are positively sloped and convex for risk averters, concave for risk seekers and horizontal for risk neutral investors. Thus, different investors will choose different portfolios from the same efficient set because they have different preference towards risk and return. It implies that each investor will spread his funds among risky securities in the same relative proportion adding risk free borrowing or lending in order to achieve a personally preference overall combination of risk and return. This feature of CAPM is often referred to as separation theorem.

Another important implication is that security can in equilibrium have

a tangency to touch, either axis on risk return space. If an investor has zero proportion in such securities, the prices of these would eventually fall, thereby causing the expected returns of these securities to rise until the resulting tangency portfolio has a non-zero proportion associated with it. Ultimately everything will be balanced out.

When all the price adjustments stop, the market will be brought into equilibrium, subject to the following conditions:

- Each investor will like to hold a certain positive amount of each risky security.
- The current market price of each security will be fixed at a level where the number of shares demanded equals the number of shares outstanding.
- The risk free rate will be fixed at a level where the total amount of borrowings will be equal to the total amount of money lent.
- As a result, in equilibrium the proportion of the tangency portfolio will correspond to the proportion.

9.4 SUMMARY

The CAPM is considered to be the backbone in the modern price theory of financial markets. In the last couple of decades the CAPM has evolved to include other variable that can help to explain portfolio diversification. In this theory, it will enable the user to create a much better and more efficient portfolio. Despite the limitations and expansibilities, the underlying feasibility of the model renders itself extremely useful. The CAPM is well entrenched and widely used by investors, managers, and financial institutions. It is a single factor model because it is based on the hypothesis that required rate of return can be predicted using one factor i.e. systematic risk. The SML is used to price individual investments and uses the beta coefficient as the measure of risk whereas the SML is used the diversified portfolios and uses the standard deviation as the measure of risk.

9.5 GLOSSARY

- **Capital market line:** Capital market line is the graph of the required return and risk (as measured by standard deviation) of a portfolio of a risk-free asset and a basket of risky assets that offers the best risk-return trade-off. It is a special case of capital allocation line that is tangent to the efficient frontier and the slope of the capital allocation line represents the Sharpe ratio.
- **Security market line:** Security market line (SML) is the representation of the capital asset pricing model. It displays the expected rate of return of an individual security as a function of systematic, non-diversifiable risk. The risk of an individual risky security reflects the volatility of the return from security rather than the return of the market portfolio. The risk in these individual risky securities reflects the systematic risk.
- **Beta:** Beta reflects the systematic risk, which cannot be reduced. Investors can eliminate unsystematic risk when they invest their wealth in a well-diversified market portfolio. A beta of 1.0 indicates average level of while more than 1.0 means that security's return fluctuates more than that of market portfolio. A zero beta means no risk.
- **Risk free rate:** The risk-free rate of return is the interest rate an investor can expect to earn on an investment that carries zero risk.

9.6 SELF ASSESSMENT QUESTIONS

Q1 What is the capital asset pricing model?

Ans _____

Q2 Discuss the asset price implication of CAPM.

Ans _____

9.7 LESSON END EXERCISE

- Q1 Explain the key assumptions underlying CAPM.
- Q2 If the risk-free rate of return is 6% and the return on the market portfolio is 10%, what is the expected return on an asset having a beta of 1, according to the CAPM.
- Q3 Distinguish between security market line and capital market line.
- Q4 Discuss the advantages and disadvantages of CAPM.

9.8 SUGGESTED READINGS

1. R. M. Shrivastava Financial Management
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3. Khan & Jain Financial Management
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MARKOWITZ MODEL, ECONOMIC VALUE ADDED AND INVESTMENT ANALYSIS

STRUCTURE

- 10.1 Introduction
- 10.2 Objectives
- 10.3 Markowitz model
 - 10.3.1 Assumptions under Markowitz theory
 - 10.3.2 Limitation of Markowitz model
- 10.4 Economic value added and investment analysis
 - 10.4.1 Features of EVA
 - 10.4.2 Advantages of EVA
 - 10.4.3 Disadvantages of EVA
 - 10.4.4 Investment Analysis
- 10.5 Summary
- 10.6 Glossary
- 10.7 Self Assessment Questions
- 10.8 Lesson End Exercise
- 10.9 Suggested Readings

10.1 INTRODUCTION

Harry M. Markowitz is credited with introducing new concepts of risk measurement and their application to the selection of portfolios. He started with the idea of risk aversion' of average investors and their desire to maximise the expected return with the least risk. Markowitz model is thus a theoretical framework for analysis of risk and return and their inter-relationships. He used the statistical analysis for measurement of risk and mathematical programming for selection of assets in a portfolio in an efficient manner. His framework led to the concept of efficient portfolios. An efficient portfolio is expected to yield the highest return for a given level of risk or lowest risk for a given level of return. Markowitz generated a number of portfolios within a given amount of money or wealth and given preferences of investors for risk and return. Individuals vary widely in their risk tolerance and asset preferences. Their means, expenditures and investment requirements vary from individual to individual. Given the preferences, the portfolio selection is not a simple choice of any one security or securities, but a right combination of securities. Markowitz emphasised that quality of a portfolio will be different from the quality of individual assets within it. Thus, the combined risk of two assets taken separately is not the same risk of two assets together. Thus, two securities of TIS CO do not have the same risk as one security of TIS CO and one of Reliance. Risk and Reward are two aspects of investment considered by investors. The expected return may vary depending on the assumptions. Risk index is measured by the variance or the distribution around the mean, its range etc., which are in statistical terms called variance and covariance. The qualification of risk and the need for optimisation of return with lowest risk are the contributions of Markowitz. This led to what is called the Modern Portfolio Theory, which emphasises the trade off between risk and return. If the investor wants a higher return, he has to take higher risk. But he prefers a high return but a low risk and hence the need for a trade off. A portfolio of assets involves the selection of securities. A combination of assets or securities is called a portfolio. Each individual investor puts his

wealth in a combination of assets depending on his wealth, income and his preferences. The traditional theory of portfolio postulates that selection of assets should be based on lowest risk, as measured by its standard deviation from the mean of expected returns.

10.2 OBJECTIVES

The objectives of this lesson are :

1. To understand the concept of Markowitz model.
2. To discuss the various assumptions under Markowitz model.
3. To highlight the limitations of Markowitz model.
4. To discuss the meaning of Economic value added and Investment analysis.

10.3 MARKOWITZ MODEL

Markowitz approach determines for the investor the efficient set of portfolio through three important variables, i.e., return, standard deviation and co-efficient of correlation. Markowitz model is called the “**Full Covariance Model**”. Through this method the investor can, with the use of computer, find out the efficient set of portfolio by finding out the trade-off between risk and return, between the limits of zero and infinity. According to this theory, the effects of one security purchase over the effects of the other security purchase are taken into consideration and then the results are evaluated.

Markowitz model can be explained through three steps:

- Risk return opportunities
 - Constructing the efficient set
 - Selecting the optimum portfolio .
- (a) **Risk return opportunities:** There are many securities in this stock market. These can be combined in different ways to attain a different

level of risk and return through a combination of securities. Figure 16.7 depicts securities such as a, b, c, d, e, f with different levels of risk and return. The investor has to find out the best portfolio suitable to his own interest of risk and return. Portfolio d is called the maximum return portfolio but investor preferences have to be considered to see the level of risk and return that an investor can take.

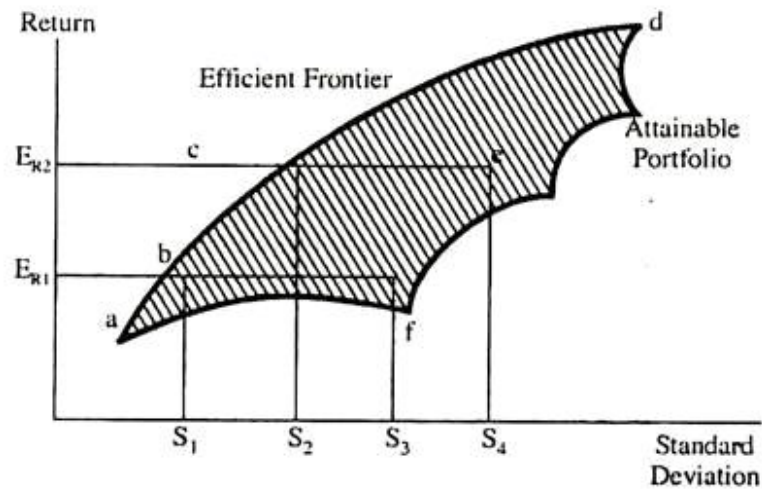


Fig.1 :Markowitz theory –Efficient Frontier

In Figure 1,

- (i) Shaded area = attainable portfolios.
- (ii) Arc of budge a,b,e,d = efficient portfolios or efficient frontier.
- (iii) All points on efficient frontier dominate other points to the right of the frontier like portfolio b dominates portfolio f Portfolio c dominates portfolio e because the return is the same but risk is greater at f and e for the same return.
- (iv) Markowitz shows more than one portfolio on the efficient frontier. Anyone can be selected by the investor depending on his preference for risk and return.

- (v) According to Markowitz there are a large number of portfolios which could be called feasible or attainable. Out of these portfolios only those were selected which were superior and dominated others in terms of risk and return characteristics. Through quadratic programming efficient set of portfolio can be selected. In this sense lies the difference between Markowitz efficient set and feasible or attainable set.
- (vi) The most efficient portfolio will be on the capital market line (CML) the portfolios on the efficient frontier will be good but the best portfolio will be only on the CML.
- (b) **Constructing the efficient set:** When there are two securities in a portfolio it is depicted in figure 2.

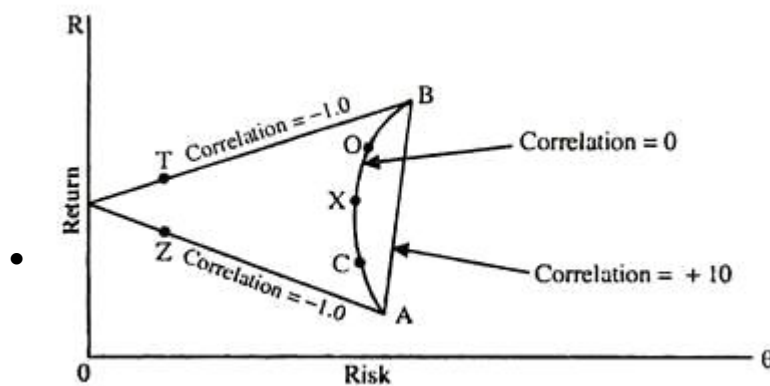


Fig. 2: Markowitz theory – Graphic example of two securities

- The example shows inverse relationship between T and Z. Risk is reduced to zero. T has higher return than Z with equal risk. ‘
- Securities at BOX provide better return than ACX where correlation is 0.

A and B are positively correlated and one cannot be offset against another to get minimum risk and maximum return.

In Figure 1 According to the graphical representation of thesecurities which stand on the efficient line are called the portfolios on the efficient

frontier. Markowitz shows the efficient frontier by calculating the risk and return of all individual assets and by plotting them by means of data on a graph. Only portfolios which lie on the efficient frontier should be taken by an individual because this will give the effect of diversification and will help in bringing down the risk on different assets. The efficient frontier will show a bulge towards the vertical axis.

- (c) **Selecting the optimum portfolio:** There are many efficient portfolios and amongst them the investor has to select the optimum portfolio

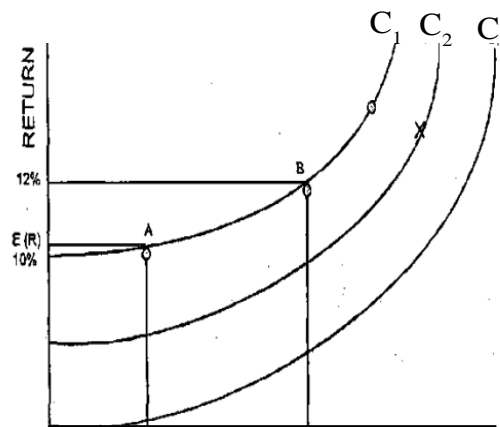


Fig 3 : Indifference Curve

own preferences of risk and return. The Markowitz model presents many portfolios and does not specify one single portfolio as the best because this depends on the combination of risk and return desired by the investor. The following are the indifferent curves showing investor preference of risk and return. Figure 3 shows three indifferent curves for the same investor. The investor gets the maximum satisfaction at C_3 with the risk of 5%. If the investor shifts from point A to B his return increases but along with it the risk also increases. Further, if the investor moves to X his return will be even higher but his risk will increase more than before. Although risk and return will change, the satisfaction of the investor will remain the same. This is called the indifference curve and it slopes upwards because with return the increase in risk can be noticed. The investor becomes indifferent to the

increase in return by shifting because he also has additional risk to take. An investor can have many indifference curves and higher curves are better than the lower ones. Once the investor has the desired indifferent curve he can then determine his optimum portfolio. The optimum portfolio of an investor is at the tangent point between the efficient frontier and the indifference curve

10.3.1 Assumptions under Markowitz Theory

- (i) The market is efficient and all investors have all the facts in their knowledge about the stock market and so an investor cannot continuously make superior returns either by predicting past behaviour of stocks through technical analysis or by fundamental analysis of internal company management or by finding out the intrinsic value of shares. Thus all investors are in equal category.
- (ii) All investors have a common goal before making an investment. This is the avoidance of risk because they are risk averse.
- (iii) All investors would like to earn the maximum rate of return that they can achieve from their investments.
- (iv) The investors base their decisions on the expected rate of return of an investment. The expected rate of return can be found, out by finding out the purchase price of a security dividend by the income per year and by adding annual capital gains. It is also necessary to know the standard deviation of the rate of return expected by an investor and the rate of return which is being offered on the investment. The rate of return and standard deviation are important parameters for finding out whether the investment is worthwhile for a person.
- (v) Markowitz brought out the theory that it was a useful insight to find out how the security returns are correlated to each other. By combining the assets in such a way that they give the lowest risk maximum returns could be brought out by the investor.

- (vi) From the above it is clear that every investor assumes that while making an investment he will combine his investments in such a way that he gets a maximum return and is surrounded by minimum risk.
- (vii) The investor assumes that greater or larger the return that he achieves on his investments, the higher the risk factor surrounds him. On the contrary, when risk is low the return can also be expected to be low.
- (viii) The investor can reduce his risk, if he adds investment to his portfolio.
- (ix) An investor should be able to get higher return for each level of risk “by determining the efficient set of securities”.

10.3.2 Limitation of Markowitz Model

Markowitz model is useful but difficult to use as it requires a lot of information. The following number of securities and bits of information are required for calculations:

<i>No. of Securities</i>	<i>Bits of Information</i>
10	65
50	1325
100	5750
1000	501500

The Markowitz model is very tedious because when the number of investments increase then the help of a computer is required because it is an arduous task to find out the securities which lie on the efficient frontier.

To summarize the above discussion, Markowitz model showed the ideal combination of securities through the efficient frontier. It was also called the Full Covariance Model. The problem faced by the model was that an observation increased it became cumbersome.

10.4 ECONOMIC VALUE ADDED AND INVESTMENT ANALYSIS

Economic value Added is calculated on the basis of accounting profit and economic capital. EVA means economic earnings minus economic capital. Economic capital means debt and equity. Recently, Maximization of shareholders wealth is becoming in the present corporate world and it is a necessary to increase the value of the company. The company's view, EVA model is more benefited by maximization of shareholders wealth because no. of investors, shareholders who has contributed to operate the company so, it is necessary to use this model. EVA is modern financial performance measure. Presently, EVA is better than the conventional performance measures because, it is more valuable for showing real profit of the company. Few Indian companies are use EVA concept but majority of the Indian companies which are working in India they have not believe to calculation of EVA concept. EVA helps managers to care about the economic capital and accounting profit and it helps to bring up a balance between economic capital and accounting profit. Economic Value Added is a new and dynamic measure of financial performance. EVA is a complete measure of real profit of the company's. Shareholders are real owners of the company and they are more interested to maximize their wealth in the company and maximize the value of the company for their maximization shareholders wealth, it means creation of maximum value for company's Owners i.e. shareholders which mean maximizing the market price of the shares. So, collection of capital through issuing equity is more valuable than the collection of capital through debt. Dividend is paid on the basis of profit available to equity shareholders. Interest on debt is fixed amount of capital. This fixed amount will provide to whom, who are provide debt to the company.

EVA Formula

It adopts almost the same form as residual income and can be expressed as follows:

$$\text{EVA} = \text{NOPAT} - (\text{WACC} * \text{capital invested})$$

Where:

NOPAT = *Net Operating Profits after tax*

WACC = Weighted Average Cost of Capital

Capital invested = *Equity + long-term debt at the beginning of the period*

(WACC* *capital invested*) is also known as a ***finance charge***

Calculating NOPAT

One key consideration for this item is the adjustment the cost of interest. The cost of interest is included in the finance charge (WACC*capital) that is deducted from **NOPAT** in the EVA calculation and can be approached in two ways:

Starting with operating profit, then deducting the adjusted tax charge (because tax charge includes the tax benefit of interest). Therefore, we should multiply the interest by the tax rate and add this to the tax charge, or

Start with profit after tax and adding back the net cost of interest. Therefore, we should multiply the interest charge by (1-tax rate)

Adjusting for Calculations in EVA

Accounting Adjustments:

Three main adjustments should be made, amongst the most common and important, are:

- Expenditures on R&D, promotion and employee training should be capitalized.
- Depreciation charge is added back to profit and instead, a charge for economic depreciation is made. This reflects the true change in value of assets during the period, unlike accounting depreciation
- Accounts such as provisions, allowances for doubtful debts, deferred tax provisions and allowances for inventory should be added back to capital implied,

- Non-cash expenses should be added back to profits and to capital employed
- Operating leases should be capitalized and added back to capital employed
- Tax charges will be based on cash taxes, rather the accruals based methods used in financial reporting and will be calculated as follows:

Tax charge per income statement – Increase (or + if reduction) in deferred tax provision + Tax benefit of interest = Cash taxes

10.4.1 Features of Economic Value Added (EVA)

The features of EVA are as follows:

- a) EVA is the most successful performance metric used by companies and their consultants.
- b) In the mid-1990s, EVA became a popular supplement to the balance sheet. Companies such as Hewlett-Packard Co, Stem Stewart Consulting Company began using EVA to show investors just how profitable they really were.
- c) Fortune magazine even ranks companies by their EVA contributions to show which companies contribute most to the overall economic growth.
- d) EVA, or economic rent, is a widely recognized tool that is used to measure the efficiency with which a company has used its resources.
- e) EVA is the difference between return achieved on resources invested and the cost of resources.
- f) Higher the EVA, better the level of resource unitization. In certain cases we discovered that despite positive accounting earnings, the company produced negative economic profit.

10.4.2 Advantages of Economic Value Added (EVA):

EVA is clearly better than earnings or earnings growth for measuring performance which has several advantages as follows:

- (i) EVA highlights parts of the business that are not performing up to scratch. If a division is failing to earn a positive EVA, its management is likely to face some pointed questions about whether the division's assets could be better employed elsewhere.
- (ii) EVA can be used down deep in the organization as an incentive compensation system. For managers who are used to tracking earnings, EVA send message to managers to invest if and only if the increase in earnings is enough to cover the cost of capital
- (iii) EVA rewards top management for careful and thoughtful investment decisions
- (iv) EVA makes the cost of capital visible to operating managers.
- (v) EVA lets the business managers realize that even assets have a cost and hence stock won't be lying idle.

10.4.3 Disadvantages of Economic Value Added (EVA):

- (i) EVA does not involve forecasts of future cash flows and does not measure. Instead EVA depends on the current level of earnings.
- (ii) Problems occur during startup ventures, where there may be heavy capital outlays and negative earnings in the first year of operation. But EVA would be negative in the startup years, even if the project were on track to a strong positive NPV.
- (iii) EVA and other measures of Residual Income depend on accurate measures of Economic Income and Investment.
- (iv) EVA can be misleading as a wealth metric because it reflects momentary swings in the capital markets rather than inherent company performance.

- (v) EVA is also shareholder centric and hence of little relevance to the rest of stakeholders
- (vi) EVA is identical to Residual Income, which was largely abandoned by companies years ago.

10.4.4 Investment analysis:

Investors make decisions relying on the relative profit potential of investment alternatives. The wrong choices may be made if systematic and quantitative methods are not used. In a given investment situation, it is necessary to consider several economic and technical parameters with respect to costs, profits, savings, the choice of time, tax and loyalty, project life, etc. If a reliable approach is not used to quantify the effects of these factors, it is very difficult to correctly assess each alternative and make the best choice. Investment decisions are analyzed over the lifetime of a project which can be decades long, and there are many input data that are related to time such as escalation and inflation of costs and revenues. Therefore, predictions, forecasting, estimations, and assumptions are required for these data which is involved with risk and uncertainty. Consequently, results of the analysis are highly dependent on accuracy and correctness of the proposed inputs. However, the techniques provided in this text can give the decision maker much better ideas about the relative risks and uncertainties between alternatives. This information, along with the numerical economic evaluation results, can help the investors to make a better choice than without using them.

An investment is based upon the analysis and its main goal is to promise safety of principle sum invested and to earn the satisfactory risk. There are two types of investors:

- individual investors;
- Institutional investors.

Individual investors are individuals who are investing on their own.

Sometimes individual investors are called retail investors. Institutional investors are entities such as investment companies, commercial banks, insurance companies, pension funds and other financial institutions. In recent years the process of institutionalization of investors can be observed. As the main reasons for this can be mentioned the fact, that institutional investors can achieve economies of scale, demographic pressure on social security, the changing role of banks. One of important preconditions for successful investing both for individual and institutional investors is the favorable investment environment .Our focus in developing this course is on the management of individual investors' portfolios. But the basic principles of investment management are applicable both for individual and institutional investors.

Direct versus indirect investing :

Investors can use direct or indirect type of investing.

Direct investing is realized using financial markets and indirect investing involves financial intermediaries. The primary difference between these two types of investing is that applying direct investing investors buy and sell financial assets and manage individual investment portfolio themselves. Consequently, investing directly through financial markets investors take all the risk and their successful investing depends on their understanding of financial markets, its fluctuations and on their abilities to analyze and to evaluate the investments and to manage their investment portfolio. Contrary, using **indirect type of investing** investors are buying or selling financial instruments of financial intermediaries (financial institutions) which invest large pools of funds in the financial markets and hold portfolios. Indirect investing relieves investors from making decisions about their portfolio. As shareholders with the ownership interest in the portfolios managed by financial institutions, the investors are entitled to their share of dividends, interest and capital gains generated and pay their share of the institution's expenses and portfolio management fee. The risk for investor using indirect investing is related more with the credibility of chosen institution and the

professionalism of portfolio managers In general, indirect investing is more related with the financial institutions which are primarily in the business of investing in and managing a portfolio of securities (various types of investment funds or investment companies, private pension funds). By pooling the funds of thousands of investors, those companies can offer them a variety of services, in addition to diversification, including professional management of their financial assets and liquidity. Investors can “employ” their funds by performing direct transactions, bypassing both financial institutions and financial markets (for example, direct lending). But such transactions are very risky, if a large amount of money is transferred only to one’s hands, that turns to the necessity to diversify the investments. From the other side, direct transactions in the businesses are strictly limited by laws avoiding possibility of money laundering.

10.5 SUMMARY

This unit has focused on the foundation of Markowitz’s model and on deviation of efficient frontier through the creation of efficient portfolios of varying risk and return. It has been shown that an investor can increase expected utility through portfolio diversification as long as there is no perfect positive correlation among the component securities. The extent of benefit increases as the correlation is lower and also increases with the number of securities included. The Markowitz model can be applied to develop an efficient frontier that delineates the optimal portfolios that match the greatest return with a given amount of risk. Also, this frontier shows the dominant portfolios as having the lowest risk given a stated return

Economic value added (EVA) is a measure of a company’s financial performance based on the residual wealth calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis. EVA can also be referred to as economic profit, as it attempts to capture the true economic profit of a company.

Investment analysis is defined as the process of evaluating

an investment for profitability and risk. It ultimately has the purpose of measuring how the given investment is a good fit for a portfolio. Investment analysis is a broad term for many different methods of evaluating investments, industry sectors, and economic trends. It can include charting past returns to predict future performance, selecting the type of investment that best suits an investor's needs, or evaluating individual securities such as stocks and bonds to determine their risks, yield potential, or price movements. Investment analysis is key to a sound portfolio management strategy.

10.5 GLOSSARY

- **EVA(Economic value added):** Economic value added (**EVA**) is a measure of a company's financial performance based on the residual wealth calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis.
- **WACC (Weighted Average Cost of Capital):** The weighted average cost of capital (WACC) is the rate that a company is expected to pay on average to all its security holders to finance its assets. The WACC is commonly referred to as the firm's cost of capital.
- **Capital employed:** Capital employed refers to the amount of capital investment a business uses to operate and provides an indication of how a company is investing its money.

10.6 SELF ASSESSMENT QUESTIONS

Q1 Define Markowitz model.

Ans _____

Q2 Discuss the features of EVA.

Ans _____

Q3 Discuss direct versus indirect investing.

Ans

10.5 LESSON END EXERCISE

Q1 Explain in detail the Markowitz model. Also discuss the various assumptions under Markowitz model.

Ans

Q2 Discuss the advantages and disadvantages of Economic value added (EVA).

Ans

Q3 Explain the concept of Investment analysis.

Ans

10.6 SUGGESTED READINGS

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PORTFOLIO AND INSTITUTIONAL MONEY MANAGEMENT, INSTITUTIONAL INVESTOR

STRUCTURE

- 11.1 Introduction
- 11.2 Objectives
- 11.3 Institutional investors
- 11.4 Importance of institutional investors
- 11.5 Types of institutional investors
- 11.6 Summary
- 11.7 Glossary
- 11.8 Self Assessment Questions
- 11.9 Lesson End Exercise
- 11.10 Suggested Readings

11.1 INTRODUCTION

In the world of finance, institutional investors are a powerful force. They dictate supply and demand in the marketplace and play a key role in how securities are priced. It therefore pays to learn about this diverse group of actors and what motivates them. Although the name might imply otherwise, institutional investors are not individuals but rather nonbank organizations

that buy and sell securities on behalf of their members. They trade securities in large enough quantities to qualify for preferential treatment and lower commissions, which makes them the primary point of contact for individuals looking to invest in the market. Due to their size, institutional investors have several resources at their disposal to help them decide whether to invest in a particular company, asset or industry. These firms have the resources to conduct in-depth research and acquire highly specialized analytics tools to evaluate entire markets. For this reason, institutions have a considerable advantage over the retail investor, i.e., the non-professional investor who buys and sells securities through traditional or online brokerage firms.

Due to the size of their holdings, institutions exert the largest impact on the financial markets. In fact, the vast majority of trading on major exchanges is carried out by institutional investors. Therefore, institutional trading activity is said to have a large impact on the price of a particular security or asset.

Institutional investor is an entity that pools money in order to buy securities, real estate and other investment assets, or originate loans. Banks, hedge funds, insurance companies, pensions, endowments, mutual funds and investment advisors can be called institutional investors. The term also can be applied for operating companies that invest in such type of assets. Some institutional investors try to influence corporate governance by using their voting rights in investments and they are called activist institutional investors. Institutional investors have the resources to do extensive research on wide-ranging investment options, and due to their specialized knowledge, they generally have an edge over retail investors. Portfolio managers often meet personally with company executives, study entire industries, and evaluate companies in depth before making specific investment decisions. Institutions are usually the largest force behind supply and demand in securities markets, thus they have a major influence of the prices of many securities. The vast majority of the trading on major exchanges is done by institutions and it's important to note that because of the size of their portfolios, institutional buying and selling may greatly influence the price of a security.

11.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of institutional investors.
2. To discuss the types of institutional investors.
3. To highlight the importance of institutional investors.

11.3 INSTITUTIONAL INVESTORS

An institutional investor is a non-bank person, entity or organization that buys and sells securities on behalf of its members. These market players typically invest in large enough quantities to qualify for preferential treatment, such as lower commissions and faster execution speed. An institution brings the benefits of participation to investors who previously lacked the resources to access larger financial markets. For this reason, institutional investors play a critical role in how markets behave and how assets are priced. Institutional investors have many advantages when it comes to stock picking, asset allocation and strategic investing. That's because they have vast resources at their disposal, including research teams, registered investment advisors and deep pockets. Retail traders accessing the financial markets through their bank or financial broker do not have these advantages. They also lack the specialized knowledge and specific industry focus prevalent at large institutions.

An entity pools money from various investors and individuals making the sum a high amount which is further provided to investment managers who invest such huge amounts in various portfolio of assets, shares, and securities, which is known as institutional investors and it includes entities like insurance companies, banks, NBFC, financial institutions, mutual funds, private equity funds, investment advisors, hedge funds, pension funds, university endowments, etc having competitively higher creditworthiness and solvency. Institutional Investors usually have their own teams looking at each aspect of the markets that they trade-in. They enjoy fewer regulatory

protection because they have enough knowledge to understand the risk of the markets and act accordingly. A commonly used term, Elephant, refers to an Institutional Investor that has the ability to influence the market by itself because of the large quantities that it trades.

11.4 TYPES OF INSTITUTIONAL INVESTORS

The common types of Institutional Investors include the following:

1. Hedge Funds

This type of Institutional Investors are investment funds that pool in money from various investors and invest on their behalf. They are usually structured as limited partnerships with the fund manager acting as the General partner and the investors acting as Limited partners. The distinctive features of hedge funds are that there is no limit imposed by the regulators on the usage of leverage. Also, they invest mostly in Liquid assets. The most important characteristic of Hedge funds is that it often takes a long and short position or a hedged position in securities. They also use numerous other risk management techniques for neutralizing the risk.

2. Mutual Funds

Mutual Funds are pooled investment vehicles that buy securities with capital pooled in by multiple investors. The main advantages of Mutual Funds are that they are professionally managed. Investors without any proper knowledge can avail of the benefit of getting professional management of their funds through this fund. The investment is done in liquid assets that are traded in the market. Mutual Funds are well diversified and provide investors protection in case particular security underperforms. At the same time, mutual funds charge some fees to every scheme which is deducted from the client's account.

3. Private Equity Funds

Private Equity funds are pooled investment vehicles with a structure of a Limited Partnership and a fixed term of usually 10 years. These funds

provide equity financing to private entities that are unable to raise capital from the public. These investments are illiquid in nature. P/E funds often indulge in venture capital financing, wherein they provide capital to up and coming entities in which they see the huge hidden potential. The minimum investment size with P/E funds is usually high and this option is available to only HNIs. P/E funds carry high risk and therefore investors expect a high return on their investment. The high risk is associated with the non-public nature and small size of the investee companies.

4. Endowment Funds

This type of institutional investor is investment pools established by a group of founders or principals for specific needs or for the general operating processes of an entity. They often take the form of Non-Profit organisations and foundations. They are generally used by universities, hospitals, and charitable organizations where the principals make donations to the fund. The investment income, as well as a small part of the principal, is available to the organizations for use.

5. Insurance Companies

Insurance Companies also fall under the category of Institutional Investors. They collect premiums regularly and the claims are paid often irregularly. The premium that they earn needs to be deployed and hence they invest in securities. The claims are paid out of this investment also large.

11.5 IMPORTANCE OF INSTITUTIONAL INVESTORS IN THE MARKET

The following are the importance of institutional investors.

- 1. Important Sources of Capital** – Institutional Investors are a very important source of capital in the economy. They provide large chunks of capital to companies that fulfill their requirements without having to depend on a large number of small investors. Often before an IPO, investment banks ask institutional investors to buy the shares in order

to ensure that the IPO is well subscribed. It reduces their dependency on retail investors.

2. **Benefits to Individual Investors** – Institutional Investors have just pooled investment vehicles wherein a number of investors pool their money to form a large size entity that can invest on their behalf. Since not all investors are able to take positions in securities that require large capital commitments, they can enjoy those benefits through institutional investors. Also, they have their own teams of highly qualified personnel that study the securities and track the markets. They have professional management at every level. Individual Investors who lack all these skills get the benefit of highly knowledgeable expert management of their money.
3. **Preferential Treatment** – Since Institutional Investors can influence the market because of their large size of investments, they get preferential treatment in terms of lower transaction costs, fast execution of their orders, etc. This saves time and money and ultimately benefits the investors who are a part of the investment pool.

11.6 SUMMARY

Institutional Investors are large institutions that trade securities in the market in large quantities on behalf of their investors. Since the number of investors in such an entity is large, the size of the trades is automatically large and is able to enjoy preferential treatment and lower commissions in the market as compared to the retail investors. Institutional Investors form an important part of the capital markets. They can influence the market by taking or exiting positions in any security. They provide a high amount of capital to various entities in the market. The dependency on them might be high in some cases which might lead to the company bending to their demands. The regulator ensures that these powers are not exploited and keeps them in check in order to have a fair and transparent market for all participants.

11.7 GLOSSARY

- **Hedge funds:** A hedge fund portfolio consists of asset classes such as derivatives, equities, bonds, currencies, and convertible securities. Hence, they are also considered as alternative investments. As a collection of assets that strives to ‘hedge’ risks to investor’s money against market ups and downs, they need aggressive management.
- **Mutual funds:** A mutual fund is a type of financial vehicle made up of a pool of money collected from many investors to invest in securities like stocks, bonds, money market instruments, and other assets. Mutual funds are operated by professional money managers, who allocate the fund’s assets and attempt to produce capital gains or income for the fund’s investors.
- **Endowment funds:** An endowment fund is a financial asset, typically held by a non-profit organization, which contains the capital investments and related earnings leveraged by the non-profit organization to fund the overall mission.

11.8 SELF ASSESSMENT QUESTIONS

Q1 What do you mean by institutional investors?

Ans _____

Q2 What are the key differences between individual investors and institutional investors?

Ans _____

11.9 LESSON END EXERCISE

Q1 Discuss the importance of institutional investors.

Ans _____

Q2 Give the meaning of institutional investors. Explain its types also.

Ans _____

11.10 SUGGESTED READINGS

1. Prasanna Chandra Investment Analysis and Portfolio Management
2. Gupta & Joshi Security Analysis and Portfolio Management
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PORTFOLIO MANAGEMENT SERVICES & THREE ERRORS OF THE INVESTMENT INDUSTRY

STRUCTURE

- 12.1 Introduction
- 12.2 Objectives
- 12.3 Portfolio management services
 - 12.3.1 Process of Portfolio management services
 - 12.3.2 Objectives of Portfolio management services
- 12.4 Three errors of the investment industry
- 12.5 Summary
- 12.6 Glossary
- 12.7 Self Assessment Questions
- 12.8 Lesson End Exercise
- 12.9 Suggested Readings

12.1 INTRODUCTION

Portfolio Management is nothing but managing our portfolio investment tactfully, by selecting the best mix of investment options in the right proportion and continuously shifting them in the portfolio. That is

portfolio management is just like cooking the best recipe for our appetite to increase the return on investment and maximize the wealth. Portfolio Management Service is a process of investment analysis and portfolio management. It's an investment product usually availed by the investors who have high net-worth. It's more of an investment portfolio monitoring for those who can't do it for themselves. The reason this service is special is that it gives the subscriber a complete freedom from the hassles and complexities that are associated with equity investment. Namely, research and analysis of the stock, keeping track of all the business and political activities which can potentially have an impact on our investment. That's too much of work for a working professional. In PMS, we virtually have to do nothing. Our entire portfolio is managed by investment professionals. These professionals have a thorough understanding of our investment goals and they draw the strategy accordingly. The portfolio manager does all the research of the stocks and takes decisions about the allocation of funds. He/she keeps track of all the activities and keeps the investors informed about developments in the portfolio.

12.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of Portfolio management services
2. To discuss the process of Portfolio management services.
3. To highlight the objectives of Portfolio management services.
4. To discuss the three errors of the investment industry.

12.3 PORTFOLIO MANAGEMENT SERVICES

While mutual funds have great attraction for smaller investors, portfolio management schemes offered by financial companies, banks and money managers have great appeal to large investors. These schemes are of two types:

(i) discretionary schemes

(ii) non- discretionary schemes.

Under a discretionary portfolio management scheme, the client places the funds with the portfolio manager who invests these funds as per his discretion and looks after all the attendant paper work. While the profits and losses on the portfolio belongs to the investor, the portfolio management receives a fee for the services rendered which is generally linked to the returns provided by the portfolio. The basic difference between a discretionary scheme and a non- discretionary scheme is that under the former scheme, the portfolio manager enjoys the discretion to invest whereas under latter scheme the portfolio managers offers advice which the investor may accept or reject. Thus, under the non- discretionary scheme, the investor places funds with the portfolio manager, the portfolio manager offers counsel to the investors, the investor communicate his decisions, the portfolio manager executes the decision of investor and looks after all the paper work. For the services provided by him, the portfolio manager charge a fee. The profits and losses of the portfolio, of course, belong to the investor.

Generally, the discretionary portfolio management schemes offer better returns because the portfolio manager can respond quickly to market developments and also participate in money market instruments to avoid funds from remaining idle. A portfolio management service (PMS) like an equity- oriented mutual fund invests in stock and related instruments on behalf of its clients or investors. There are several differences between the two as shown below:

- 1) **Minimum Investment:** You can join an equity mutual fund with an investment of just ₹ 5000, but you have to invest at least ₹ 500,000 or even more to participate in a PMS.
- 2) **Lock –in-period:** Barring the ELSS (equity-linked savings scheme) funds, there is no lock in period for equity funds. There is no lock in period for PMS.

- 3) **Exit Load:** The exit load of equity mutual funds may be 1 to 2 percent, but the exit load for a PMS may be as high as 4 percent.
- 4) **Fees:** The annual fees for equity mutual fund cannot exceed 2.5 percent of assets under management. Most of the equity mutual funds have an expense ratio close to 2 percent. Most PMSs give investor an option to choose a fixed fees (about 2 percent) or a combination of a fixed fees (about 1 percent) and a variable fees which is linked to the performance of the scheme.
- 5) **Interaction with the Scheme Manager:** The manager of an equity mutual fund does not interact with investors. The manager of a PMS may interact with large clients.
- 6) **Customisation:** An equity mutual fund is not customised to the needs of individual investors whereas a PMS may be customised.
- 7) **Transparency:** The transparency of an equity mutual fund is high, whereas the transparency of a PMS is low.
- 8) **Taxation:** From a tax point of view, an equity mutual fund is more advantageous than a PMS. If the investor remains invested in an equity mutual fund for more than a year, he does not pay any taxes on his gains, even though the fund may have executed short term trades. Under a PMS, however, the investor avoids taxes only on long-term capital gains but pays taxes on short-term capital gains. Further, there is a risk that the tax authorities may treat a high trading PMS account as a 'business and trading activity' and not an 'investment activity' which means that the entire income will be taxed as business income and not an investment income, thereby pushing up the tax burden.
- 9) **Information Availability:** There are several publications and websites that provide information on mutual funds. Further, independent agencies periodically rank mutual funds on the basis of their performance. By contrast, information on PMS is not easily available.

because there is no information aggregators that provide all material information at one place. You may have to contact each of the PMS providers before you select a scheme that suits you

12.3.1 The process of portfolio management Services

The idea of the PMS is that we hand over our portfolio to a person who is equipped with knowledge and skills to execute investment decision on our behalf. In keeping with that theory, the portfolio manager has the full control of the portfolio. However, we have access to our portfolio. We can log in to your demat account any time you want and get the real-time information of our holdings. The most important thing that we need to understand is that the demat and trading account is always in our (subscriber) name. Therefore, the account holder is the sole beneficiary of all the profits, losses, dividends, bonus shares and also liable to taxes that the account incurs. A best portfolio management service helps you in each level of the investment since from constructing our portfolio to evaluate it periodically. Let's check the process in a detailed manner one by one.

1. Security Analysis

It is the very first stage of portfolio creation process, which involves examining the risk factors, as well as the expected returns of individual securities and its matchability with the investors risk appetite and financial goals.

2. Portfolio Analysis

After identifying the potential stocks and the respective risk involved, a number of portfolios can be created out of them, which are known as feasible portfolios.

3. Portfolio Selection

Out of all these feasible portfolios, the optimal portfolio, which is best suited for the investors according to his needs and goals, is selected.

4. Portfolio Revision

Once the portfolio is selected, the portfolio manager and the team of research analysts, keep a close eye on the portfolio, to make sure that no opportunity is missed of earning best returns for the investor.

5. Portfolio Evaluation

Here in this stage, the performance of the portfolio is assessed periodically to evaluate the quantitative measurement of the return obtained against the risk involved in the portfolio, for the whole term of the PMS investment. In this phase, if there is a requirement of changes in the portfolio to achieve the specific return expectation the asset allocation is also drifted which in turn helps to achieve the goal within a stipulated period of time.

12.3.2 Objectives of the portfolio management service

While designing the portfolio as per your need the service provider even keeps in mind the objectives to provide us with the best possible returns.

1. Capital Growth

It is the key objective of the portfolio management service. The stock portfolio manager always looks to provide a good growth in terms of returns for your PMS investment.

2. Security of Principal Amount Invested

The portfolio manager always ensures that the principal amount invested initially should always be maintained. That is the value of the investment should not turn lower than the initial amount invested.

3. Portfolio Diversification

It is one of the most important objectives of the portfolio management service. Providing the proper diversification as per the requirement of the investors is one of the most important aspects for any portfolio

manager.

4. Consistent Returns

Consistent Returns are also important for any portfolio management service. The consistent performance is the only key to benefit the client as well as satisfy his financial goals within a specific time.

12.4 THREE ERRORS OF THE INVESTMENT INDUSTRY

In a complex world of investing, most of us rely on the services of investment management profession. This profession, as Charles Ellis argues, has not been charging its responsibilities because of three errors. These errors are discussed as under:

Error 1: Falsely defined mission: Investment professionals have falsely defined their professional mission to their clients as “beating the market”. While such a mission had reasonable prospects of success years ago, it is no longer so. As Charles Ellis says: “In today’s intensively competitive security markets, very few active managers outperform the market by even 1 percent over the long term, most managers fall short, and in terms of magnitude under- performance substantially exceeds out performance”. Further, identifying future winners is notoriously difficult. Given the grim reality, most investors would be better off if they put a good portion of their investments in low-cost index funds or index- matching exchange traded define their mission more realistically as “ matching the market” rather than “ beating the market.”

Error 2: Incorrect ordering of priorities: With the growth in the size of investment management organisations, the value of profession are being increasingly dominated by the economics of the business. As business managers replace investment professionals in senior leadership positions, the thrust is on expanding the asset base and increasing business profits. This impairs investment performance. As Charles Ellis notes: “when business dominates, it is not the friend of the investment profession. If and when, as so very often happens, successful asset gathering eventually overburdens and

organisation's professional capacities for superior investing, results achieved for investors will fade.”

Error 3: Lack of rigour in counseling: Investment professionals do not seem to pay adequate attention to investment counseling. Investment differ in many ways: assets, current income, potential income, spending obligations, financial responsibilities, investment time horizons, investment skills, risk tolerance, and market experience. If investment professionals provide proper counseling to their clients, it will help investors to match their investment programmes with their investment skills and resources to achieve their own realistic, long-term objectives. As Charles Ellis says: “The most valuable professional service we could provide to almost all investors is effective investment counseling. With far too few exceptions, most investment managers currently ignore this important work.

12.5 SUMMARY

This lesson highlights how the portfolio management services are used in the enterprises. It has also discussed the process and objectives of portfolio management services. It also stresses the three main errors of the investment industry.

12.6 GLOSSARY

- **Portfolio management services:** Portfolio Management Service is a tailor made professional service offered to cater the investments objective of different investor classes. The Investment solutions provided by PMS cater to a niche segment of clients. The clients can be Individuals or Institutions entities with high net worth. In simple words, a portfolio management service provides professional management of our investments to create wealth.
- **Discretionary schemes:** In a discretionary PMS, the portfolio manager manages the funds of the client in accordance with the needs of the client.

- **Non-discretionary schemes:** In the case of non-discretionary PMS, the portfolio manager does not have the authority to take any portfolio related decisions independently. He/she needs to manage the funds as per the client's directions. Without the client's approval, no buy or sell decisions can be taken by the portfolio manager.

12.7 SELF ASSESSMENT QUESTIONS

Q1 What do you mean by portfolio management services?

Ans _____

Q2 Discuss the objectives of portfolio management services.

Ans _____

12.8 LESSON END EXERCISE

Q1 Give the concept of portfolio management services. Also discuss the process of portfolio management services.

Ans _____

Q2 Explain in detail the three main errors of the investment industry.

Ans _____

12.9 SUGGESTED READINGS

1. I. M. Pandey, Financial Management, Vikas Publishing House, 9th Edition.
2. V.A. Avadhani, Security Analysis and Portfolio Management, Himalaya Publishing House, 10th Revised Edition.
3. Prasanna Chandra, Investment Analysis and Portfolio Management, McGraw Hill Education, 5th Edition.
4. PunithavathyPandian, Security Analysis and Portfolio Management, Vikas Publishing House, Second Edition.

**GUIDELINES FOR INVESTMENT DECISIONS-
THE TEN COMMANDMENTS & GUIDELINES
FOR EQUITY INVESTING****STRUCTURE**

- 13.1 Introduction
- 13.2 Objectives
- 13.3 Guidelines for investment decisions- the ten commandants
- 13.4 Guidelines for equity investing
 - 13.4.1 A general guideline
 - 13.4.2 Guidelines for aggressive investors
 - 13.4.3 Guidelines for conservative investors
- 13.5 Summary
- 13.6 Glossary
- 13.7 Self Assessment Questions
- 13.8 Lesson End Exercise
- 13.9 Suggested Readings

13.1 INTRODUCTION

For most of the investors throughout their life, they will be earning and spending money. Rarely, investor's current money income exactly balances with their consumption desires. Sometimes, investors may have more money than they want to spend; at other times, they may want to purchase more than they can afford. These imbalances will lead investors either to borrow or to save to maximize the long-run benefits from their income. When current income exceeds current consumption desires, people tend to save the excess. They can do any of several things with these savings. One possibility is to put the money under a mattress or bury it in the backyard until some future time when consumption desires exceed current income. When they retrieve their savings from the mattress or backyard, they have the same amount they saved. Another possibility is that they can give up the immediate possession of these savings for a future larger amount of money that will be available for future consumption. This tradeoff of present consumption for a higher level of future consumption is the reason for saving. What investor does with the savings to make them increase over time is investment. In contrast, when current income is less than current consumption desires, people borrow to make up the difference. Those who give up immediate possession of savings (that is, defer consumption) expect to receive in the future a greater amount than they gave up. Conversely, those who consume more than their current income (that is, borrowed) must be willing to pay back in the future more than they borrowed.

Thus, an investment is the current commitment of rupee for a period of time in order to derive future payments that will compensate the investor for

- (1) The time the funds are committed,
- (2) The expected rate of inflation, and
- (3) The uncertainty of the future payments.

Investment is the employment of funds with the aim of getting return on it. In general terms, investment means the use of money in the hope of making more money. In finance, investment means the purchase of a financial product or other item of value with an expectation of favorable future returns. Investment of hard earned money is a crucial activity of every human being. Investment is the commitment of funds which have been saved from current consumption with the hope that some benefits will be received in future. Thus, it is a reward for waiting for money. Savings of the people are invested in assets depending on their risk and return demands. Investment refers to the concept of deferred consumption, which involves purchasing an asset, giving a loan or keeping funds in a bank account with the aim of generating future returns. Various investment options are available, offering differing risk-reward tradeoffs. An understanding of the core concepts and a thorough analysis of the options can help an investor create a portfolio that maximizes returns while minimizing risk exposure. So, we have learnt about investment and how these decisions are taken. Now it is the time to translate the knowledge, insights and perspectives gained so far into specific guidelines for investment decision making.

13.2 OBJECTIVES

The objectives of this lesson are:

1. To explain the basic guidelines that all investors should follow.
2. To discuss the guidelines that is especially relevant for aggressive equity investors.
3. To discuss the guidelines that is especially relevant for conservative equity investors.

13.3 GUIDELINES FOR INVESTMENT DECISIONS- THE TEN COMMANDMENTS

There are Ten Commandments of investing which should serve as basic guidelines for all investors. They are as follows:

1. Start saving early and save regularly
2. Integrate life insurance in our investment plan.
3. Accord top priority to a residential house.
4. Match our stock- bond mix to our investment situation
5. Select stocks and bonds (fixed income instruments) judiciously.
6. Avail of tax shelters.
7. Diversify adequately
8. Periodically review and revise the portfolio.
9. Check our irrationality.
10. Maximise our lifetime financial success.

Now, we shall discuss all these guidelines in detail one by one

1. Start saving early and save regularly

Many young people, despite earning well, do not seem to pay much attention to savings and investments. They perhaps believe that they have along productive career ahead of them and they need not worry about building a nest egg at an early age. They probably do not fully realize the benefit of growth over time. To tap this benefit we should start investing early invest regularly over a long period.

2. Integrate Life Insurance into our Overall Financial Plan (Estate plan):

The primary purpose of life insurance is to provide financial protection to the dependents, should the insured die without accumulating wealth. Hence, the need for life insurance is a function of

- (1) the financial requirements for the dependents, and
- (2) available resources elsewhere. Ignoring inherited wealth, the need for life insurance varies over one's life cycle as follows:

From the foregoing it is clear that the need for insurance is high in the age bracket of 25 to 50 years. When we need for insurance diminishes we should consider surrendering our policy. The primary purpose of insurance is protection, not accumulation of wealth. So choose an insurance policy which provides only insurance and not insurance along with a savings plan. If the insurance policy carries “living benefits” i.e. it provides monetary benefits to the assured while he is alive, it implies that it combines insurance with savings. Such a policy earns a modest tax free return on the savings portion. We can perhaps earn a higher return if we invest on our own. Hence we may be better off with a term assurance policy rather than the more popular endowment assurance policy. However, if we find that the latter policy disciplines we save more, enables us to get the kind of insurance cover we are looking for, simplifies our investment decision making, saves us from the chores of investment management, and prevents us from squandering our savings, we may consider it favorably.

3. Accord top priority to a residential house:

A residential house represents an attractive investment proposition for the following reasons:

1. The rate of return, consisting of rental income (or rental saving) and capital appreciation, is attractive (capital appreciation, often, dominates the rental income).
2. The risk exposure is limited. Barring a few bad years, property values in India have been moving upwards. Hence, investment in a residential house does not have much downside risk associated with it.
3. A residential house provides significant tax shelter in the long run. For wealth tax purposes, the value of residential house is reckoned at its historical cost and not the current market value
4. Loans are available from various quarters for buying/constructing a residential house. Further, interest on loans for buying /constructing a residential house is tax deductible within certain limits.

5. Even though there may be initial hassles when a residential house is brought/ constructed, in the long run it requires very little monitoring.
6. Ownership of a residential house provides psychic satisfaction which other forms of investment may not offer.

Given the above advantages, our first priority as an investor should be to buy a residential site in an area where we plan to settle down and, thereafter construct a house as soon as our resources position permits us to do so. If we are not likely to live in that place in the foreseeable future, the construction of the house can be deferred. It may be noted that the rate of return earned on a wisely chosen portfolio of financial investments can cover the escalation in construction cost, but not perhaps the escalation in land cost. Hence, we should acquire the land as early as possible, preferably through some housing cooperative society, and undertake construction at an appropriate time. If the cost of an independent house is beyond your means, choose the alternative of buying a flat. In metropolitan areas, given the exorbitant land process, this may be the only option available to us.

4. Match our stock- bound mix to our investment situation:

After we have provided for our priority needs (cash reserve, insurance cover, and residential house),our most important decision is concerned with the stock-bond mix. What proportion of your assets should we allocate to stocks?or to bonds?

Our stock-bond mix depends on three factors, in the main:

- **Investment Horizon:** This is the period over which we will build up and hold our investments.
- **Risk Capacity:** This is our financial capacity to withstand investment losses.
- **Risk Tolerance:** This is our willingness or emotional ability to accept volatile returns.

The key guidelines relevant for the stock-bond mix are as follows:

1. Other things being equal, if our investment horizon is longer, our portfolio should be tilted in favour of stocks rather than bonds and if our investment horizon is shorter, our portfolio should be tilted in favour of bonds rather than stocks.
2. Other things being equal, if we have a greater capacity for risk, our portfolio should be tilted in favour of stocks rather than bonds and if we have a lesser capacity for risk our portfolio should be tilted in favour of bonds rather than stocks.
3. Other things being equal, if we have a greater tolerance for risk, our portfolio should be tilted in favour of stocks rather than bonds and if we have a lesser tolerance for risk, our portfolio should be tilted in favour of bonds rather than stocks.
5. **Select Stocks and Bonds (Fixed Income Instruments) Judiciously**

After we have chosen the stock-bond mix appropriate to our investment situation, we have to select stocks and bonds.

Stock Selection: Investors display widely different approaches to equity selection. At one end of the spectrum, we have aggressive investors constantly searching for undervalued stocks and at the other end of the spectrum we have very conservative investors who participate in index schemes. In general, we would do well if we go largely by fundamentals, without losing sight of technicals. This guideline along with the guidelines specifically applicable to aggressive and conservative investors will be discussed at some length in the following sections.

Bond Selection: The most popular forms of fixed income avenues (referred to very broadly as ‘bonds’ for our discussion) are:

1. Provident fund deposits
2. Fixed deposits with banks and post offices

3. Fixed deposits with companies
4. Income-oriented and growth-oriented debt schemes
5. Corporate bonds
6. Tax-free bonds
7. National Savings Certificates
8. Convertible debentures
9. Debt-oriented Unit Linked Pension Plans

The relative attractiveness of various fixed income avenues depends mainly on two factors: (a) need for tax shelter; and (b) preference for current income versus capital appreciation. The following matrix will broadly guide you in selecting fixed income avenues based on these two considerations. While the matrix provides broad guidelines, here are some specific suggestions:

1. If we are seeking to reduce our tax liability in the long run, deposit as liberally as we can in a recognised provident fund scheme and /or public provident fund scheme. Investment in provident fund schemes offer several advantages: (a) initial tax advantage; (b) continuing tax advantage; (c) facility for partial withdrawals; (d) satisfactory rate of return; and (e) immunity from attachment of a court decree. Given these advantages, it is a boon to the bulk of the investors. Hardly any other form of investment offers such attraction. Hence, it should be accorded a very high priority in our scheme of investments.
2. Give preference to income-oriented debt schemes and tax-free bonds if we are looking for a tax-sheltered current income. They offer attractive post-tax rates of return compared to other fixed income avenues.
3. Invest in good convertible debentures. Due to some peculiar reasons, convertible debentures, in general, sell for a price lower than the market value of the underlying equity. Yet, till the conversion takes place, the

interest income on them is higher than the dividend income provided by the underlying equity. Given this anomaly of the Indian stock market, it makes sense to buy convertible debentures.

4. Consider investment in non-convertible debentures, and corporate fixed deposit schemes under two broad circumstances: When taxable income is less than ₹ 250,000; and When we have exhausted the limits for various tax-sheltered investments.
5. While evaluating non-convertible debentures look at the following factors:
 - Yield to maturity
 - Credit rating
 - Maturity period
 - Buy-back facility
6. Look at the following factors before making a fixed deposit with a company.
 - Reserves and surplus in relation to paid up share capital
 - Track record of earnings and dividends
 - Reputation of management
 - Credit rating

6. Avail of Tax Shelters

While planning our investments bear in mind the following:

- Under Section 80C the following investments, inter alia, can be deducted before computing the taxable income: contributions to statutory or recognised provident fund, contribution to public provident fund, life insurance premiums, subscription to National Savings Certificates, contribution to unit-linked insurance plan, and contribution to any notified equity-linked savings scheme of a mutual

fund. Under Section 80 CCC, contributions to certain pension funds can be deducted before computing the taxable income. The maximum permissible deduction under Sections 80C and 80CCC is ₹ 150,000.

- Capital gains (losses) are divided into two categories: (i) long-term capital gains (losses), and (ii) short-term capital gains (losses). Long-term capital gains (losses) arise from the sale of equity shares and other securities that are held for more than 12 months (for all other capital assets the period of holding is 36 months); short-term capital gains (losses) arise from the sale of equity shares and other securities that are held for less than 12 months (for all other capital assets the period of holding is 36 months).
- Long-term capital gains (losses) are calculated as follows:

$$\begin{aligned} & \text{Sale} & & \text{Indexed cost of} & & \text{Indexed cost of} \\ & \text{Consideration} & - & \text{acquisition} & - & \text{improvement} \\ & & & \text{Expenditure incurred in} & & \\ & & & \text{- Connection with transfer} & & \end{aligned}$$

- Long-term capital gains from equity shares are tax-exempt, whereas short-term capital gains are taxable at the rate of 15 percent.
- If the taxable income excluding the capital gains is less than ₹ 250,000, then no tax is payable on so much of the long-term capital gains as is equal to the aforesaid shortfall.

We must plan to avail of the tax shelters available to you. Some suggestions in this regard are offered below:

- Deposit liberally or invest in (a) a recognised provident fund scheme and/or the PPF scheme, and (b) life insurance policy to reduce tax liability.
- Augment your tax-exempt current income by investing in equity shares, mutual fund schemes, and so on.

- Ordinarily, plan to hold your equity shares and other securities for at least one year to get the benefit of tax exemption.
- Avoid/reduce long-term capital gains by investing in specified securities, specified assets, and residential house as stipulated under Sections 54EC, 54ED, and 54F of the
- Income Tax Act.

6. Diversify Adequately:

Our investment strategy should be to diversify our holdings within an investment class and to hold different classes of assets (cash, bonds, stocks, and real estate) in our portfolio. Often individual investor portfolios are not diversified properly. They are either under-diversified or over-diversified. I have seen a number of individual portfolios dominated by just 1 or 2 stocks which may account for 60 to 80 percent of portfolio value. Clearly such portfolios are under-diversified and exposed to unnecessary unsystematic risk. I have also seen individual portfolios which are over-diversified, having 30 to 60 different shares. This may be mainly due to the following reasons: (a) The number of shares received at the time of public issue is often small. As a result, investors tend to have a large number of different shares in small quantities. (b) Investors perhaps feel psychologically secure with a large number of different shares in their portfolio. (c) There is reluctance on the part of investors to sell shares. We must, however, realise that diversification beyond a certain point does not bring any appreciable gain in terms of risk reduction, which is usually the principal motivation for diversification. Empirical studies have provided reasonably conclusive evidence in support of the hypothesis that the bulk of the benefit from diversification, in the form of risk reduction, can be achieved by forming a portfolio of about 15 stocks; thereafter, the gains from diversification tend to be negligible. In view of this relationship, we should normally plan to have 15-20 stocks in a portfolio. If we have fewer stocks in our portfolio, we may be unnecessarily exposed to risk which can be easily diversified away. The 15 to 20 stocks held by you should span at least 4 different industries with no single industry accounting

for more than, say, 40 percent of our equity investment. If we have more stocks in our portfolio, transaction and monitoring costs to increase, without any worthwhile reduction in risk. More important, an overly diversified portfolio dilutes focus which in turn is likely to impair the quality of investment management. If we have 15 stocks in our portfolio, we are likely to be circumspect in your decision making and attentive in our monitoring, because each stock accounts for, on average, 6.67 percent of our portfolio value. On the other hand, if we have 50 stocks in our portfolio, we are likely to be cursory in your decision making and negligent in our monitoring, because each stock accounts for, on average, just 2 percent of our portfolio value. We have to track company actions (dividend, rights, and bonus announcements), company news, share prices, periodic results, industry trends, and so on, so that we can time our decisions well. Even a full time investor cannot track more than 50 stocks. Unfortunately, investors forget what they already have and yearn for new investment opportunities. This happens more so in a bull market, when they don't want to miss the next 'hot' thing and keep adding to their problems. We should diversify your bond portfolio along with your equity portfolio. Note that the diversification of bond portfolio serves a different purpose than the diversification of equity portfolio. In the case of bonds we do not refer to systematic or unsystematic risk. Instead, we are concerned with two other types of risk viz., default risk and interest rate risk. In a bond portfolio, we try to diversify these two types of risk.

8. Periodically Review and Revise the Portfolio:

Often investors do not review and revise their portfolios regularly. This may be due to a variety of reasons:

- Lack of time and inclination to undertake periodic review and revision.
- Sticky portfolio habits (many investors have a reluctance to sell securities because they are likened to gold or real estate to be liquidated only during a time of financial distress).

- An inadequate appreciation of the benefits of periodic review and revision.

Since the world of investments is highly dynamic and rapidly changing, it behooves upon every investor to periodically review his portfolio and revise it in the light of changed circumstances. Over time, several changes are likely to take place:

- Relative market values of various securities in the portfolio tend to change.
- New information may alter the risk-return prospects of various securities.
- Funds may be made available for portfolio investment; or funds may be required from the portfolio.
- Investor disposition toward risk may itself change, albeit very gradually.

In order to cope with these changes, periodic review and revision is required to:

- Maintain adequate diversification when relative values of various securities in the portfolio change.
- Incorporate new information relevant for risk-return assessment.
- Expand or contract the size of portfolio to absorb funds or withdraw funds.
- Reflect changes in investor risk disposition.
- Ensure that the target asset-mix is maintained.

How often should the exercise of portfolio review and revision be undertaken? As this exercise entails monitoring costs, transaction costs, and taxes, its periodicity should be so fixed that its benefits are maximised in relation to its costs. This means that (a) if the investment environment is

volatile, review should be more frequent, (b) if an active approach is followed, review should be more frequent,

9. Check Irrationality:

As human beings we are endowed with certain characteristics of mind and behaviour that lead to imperfect decisions and even dreadfully serious mistakes. Often we are not rational and we do not act in our own best interests. For example:

- We ignore the “base rate” in preference to the “case rate.”
- We overreact to good news as well as bad news.
- We are impatient.
- We tend to be overoptimistic and not realistic.
- We are proud and unwilling to admit our mistakes.
- We are susceptible to hot tip investing.
- We naively believe in foolproof schemes.
- We easily succumb to herd mentality.

That is why to succeed as an investor, we must first know ourselves. Our intellectual capabilities and our emotional capabilities will largely determine our investment success. Our intellectual capabilities include our ability to analyse financial statements, your memory and recall power, our capacity to master and manage knowledge, our flair for developing insights and understanding from amorphous data and information, and so on. Our emotional capabilities include our ability to maintain composure in a chaotic environment and our capacity to deal rationally with volatility and disruptions that we face everyday.

10. Maximise our Lifetime Financial Success

There are five stages or dimensions of our lifetime financial success:

- Earning

- Saving
- Investing
- Contributing
- Estate planning

We should strive to maximise achievement in each of these areas, within the set of opportunities available to us, while enjoying a full and balanced life. If we have resources in excess of what we wish to transfer to our family and others we care about, we have rewarding opportunities to contribute to worthwhile causes. We may find great fulfillment in converting our financial resources (which represent the stored values of your hardwork, skills, and good fortune) into actions that advance causes that we truly care about. Here are some possibilities:

- Provide scholarship to young children who are economically deprived.
- Support hospitals and shelter homes that help the needy and indigent.
- Contribute to organisations engaged in scientific or medical research.
- Espouse institutions that work for environmental protection.

In addition to contributing money, you should also commit your time, talents, and energy to initiatives and endeavours that you believe in. It can be profoundly rewarding to see how real, living people and institutions benefit from your active participation and involvement. As Charles Ellis put it: “As with other areas of investing, it’s wise to plan ahead, to be conservative (within limits), and to make productive use of time by beginning early and sustaining your commitments over as long a period as you can provide yourself

13.4 GUIDELINES FOR EQUITY INVESTING

While selecting fixed instruments is relatively straightforward, selecting stocks (equities) is somewhat confusing, difficult, and frustrating. Most investors have difficulty in identifying individual stocks or equity-

oriented mutual fund schemes. This section discusses a general guideline for all investors and some specific guidelines for aggressive and conservative investors.

13.4.1 A General Guideline :

In choosing equity shares go largely by fundamentals but do not lose sight of technicals. This broad guideline may be implemented in terms of two sub-guidelines: (a) establish value anchors, and (b) combine fundamental and technical analysis.

- a) **Establish Value Anchors:** The intrinsic value of a share is determined by three fundamental factors: earnings (and dividend) level, growth prospects, and risk exposure. With the help of the analysis discussed earlier, we can get a handle over these factors and estimate the intrinsic value by employing the dividend capitalisation model or the earnings capitalisation approach. However, as valuation is essentially an uncertain and imprecise exercise, it would be naïve to put great faith in a single point intrinsic value estimate. Practical wisdom calls for defining an intrinsic value range around the single point estimate.

In establishing the value anchor, we may have to use a price-earnings (PE) ratio. Remember that it is theoretically equal to:

$$\frac{\text{Payout ratio}}{\text{Discount rate} - \text{Growth rate}}$$

For example, if we expect the payout ratio to be 0.5, the discount rate to be 0.16, and the growth rate to be 0.12, we establish the (PE) ratio as follows:

$$\frac{0.5}{0.16 - 0.12} = 12.5$$

If there is a discrepancy between the actual PE ratio and the PE ratio established by us, examine the PE ratio for the stock for the last 3 to 5 years and the PE ratio for the industry. The above evidence provides

useful clues to certain factors that we may have overlooked but the market considers relevant. Based on this information, we may modify our initial assessment. For example, if our initial assessment suggests that a reasonable price-earnings ratio for a certain share is 12.5 but you find that the 5-year average price-earnings ratio for the share has been 16.0 and the current average price-earnings ratio for the industry to which this share belongs is 15.0, we may revise our assessment upwards to reflect these pieces of information. The adjustment will have to be necessarily judgmental in nature

- b) **Combine Fundamental and Technical Analysis:** As stock prices are governed by fundamental factors as well as psychological influences, practical wisdom suggests that fundamental analysis must be used in conjunction with technical analysis. The indications of fundamental and technical analyses may be combined as follows in a decision matrix:

Fundamental Analysis	Undervalued	Overvalued	
Technical	Weak	Wait	Sell
Analysis	Strong	Buy	Wait

It is instructive here to recall three rules prescribed by Burton Malkiel in his fascinating book *A Random Walk Down Wall Street*:

1. Buy only companies that are expected to have above-average earnings growth for five or more years.
2. Never pay more for a stock than its firm foundation value.
3. Look for stocks whose stories of anticipated growth are the kind on which investors can build castles in the air.

13.4.2 Guidelines for Aggressive Investors:

Aggressive equity investors play the equity game actively and vigorously. They spend more time and effort in managing their portfolio than

their conservative counterparts. They are inclined to take greater risks, albeit in a calculated manner, to earn superior rates of return. They seem to relish the thrill and adventure of playing the equity game. In addition to the general guidelines for equity investment, aggressive equity investors should also bear in mind the following guidelines specially relevant for them.

1. Focus on investments you understand and play your own game.
2. Monitor the environment with keenness.
3. Scout for 'special' situations in the secondary market.
4. Pay heed to growth shares.
5. Beware of the games operators play.
6. Anticipate earnings ahead of the market.
7. Take swift corrective action.

1. **Focus on investments we understand and play our own game:** If we want to manage our investments we should know more than the market does about the company we are investing in. Hence we will have to decide on what to focus on. Most investors go about this very casually. Yet this decision will be the key to your success. We have to decide whether we will concentrate on growth, value, small companies, or multinational companies, or public sector companies, or high-grade bonds, or lowgrade bonds, or whatever. As John Train says: "Whatever strategy we follow, we should follow three rules: be thorough, tough-minded, and flexible; know a great deal about any company you buy into; and only buy when the company is misunderstood by the market." Every investor has a zone of competence that defines the kind of investing in which he is really skillful and a zone of comfort that represents the area of investing in which he is calm and comfortable.
2. **Monitor the environment with keenness:** If we want to manage our investments aggressively, we have to monitor important developments affecting the economy, various industrial sectors, and individual

companies. We should try to understand, evaluate, and anticipate change with keenness.

3. Scout for Special Situations in the Secondary Market: Profitable investment opportunities exist in the secondary market. However, they are often not easy to identify. They perhaps occur with greater likelihood in the following situations.

- **Turnaround Situations** A turnaround occurs when a company steeped in bad performance and losses for years begins to recover. Because of its dismal past and accumulated losses, its shares often sell at a discount - a ₹ 10 per value share may sell for ₹ 2 to Rs. 5. When the company recovers fully and can look forward to a confident future, the share price appreciates dramatically. A ₹ 10 par value share may zoom to ₹ 20 to Rs. 40 or even more. Some examples of such turnaround performance are: EID Parry, SAIL, and Arvind Mills. In cases of this kind, investors who anticipate the turnaround ahead of the market and buy when the share prices are relatively depressed, gain substantially. In other words, they reap the rewards for their alertness and perceptiveness.
- **Amalgamations:** Amalgamation, also referred to as a merger, refers to a combination of two (or more) companies into one company. Generally, amalgamation is advantageous to both the companies as it results in operational economies better utilisation of tax shields, and risk reduction. Hence, shares of companies participating in an amalgamation scheme tend to be attractive investment opportunities.
- **Takeovers:** A takeover involves the acquisition of a certain block of equity capital of a company which enables the acquirer (also referred to as the raider) to exercise control over the affairs of the company. Whenever there is a takeover bid, the market price of the target company tends to shoot up because of frantic buying by the raider as well as the existing controlling group (which is interested in consolidating its holding to avert the takeover bid). We have witnessed

this in many cases like DCM, Escorts, Raasi Cement, and Indian Aluminium. Whether successful or not, takeover bids provide opportunities for the shareholders of target company to sell their shares at inflated prices and for other investors who buy in anticipation of the price rise.

- **Bonus Issues and Stock Splits:** When a company issues bonus shares, it capitalizes a portion of its reserves and surplus and when a company resorts to a stock split, it reduces the par value of the share and issues more shares correspondingly. In both the cases: (a) the shareholders' proportional ownership remains unchanged; and (b) the book value per share, the earnings per share, and the market price per share decrease, but the number of shares increases. This implies that a bonus issue or a stock split is more or less a financial gimmick without any real impact on the welfare of equity shareholders. Still shareholders greet bonus issues and stock splits with a lot of cheer.

4. **Pay Heed to Growth Shares** There are many fundamental analysts who believe that investors would do well if they focus on growth stocks. Their investment philosophy consists of three basic guidelines: (a) Develop sound standards for selecting growth stocks. (b) Invest in growth stocks, without much concern for the price. (c) Hold growth stocks, as long as they remain growth stocks. Without being unduly bothered about timing, growth stock advocates argue that if the right growth stocks are bought and held as long as they remain growth stocks, superior returns are earned. What criteria are relevant for selecting growth stocks? Philip A. Fisher, a prominent growth stock advocate, lists fifteen distinct points to identify growth stocks. The major points suggested by him are: (a) products and services with significant potential for increases in sales; (b) managerial determination to develop new products to substitute the present products when they reach maturity; (c) substantial profit margin; (d) good labour relations; (e) effective cost controls; (f) competitive

strength; (g) integrity; and (h) depth of management. While different growth stock advocates may suggest different criteria, the essence of these criteria would be substantially the same.

5. **Beware of the games operators play:** Ideally, the stock market is supposed to be highly competitive and efficient, where no single participant (or group of participants) can significantly influence prices. In practice, however, the stock market in India suffers from imperfections and inadequacies that permit operators to play certain games that can be detrimental to the unwary and unguarded; though, of course, the smart investors can profit from them. As an investor beware of the manipulation done to artificially push up share prices and create conditions for disposing of a large block at inflated prices. The operation often involves the following steps:

- The manipulator ‘activates’ the target share by resorting to scattered buying in a disguised manner through a few brokers simultaneously.
- As the price moves up in response to this buying, newsletters, brokers, and financial magazines are persuaded to recommend the share to the investing public, sometimes with very specific claims that the price will double in three to six months.
- As investors are drawn into the game, the upward price movement is maintained with some further support from the manipulator. As a result, the claims of doubling or so are fulfilled. This in turn attracts the interest of more and more investors which tends to further fuel the price rise.
- When the share becomes very buoyant and the volume of trading increases sufficiently, the manipulator begins to offload his bulk holding. This is usually done in installments, taking into account the absorptive capacity of the market. Sometimes, the manipulator may even resort to short-selling when the price is buoyant because he knows that the investor demand would eventually fall off, leading to price declines when he can profitably square off his short sales.

If his strategy works well, the manipulator gains in two ways: (a) he liquidates his large holdings during the buoyant phase; and (b) he covers his short sales in a declining market. Along with the manipulator, the early entrants benefit provided they book their profits at the right time. Finally the brokers gain in the form of large trading commissions. The real losers are the late buyers who are lured into this game when the prices are near their peak level.

6. **Anticipate Earnings Ahead of the Market** Expectation of future earnings is perhaps the most important single factor affecting stock prices. Projected earnings are the key element for establishing a stock's intrinsic value. If the market expects earnings per share to increase, the price per share would go up; likewise if the market anticipates earnings per share to fall, the price per share will decline. While forecasting future earnings, do not rely on mechanical extrapolation of the past trend. Empirical studies suggest that past growth in earnings is almost useless in predicting future growth in earnings. Bear in mind the following insights provided by the extensive empirical work on the time series behaviour of earnings.
 - There is a substantial degree of randomness in the time series behaviour of earnings. Put differently earnings follow a martingale process, implying that successive changes in earnings are independent. However, this martingale process is superimposed on an upward trend.
 - Whenever departures from randomness have been found, correlation coefficients of successive changes in earnings have been found to be slightly negative.
7. **Take Swift Corrective Action** The smart investor knows when to shed a share, which is a losing proposition, but the dumb investor does not. The average investor is reluctant to sell at a loss. This is understandable. Since he bought the shares to make a profit, he cannot reconcile himself to a loss. Yet, one must have the candour to admit one's mistakes - we all make mistakes in our investment decisions and we must have the

courage to discard losing shares. When the market price of a share is less than what we have paid for, perhaps we have erred. So, we must cut your losses as early as possible rather than wishfully think that the share will rebound so that we can break even. There is a simple way of doing this. When we buy a share, specify the stop-loss limit. (It may be 5 to 15 percent.) When the share falls by 10 percent (or whatever your stop-loss limit is) unload it. This may be an easy approach to discipline yourself and avoid irrational considerations like loss of pride, sentimental attachment to the share, or wishful thinking about its recovery.

13.4.2 Guidelines for conservative investors

Conservative equity investors seek to minimise investment risk as well as the time and effort devoted to portfolio management. What they want is peace of mind, not the adventure of aggressive investment. Satisfied with a reasonable return, they do not deliberately strive for spectacular gains. Conservative equity investors should also bear in mind the following guidelines specially applicable to them.

1. Participate in the schemes of mutual funds.
 2. Join a suitable portfolio management scheme
 3. Consult an investment advisor
 4. Avoid certain kinds of shares
 5. Apply stiff screening criteria
 6. Look for relatively safe opportunities in the primary market
- 1. Participate in the Schemes of Mutual Funds** Apart from the Unit Trust of India which was set up in 1964, a number of mutual funds have been set up in recent years. In addition to a number debt-oriented schemes, these mutual funds have floated equity-oriented schemes meant for investors who want to have a share in a broadly diversified equity portfolio. In general, these schemes are good vehicles for

participating in the market. The primary reason is that investing in equity can be very demanding for an individual investor. It requires a lot of time, attention, and effort to gather and process information. The general advantages of such schemes are:

- Benefit of diversification
- Tax shelter
- Professional management
- High liquidity
- Minimal paper work

Given the dynamic changes in the world of investments, most individual investors may find it difficult to manage their equity investments. So they would do well to a substantial portion of the stock component of their portfolio in equity-oriented mutual fund schemes. Indeed, for most investors the real contrarian approach to investing is to rebel against their instinct to analyse trends, financial statements, technical factors, investment recommendations, and various other factors that have a bearing on stock prices. They are likely to be a lot richer if they invest in a few broadly diversified equity oriented mutual fund schemes and make regular contributions to them for the next 10, 20, or 30 years, ignoring everything else. An attractive option for a conservative investor may be an index scheme which pursues a passive strategy and entails a lower management fees. Another attractive option is a Closed-ended mutual fund scheme selling at a tempting discount over its NAV.

2. **Join a Suitable Portfolio Management Scheme:** While mutual funds have great attraction for smaller investors, portfolio management schemes offered by financial companies, banks, and money managers may have greater appeal to larger investors. These schemes are of two types: (i) discretionary schemes, and (ii) non-discretionary schemes.

Under a discretionary portfolio management scheme, the client places the funds with the portfolio manager who invests these funds as per his discretion and looks after all the attendant paper work. While the profits and losses on the portfolio belong to the investor, the portfolio manager receives a fee for the services rendered which is generally linked to the returns provided by the portfolio. The basic difference between a discretionary scheme and a non-discretionary scheme is that under the former scheme, the portfolio manager enjoys the discretion to invest, whereas under the latter scheme the portfolio manager offers advice which the investor may accept or reject. Thus, under the non-discretionary scheme, the investor places funds with the portfolio manager, the portfolio manager offers counsel to the investor, the investor communicates his decisions, the portfolio manager executes the decisions of the investor and looks after all the paper work. For the services provided by him, the portfolio manager charges a fee. The profits and losses of the portfolio, of course, belong to the investor. Generally, discretionary portfolio management schemes offer better returns because the portfolio manager can respond quickly to market developments and also participate in money market instruments to avoid funds from remaining idle. However, when we decide to participate in a portfolio management scheme (discretionary or nondiscretionary) remember two things:

- The minimum amount accepted under such schemes is quite high. (It is typically Rs. 2 million or so).
 - There are portfolio managers and portfolio managers. Hence satisfy yourself about the integrity and competence of the portfolio management firm before joining its portfolio management scheme.
- 3. Consult an Investment Advisor:** A professional investment advisor (or counsel) assesses the situation and suggests a portfolio that can realistically help to achieve investment objectives. An investment advisor, as compared to a mutual fund, is not interested in selling

anything. Hence he is likely to suggest a portfolio that is more suitable to our needs and circumstances. While choosing a professional advisor ask the following questions: Does he have intellectual honesty? Is he realistic? Does he have patience? Is he competent in at least one investment approach? Does he derive satisfaction from helping others, rather than becoming rich himself? One should meet his investment advisor periodically (every six months or so), discuss his situation, and take suggestions and ideas.

4. **Avoid Certain Kinds of Shares:** Experience suggests that the following kinds of shares are not suitable for conservative investors.
 - **Shares of Unlisted Companies:** There are more than 10,000 public limited companies in India. Only about 7,000 of these are listed on the stock exchanges, the rest are not. Don't buy shares of unlisted companies. There is no organised market for them and there is no reliable way of assessing their market price. How does one find out whether a share is listed or not? It is very simple: a listed share is included in the quotation list of the stock exchanges where it is listed; an unlisted share is not included in the quotation list.
 - **Inactively Traded Shares:** Listing does not ensure liquidity. A major bane of the Indian equity investors is that many listed shares are not actively traded. One should avoid such shares. To find out whether a share is actively traded or not, look at the frequency with which it has been traded in the last three months or so. If the trading volume is less than 1,000 shares a day or so, it may be regarded as an inactively traded share.
 - **Manipulated Shares** Some business groups resort to manipulation of the shares of their companies. This mostly is in the form of market support to boost share prices, particularly before a public issue or rights issue. It can take other forms as well. Besides manipulating share prices, such groups also resort to 'creative accounting' meant to

enhance reported profit artificially. As a general guideline, avoid such manipulated shares.

- **Cornered Shares** Stock market operators engage in cornering operations from time to time. While such shares may excite aggressive investors, conservative investors, as a rule, should scrupulously avoid such shares.
5. **Apply Stiff Screening Criteria:** The conservative investor should consider only those shares in the secondary market which satisfy stiff requirements. The screening criteria are as follows:
- **Size:** The company should not be very small. Its turnover should preferably be greater than Rs. 100 crore and its equity base larger than Rs. 20 crore.
 - **Competitive Position:** The company must have a reasonably strong competitive position. It should enjoy a respectable share of the market. Better still, it should have a market share that is growing.
 - **Industry Prospects** The prospects of the industry to which the company belongs must be above average. It should certainly not be an industry that is stagnating or declining.
 - **Price-earnings Ratio** The price-earnings ratio of the company must not be very high. As a general guideline, one has to be very cautious if the price-earnings ratio is more than 20 and/or significantly higher than the industry average.
 - **Dividend and Bonus Record** The company should have a reasonably good track record of dividend payment and bonus shares. Such a record indicates that the management is investor-friendly. And this should be an important consideration for investors.
 - **Reputation of Management** The management of the company must have a reputation for competence, commitment, dynamism, and integrity. Remember that the 'management' factor often plays a decisive and critical role in the success or failure of a company.

6. **Look for Relatively Safe Opportunities in the Primary Market:** If we are a conservative investor, we may be hesitant to buy shares in the secondary market. This may be partly because volatility bothers us and partly because we feel that locating good bargains may be very time-consuming. So, we may turn your attention to the primary market, the market where the companies issue new securities. Here one may be interested in the following:

- a. Public issues of equity shares and/or convertible debentures by established companies.
- b. Rights issue of equity shares and/or convertible debentures by established companies.

a) **Public Issues of Equity Shares and Convertible Debentures of Established Companies:** When an established company issues equity shares and convertible debentures to the public at large, the issue price is likely to be set in such a manner that it represents a discount over the prevailing market price. Hence, such issues may represent an attractive investment opportunity for investors. Obviously, when such issues are very attractive, they are heavily oversubscribed. As a result, the chances of allotment and hence expected gains diminish. Yet, such issues should not normally be missed by investors who are looking for opportunities in the stock market.

b) **Rights Issues of Equity Shares and Convertible Debentures of Established Companies:** When a company issues additional equity capital, it has to be offered in the first instance to the existing shareholders on a pro rata basis. This is required under the Companies Act, 2013 (the shareholders, however, may forfeit this right by passing a special resolution).

Theoretically, the market value of a right is equal to:

Expected market price per share after the right issue- Subscription price per share

For example, if the expected market price after the rights issue is ₹ 30 and the subscription price per rights share is ₹ 20, the market value of a right theoretically will be ₹ 10. Hence, the wealth of a shareholder remains unaffected whether he exercises his rights or sells them. In practice, however, the market value of a right is usually less than its theoretical value. So, the investor who sells his rights tends to lose. Hence, as a shareholder, we should exercise our rights in full and also, whenever possible, buy additional rights in the market place.

13.5 SUMMARY

- There are ten commandments of investing which should serve as basic guidelines for all investors. They are as follows: (i) Start saving early and save regularly. (ii) Maintain an adequate cash reserve and an appropriate insurance cover. (iii) Accord top priority to a residential house. (iv) Match our stock-bond mix to our investment situation. (v) Select bonds and stocks judiciously. (vi) Diversify adequately. (vii) Avail of tax shelters. (viii) Periodically review and revise the portfolio. (ix) Check our irrationality. (x) Maximise our lifetime financial success.
- Aggressive investors play the equity game actively and vigorously. In addition to the general guidelines for investment, aggressive equity investors should bear in mind the following guidelines specially relevant for them: (i) Focus on investments we understand and play our own game. (ii) Monitor the environment with keenness. (iii) Scout for 'special' situations in the secondary market. (iv) Pay heed to growth shares. (v) Beware of the games operators play. (vi) Invest selectively in new issues. (vii) Anticipate earnings ahead of the market. (viii) Take swift corrective action.
- Conservative equity investors seek to minimise the investment risk as well as the time and effort devoted to portfolio management. In addition to the general guidelines for investment, conservative equity investors

should also bear in mind the following guidelines specially applicable to them: (i) Avoid certain kinds of shares. (ii) Apply stiff screening criteria. (iii) Look for relatively safe opportunities in the market. (iv) Participate in the schemes of mutual funds. (v) Join a suitable portfolio management scheme. (vi) Consult an investment advisor

13.6 GLOSSARY

- **Amalgamation:** An amalgamation is a combination of two or more companies into a new entity. Instead, a completely new entity is formed to house the combined assets and liabilities of both companies amalgamation
- **Takeover:** A takeover occurs when one company makes a bid to assume control of or acquire another, often by purchasing a majority stake in the target firm. Takeovers are typically initiated by a larger company for a smaller one. They can be voluntary, i.e. they are the result of a mutual decision between the two companies.
- **Tax shelter:** A *tax shelter* is a vehicle used by individuals or organizations to minimize or decrease their taxable incomes and, therefore, *tax* liabilities.
- **Price earning ratio:** The price to earnings ratio (PE Ratio) is the measure of the share price relative to the annual net income earned by the firm per share. PE ratio shows current investor demand for a company share. A high PE ratio generally indicates increased demand because investors anticipate earnings growth in the future.
- **Convertible debentures:** A convertible debenture is a type of long-term debt issued by a company that can be converted into stock after a specified period. Convertible debentures are usually unsecured bonds or loans meaning that there is no underlying collateral connected to the debt.
- **Corporate bonds:** A corporate bond is a type of debt security that is

issued by a firm and sold to investors. The backing for the bond is generally the ability of the company to repay, which depends on its prospects for future revenues and profitability. In some cases, the company's physical assets may be used as collateral.

13.7 SELF ASSESSMENT QUESTIONS

Q1 Discuss the ten basic guidelines for investing.

Ans _____

Q2 Explain the general guidelines for equity investors.

Ans _____

13.8 LESSON END EXERCISE

Q1 Write a detailed note on the guidelines for aggressive equity investors.

Ans _____

Q2 Discuss in detail the guidelines for conservative equity investors.

Ans _____

13.9 SUGGESTED READINGS

1. I. M. Pandey, Financial Management, Vikas Publishing House, 9th Edition.
2. V.A. Avadhani, Security Analysis and Portfolio Management, Himalaya Publishing House, 10th Revised Edition.
3. Prasanna Chandra, Investment Analysis and Portfolio Management, McGraw Hill Education, 5th Edition.
4. PunithavathyPandian, Security Analysis and Portfolio Management, Vikas Publishing House, Second Edition.

GUIDELINES FOR INVESTMENT DECISIONS- THE TEN COMMANDMENTS & GUIDELINES FOR EQUITY INVESTING

STRUCTURE

- 14.1 Introduction
- 14.2 Objectives
- 14.3 Specification of investment objectives and constraints
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 - 14.5.3 Strategic asset allocation process
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14.1 INTRODUCTION

Investment management, also referred to as portfolio management, is a complex process or activity that may be divided into following broad phases:

- Specification of investment objectives and constraints
- Quantification of capital market expectations
- Asset allocation
- Formulation of portfolio strategy

These four phases viz., specification of investment objectives and constraints, quantification of capital market expectations, asset allocation, and formulation of portfolio strategy may be collectively referred to as investment policy and strategy. These phases are interrelated with each other. Investment management refers to the handling of financial assets and other investments not only buying and selling them. Management includes devising a short- or long-term strategy for acquiring and disposing of portfolio holdings. It can also include banking, budgeting, and tax services and duties, as well. The term most often refers to managing the holdings within an investment portfolio, and the trading of them to achieve a specific investment objective. Investment management is also known as money management, portfolio management, or wealth management. Professional investment management aims to meet particular investment goals for the benefit of clients whose money they have the responsibility of overseeing. These clients may be individual investors or institutional investors such as pension funds, retirement plans, governments, educational institutions, and insurance companies. Investment management services include asset allocation, financial statement analysis, stock selection, monitoring of existing investments, and portfolio strategy and implementation. Investment management may also include financial planning and advising services, not only overseeing a client's portfolio but coordinating it with other assets and life goals. Professional managers deal with a variety of different securities and financial assets, including bonds, equities, commodities, and real estate. The manager may also manage real assets such as precious metals, commodities, and artwork.

Managers can help align investment to match retirement and estate planning as well as asset distribution.

14.2 OBJECTIVES

The objectives of this lesson are:

1. To discuss the objectives, constraints, and preferences of the investor.
2. To define the hierarchy of capital market expectations.
3. To select an asset mix based on the investor's time horizon and risk tolerance.
4. To explain different types of asset allocation.

14.3 SPECIFICATION OF INVESTMENT OBJECTIVES AND CONSTRAINTS

The first step in the portfolio management process is to specify the investment policy which summarises the objectives and constraints of the investor. The investment policy may be expressed as follows:

A. Objectives:

- Return requirements
- Risk tolerance

B. Constraints:

- Liquidity
- Investment horizon
- Taxes
- Regulations
- Unique circumstances

Now, we shall discuss them one by one:

A. Objectives

Although all investments involve risk, including the potential loss of principal, some securities (such as equities) involve more risks than other securities. Higher-risk investments may have the potential for higher returns but also for greater losses. The higher the risk tolerance, the more we may invest in higher-risk securities offering the potential for greater returns. While there is no foolproof strategy to ensure us that they are making appropriate investments, our financial advisors will be there to help make informed decisions. Generally speaking, investment objectives span a spectrum with “Income” investors generally having portfolios that emphasize current income and “Growth” investors having portfolios that emphasize capital appreciation with minimal consideration for current income. Similarly, risk tolerances start with “Conservative” and move to “Moderate” then “Aggressive.” At each step, an investor is willing to accept more risk.

Below, the definitions for the different investment objectives and risk tolerances are provided:

1. Income investors
2. Growth and income investors
3. Growth investors
4. Trading and speculation investors

1. Income Investors

Income investors seek a maximum amount of income given their risk tolerance and are willing to forgo capital appreciation and growth of income in order to seek a higher level of current income.

- **Risk tolerance conservative:** Conservative income investors seek the maximum amount of income consistent with a modest degree of risk. They are willing to accept a lower level of income in exchange for lower risk. Equities and high-yield bonds will typically not be a large percentage of the account.

- **Risk tolerance moderate:** Moderate income investors seek to balance potential risk with increased income potential. Equities and high-yield bonds will typically be some percentage of the account.
- **Risk tolerance aggressive:** Aggressive income investors seek a significant level of income, and due to their long-term time horizon or other factors, they use higher-risk, more aggressive strategies that may offer higher potential income. Equities and high-yield bonds may be a significant percentage of the account.

2. Growth & Income Investors

Growth and income investors seek current income but also seek income and capital growth over time. These investors are willing to forgo a portion of current income in order to provide for potential future growth.

- **Risk tolerance conservative:** Conservative growth and income investors seek the maximum growth and income consistent with a relatively modest degree of risk. They are willing to accept lower potential returns in exchange for a lower-risk investment. Equities will typically be some percentage of the account and will typically pay dividends.
- **Risk tolerance moderate:** Moderate growth and income investors seek to balance potential risk with higher potential growth and income. Equities are typically a significant portion of the account and will typically pay dividends.
- **Risk tolerance aggressive:** Aggressive growth and income investors seek a significant level of growth and income, and their long-term time horizon and/or other factors allow them to pursue higher-risk, more aggressive strategies that may offer higher potential returns. Equities are typically the primary asset in the account and will typically pay dividends.

3. Growth Investors

Growth investors do not seek account income; their primary objective is capital appreciation.

- **Risk tolerance conservative:** Conservative growth investors seek maximum growth consistent with a relatively modest degree of risk. They are willing to accept lower potential returns in exchange for lower risk. Equities will typically be a significant portion of the account.
- **Risk tolerance moderate:** Moderate growth investors seek to balance potential risk with their goal of higher potential growth. Equities are typically the primary asset in the account.
- **Risk tolerance aggressive:** Aggressive growth investors seek a significant level of growth, and due to their long-term time horizon or other factors, they use higher-risk, more aggressive strategies that may offer higher potential returns. Equities may be as much as 100% of the account.

4. Trading & Speculation Investors

Trading and Speculation investors seek maximum return through a broad range of investment strategies, which generally involve a high level of risk, including the potential for significant loss of principal.

B. Constraints

In pursuing the investment objective, which is specified in terms of return requirement and risk tolerance, we should bear in mind the constraints arising out of or relating to the following factors:

1. **Liquidity:** Liquidity refers to the speed with which an asset can be sold, without suffering any discount to its fair market price. For example, money market instruments are the most liquid assets, whereas antiques are among the least liquid. Taking into account your cash

requirements in the foreseeable future, you must establish the minimum level of 'cash' you want in your investment portfolio.

2. **Investment Horizon:** The investment horizon is the time when the investment or part thereof is planned to be liquidated to meet a specific need. For example, the investment horizon may be ten years to fund a child's college education or thirty years to meet retirement needs. The investment horizon has an important bearing on the choice of assets.
3. **Taxes:** What matters finally is the post-tax return from an investment. Tax considerations therefore have an important bearing on investment decisions. So, carefully review the tax shelters available to you and incorporate the same in your investment decisions.
4. **Regulations:** While individual investors are generally not constrained much by law, institutional investors have to conform to various regulations. For example, mutual funds in India are not allowed to hold more than 10 percent of the equity shares of any single public company.
5. **Unique Circumstances:** Almost every investor faces unique circumstances. For example, an individual may have the responsibility of looking after ageing parents. Or, an endowment fund may be precluded from investing in the securities of companies making alcoholic products and tobacco products.

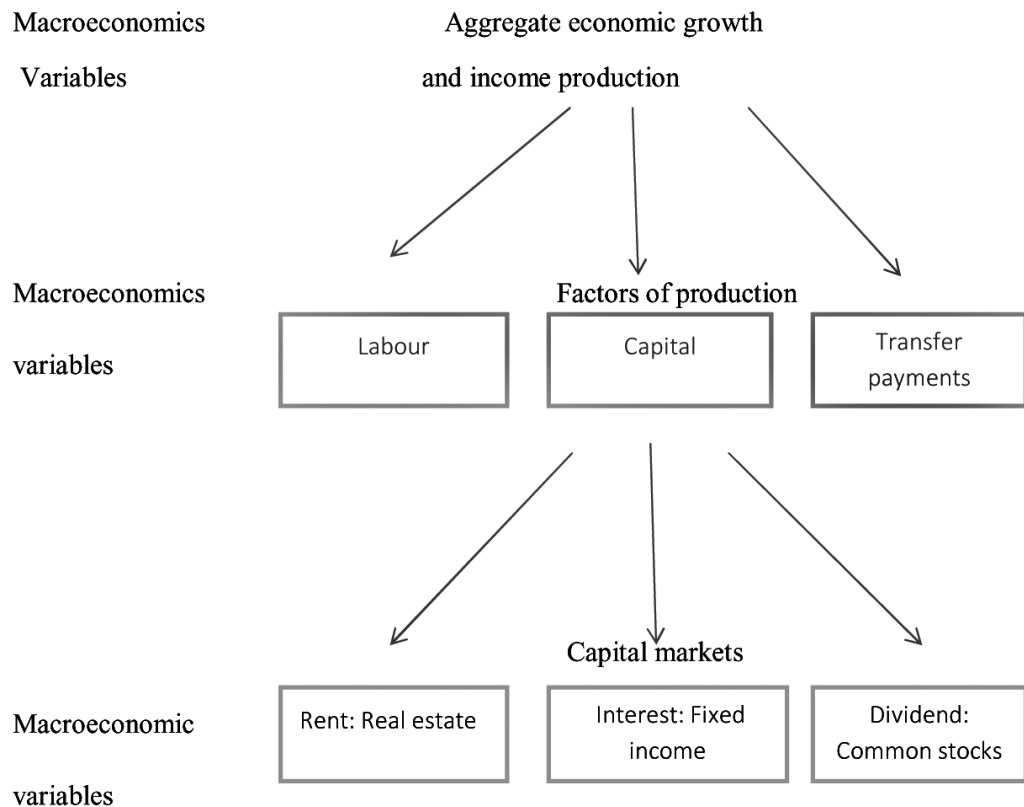
14.4 QUANTIFICATION OF CAPITAL MARKET EXPECTATIONS

After specifying the investment objectives and constraints, we have to address the following questions:

1. What asset classes should be included or excluded from the portfolio?
2. What weights (or proportions) should be assigned to the selected asset classes?

- Which specific securities or investments should be held, within each asset class, and in what amounts?

The first two questions relate to asset allocation and the third question relates to security selection. To address the questions relating to asset allocation, we need relatively long-term estimates of returns, standard deviations, and cross-correlations for various asset classes. Developing such estimates calls for forecasting what the aggregate economic output would be, how the aggregate economic output will be distributed among factors of production (such as labour and capital), and how the income for capital factor will be allocated across various asset classes (such as stocks, bonds, and real estate). Exhibit 1 displays the capital market forecasting hierarchy as suggested by First Chicago Investment Advisors.



Assessing Market Outlook: For assessing the market outlook, consider three factors: historical patterns of bull and bear markets, indicators of investor sentiment and behaviour, and valuation metrics like price to book or price to cash flow.

- When the length of time and the magnitude of the rise or fall are high in relation to history, the odds of a trend reversal are high.
- When indicators of investor sentiment and behaviour – put/call ratio, advisor sentiment, volatility, mutual fund cash position, and so on – suggest extreme optimism or pessimism, it usually pays to bet against them.
- When valuation metrics such as price to book or price to earnings move outside their normal range, it means risk or opportunity.

When all three factors confirm each other, it suggests that you are nearing a turning point. Economic outlook is not helpful in assessing the market outlook because economic outlook almost invariably looks great at the tops and terrible at bottoms. Equity Risk Premium How large is the equity risk premium, i.e. the excess returns earned, on average, by holding the equity index when compared with the risk-free.

A Peep into the Future: Forecasting the future is a hazardous exercise. Yet as investors we have to make informed guesses about the future. To guess what lies ahead, let us consider the following factors which drive equity returns (measured in nominal terms). Real growth in corporate earnings Inflation rate Changes in the P/E multiple Dividend yield Roughly, during the period 1981–2006, real growth in corporate earnings was 7 percent, inflation 8 percent, contribution on account of P/E expansion 3 percent (the P/E multiple expanded from 7 in 1981 to 15 in 2006), and dividend yield 2 percent. Going forward, we can expect the real growth in corporate earnings to be 7 percent, inflation rate to be 6 percent, and dividend yield to be 2 percent – indeed, all these are very rough estimates and the future may turn out to be very different. P/E multiple may perhaps remain stable. So, we get

a ball park estimate of 15 percent. If we assume that the risk-free rate in future may be around 8 percent, we get a market risk premium of 7 percent. Some may argue that a prospective risk premium of 7 percent appears audacious because equity risk premiums in developed countries are much lower. However, in the Indian context, the following factors may justify such a premium.

- Equity ownership in India, currently confined to a mere 1 percent of households, will become more widespread in the next 20 to 25 years.
- Pension funds, which presently have a near zero exposure to equities, will be significant buyers of equities in the years to come.
- As global investors invest more in India, the Indian asset prices would shift to something related to India's vis-à-vis a world equity index in an international CAPM. This will possibly have a buoying effect on Indian equities.

14.5 ASSET ALLOCATION: STRATEGIC ASSET ALLOCATION

The term 'asset allocation' means different things to different people in different contexts. There are several versions of asset allocation:

- Strategic asset allocation
- Tactical asset allocation
- Balanced asset allocation
- Dynamic (insured) asset allocation

While strategic asset allocation is concerned with establishing the long-term asset mix of a portfolio, the other types of asset allocation refer to what the portfolio manager does in response to evolving market conditions. This section discusses strategic asset allocation. The other types of asset allocation are discussed in the following section.

14.5.1 The Importance of Asset Allocation

Asset allocation helps investors reduce risk through diversification. Historically, the returns of stocks, bonds, and cash haven't moved in unison. Market conditions that lead to one asset class outperforming during a given timeframe might cause another to underperform. The result is less volatility for investors on a portfolio level since these movements offset each other. In addition to diversification, asset allocation is essential to ensure that you reach your financial goals. An investor that isn't taking on enough risk might not generate high enough returns to reach their goal, while an investor that's taking on excessive risk may not have enough money when they need to access it. Selecting the right asset allocation helps avoid these issues by ensuring that a portfolio is ideally positioned to reach a goal. Asset allocation accounts for a whopping 88 percent of volatility and returns, according to Vanguard, which means that our experience will be very consistent with any other diversified investor with the same asset allocation regardless of the specific investments you choose. In other words, asset allocation matters a lot more than stock picking when it comes to reaching the financial goals!

14.5.2 A formal approach to strategic asset allocation

Strategic Asset Allocation is a specific plan of action for portfolio management which involves following a particular strategy and setting targets within asset classes, portfolio rebalancing, and checking the deviations from the initial levels of returns to make further adjustments/improvements. Strategic Asset Allocation is an approach towards portfolio construction. It helps determine the allocation to asset classes considered for investment. The tolerance for risk and expectations of return are crucial in determining the optimal Strategic Asset Allocation for an investor. These, along with the investment horizon, are vital in shaping the allocation of a portfolio over time. As opposed to Tactical Asset Allocation, which targets a short or medium-term investment horizon, Strategic Asset Allocation is a long-term decision, typically spanning a decade or more.

Modern Portfolio Theory puts forth the hypothesis that investors can create portfolios which provide them maximum or optimum returns for a given level of risk. It also extolls the virtues of diversification, i.e. spreading a portfolio across asset classes as well as instruments.

Strategic Asset Allocation uses Modern Portfolio Theory as a base by making use of the efficiency of markets. It does so by determining an asset allocation, based on risk tolerance, and then sticking to it, instead of trying to assess the direction of markets. This discipline is the cornerstone of the Strategic Asset Allocation approach.

14.5.3 Strategic asset allocation process

1. Assessment of Risk

The Strategic Asset Allocation process begins with the assessment of the risk tolerance level of an investor. This is done in a detailed manner with the help of questionnaires as well as via discussions between the investor and the entity constructing the portfolio.

Another key input is the investment horizon, i.e. the duration for which an investor intends to keep the money invested in the portfolio.

These two inputs are key in determining the eventual portfolio and are used in tandem. For an investor who has a high level of risk tolerance, a higher exposure to equities may not necessarily be the optimal choice unless the time-frame of investment is also known. Thus, for a high-risk investor with a short-term time horizon, a more moderate equity exposure would be suggested compared to another investor who has a similar tolerance for risk but a relatively longer time-frame to remain invested.

2. Broad-Based Asset Allocation

After assessing an investor's risk profile and discussing the investment horizon, an allocation to broad-based asset classes like equities, fixed income, and cash is made keeping in mind the expected return of these asset classes given their levels of risk.

3. Further allocation in each broad based asset classes

This step is followed by further breaking down these broad asset classes into categories divided into market capitalization groups, by geographical divisions, or by analytical groups or any other method. Similar to the broad-based asset classes, percentage allocation to these categories follow the next step.

4. Monitoring and Rebalancing

After the Strategic Asset Allocation is determined, it is monitored and rebalanced on a particular frequency like bi-annually or annually. Though Strategic Asset Allocation is akin to a buy and holds strategy, this is not to say that it is not monitored. Portfolio rebalancing ensures that after a pre-determined period, the entity managing the portfolio makes changes to the allocation in order to ensure that the allocation to the broad asset classes, namely, equities, fixed income, and cash, is brought back to the level which was determined initially. This is required because the returns from these asset classes change the asset allocation, given their performance over the course of the period.

14.5.4 Asset allocation in response to evolving market condition

Apart from choosing the strategic asset allocation, the investor has to respond to evolving market conditions. He can follow one or more of the following approaches:

- Tactical asset allocation
- Drifting asset allocation
- Balanced asset allocation
- Insured asset allocation

1. Tactical Asset Allocation:

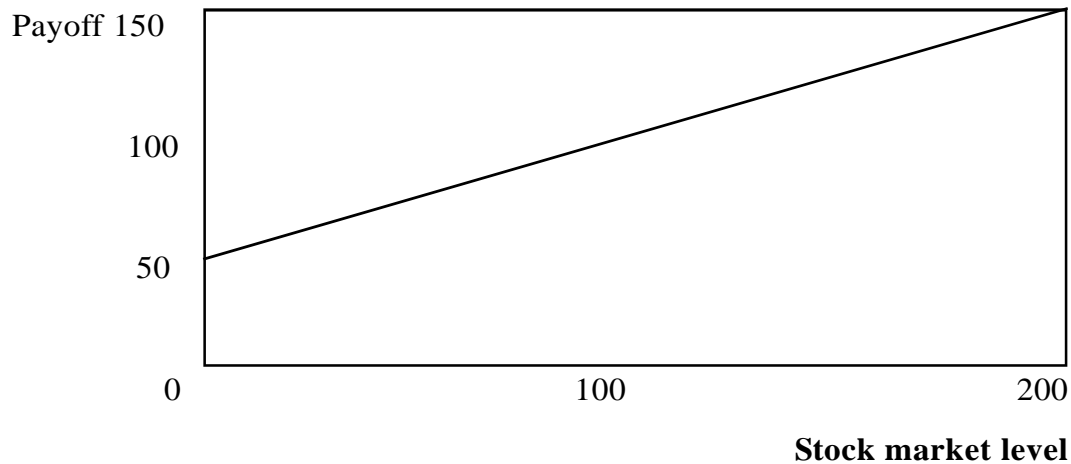
Over the long run, a strategic asset allocation strategy may seem relatively rigid. Therefore, we may find it necessary to occasionally engage

in short-term, tactical deviations from the mix to capitalize on unusual or exceptional investment opportunities. This flexibility adds a market-timing component to the portfolio, allowing you to participate in economic conditions more favorable for one asset class than for others. Tactical asset allocation can be described as a moderately active strategy since the overall strategic asset mix is returned to when desired short-term profits are achieved. This strategy demands some discipline, as you must first be able to recognize when short-term opportunities have run their course and then rebalance the portfolio to the long-term asset position. It is a sophisticated approach that uses stock index futures and bond futures to change a portfolio's asset allocation. When stock seem less attractive than bonds. This strategy involves selling stock index futures and buying bond futures; when bonds seem less attractive than stocks, the strategy results in buying stock index futures and selling bond futures. Because this approach relies on a large portfolio and the use of quantitative models for cues. It is generally only appropriate for large Institutional investors rather than individual investors.

2. Drifting Asset Allocation: This policy advocates that the initial portfolio be left undisturbed. It is essentially a 'buy and hold' policy. Irrespective of what happens to relative values, no rebalancing is done. Exhibit 1 shows the payoff diagram for a 'buy-and-hold' policy if the initial stock: bond mix is 50:50. This exhibit illustrates the following features of the 'buy-and-hold' policy.

- The value of portfolio is linearly related to that of the stock market.
- While the portfolio value cannot fall below the value of the initial investment in bonds, its upside potential is unlimited.
- When stocks outperform bonds, the higher the initial percentage in stocks, the better the performance of the 'buy-and-hold' policy. On the other hand, when stocks under-perform bonds, the higher the initial percentage in stocks, the worse the performance of the 'buy-and-hold' policy.

Exhibit 1: Payoff diagram for a buy and hold policy



3. Balanced Asset Allocation: A balanced asset allocation policy calls for a periodical rebalancing of the portfolio to ensure that the stock-bond mix is in line with the long-term 'normal' mix. Put differently, this policy calls for maintaining an exposure to stocks that is a constant proportion of portfolio value. If the desired constant mix of stocks and bonds is say 50:50, this policy calls for rebalancing the portfolio when relative values of its components change, so that the target proportions are maintained. Thus, this policy, unlike the 'buy-and-hold policy is a 'do something' policy. The kind of rebalancing that is done under this policy is shown in Exhibit 2. A simple mechanistic rebalancing strategy makes sense for two reasons. First, it ensures that the effort invested in choosing the appropriate long-term asset allocation is not wasted. Second, history suggests that regular rebalancing can add modest value

Exhibit 2: Portfolio rebalancing under a constant mix policy when the stock - bond ratio is 50:50

Stock market level		Stocks	Bonds	Total	Stocks to Bonds Switch	Bonds to Stock Switch
	After rebalancing	39.4	39.4	78.8		
60	Before rebalancing	33.8	45	78.8		5.6
	After rebalancing	45	45	90		
80	Before rebalancing	40	50	90		5.0
100	Starting Level	50	50	100		
150	Before rebalancing	75	50	125	12.5	
	After rebalancing	62.5	62.5	125		
200	Before rebalancing	83.3	62.5	145.8	10.4	
	After rebalancing	72.9	72.9	145.8		
250	Before rebalancing	91	72.8	163.8	9.1	
	After rebalancing	81.9	81.9			

4. Dynamic (or Insured) Asset Allocation

With an insured asset allocation strategy, we establish a base portfolio value under which the portfolio should not be allowed to drop. As long as the portfolio achieves a return above its base, you exercise active management, relying on analytical research, forecasts, judgment, and experience to decide which securities to buy, hold, and sell with the aim of increasing the portfolio value as much as possible. If the portfolio should ever drop to the base value, we invest in risk-free assets, such as Treasuries (especially T-bills) so the base value becomes fixed. At this time, we would consult with our advisor to reallocate assets, perhaps even changing your investment strategy entirely. Insured asset allocation may be suitable for risk-averse investors who desire a certain level of active portfolio management but appreciate the security of establishing a guaranteed floor below which the portfolio is not

allowed to decline. For example, an investor who wishes to establish a minimum standard of living during retirement may find an insured asset allocation strategy ideally suited to his or her management goals. Dynamic asset allocation is similar to strategic asset allocation in that portfolios are built by allocating to an asset mix that seeks to provide the optimal balance between expected risk and return for a long-term investment horizon. Like strategic allocation strategies, dynamic strategies largely retain exposure to their original asset classes; however, unlike strategic strategies, dynamic asset allocation portfolios will adjust their postures over time relative to changes in the economic environment.

14.6 SUMMARY

- Investment management, also referred to as portfolio management, is a complex process or activity.
- Investment objectives are expressed in terms of return requirements and risk tolerance. Investment objectives are subject to constraints and preferences relating to liquidity, investment horizon, taxes, regulation, and unique circumstances.
- In theory, the risk-return tradeoff of an investor is displayed in the form of indifference curves.
- A useful measure of investor's willingness to take risk is called risk tolerance. In formal terms, risk tolerance is the added variance (square of standard deviation) that just offsets a unit of added expected return, producing the same expected utility for the investor
- Financial advisors commonly use risk questionnaires to help understand the risk tolerance of investors.
- To address the questions relating to asset allocation, relatively long-term estimates of expected returns and standard deviations of various asset classes and cross-correlations of returns among various asset classes are required.

- The term asset allocation means different things to different people in different contexts. There are several versions of asset allocation: strategic asset allocation, tactical asset allocation, drifting asset allocation, balanced asset allocation, and dynamic (insured) asset allocation
- While strategic asset allocation is concerned with establishing the long-term asset mix of the portfolio, the other types of asset allocation refer to what the portfolio manager does in response to evolving market conditions.
- Although there are alternative ways of measuring the importance of asset allocation, academics and practitioners alike agree that the asset allocation decision is by far the most important decision made by an investor.
- In theory, the optimal portfolio (strategic asset allocation) for an investor is the portfolio which maximises the utility of the investor.

14.7 GLOSSARY

- **Tactical asset allocation:** Tactical asset allocation or market timing involves departing from the normal (or strategic or long run) asset mix to reflect one's assessment of the prospects of various assets in the near future.
- **Drifting asset allocation:** A drifting asset allocation policy advocates that the initial portfolio be left undisturbed. It is essentially a 'buy and hold' policy.
- **Balanced asset allocation:** A balanced asset allocation policy calls for periodical rebalancing of the portfolio to ensure that the stock-bond mix is in line with the long-term 'normal' mix.
- **Dynamic (or insured) asset allocation:** A dynamic (or insured) asset allocation policy involves shifting the asset mix mechanically in response to changing market conditions.

14.8 SELF ASSESSMENT QUESTIONS

Q1 List the various broad phases of portfolio management.

Ans _____

Q2 Discuss how investment objectives may be specified.

Ans _____

Q3 Discuss the constraints that may have to be borne in mind while pursuing investment objectives.

Ans _____

14.9 LESSON END EXERCISE

Q1 What factors drive equity returns?

Ans _____

Q2 What is strategic asset allocation? How important it is ?

Ans _____

14.10 SUGGESTED READINGS

1. Prasanna Chandra, Investment Analysis and Portfolio Management, McGraw Hill Education, 5th Edition.
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EQUITY AND BOND PORTFOLIO MANAGEMENT STRATEGIES

STRUCTURE

- 15.1 Introduction
- 15.2 Objectives
- 15.3 Equity portfolio management strategies
- 15.4 Bond portfolio management strategies
- 15.5 Summary
- 15.6 Glossary
- 15.7 Self Assessment Questions
- 15.8 Lesson End Exercise
- 15.9 Suggested Readings

15.1 INTRODUCTION

Many investment research analysts frequently turn into portfolio managers over time. After all, the goal of virtually all investment analysis is to make an investment decision or advise someone to make one. Analyzing equities and bonds and managing equity portfolios and bond portfolio are closely linked: That's why most analysts have a good educational background in both equity analysis and bond analysis. Portfolio management is the art

and science of selecting and overseeing a group of investments that meet the long-term financial objectives and risk tolerance of a client, a company, or an institution. Portfolio management requires the ability to weigh strengths and weaknesses, opportunities and threats across the full spectrum of investments. The choices involve trade-offs, from debt versus equity to domestic versus international and growth versus safety. The Equity Portfolio Management refers to the planning and implementation of various philosophies, methodologies, and strategies for beating the equity market. The primary objective of all investment analysis is to take investment decisions or advise others for making their own investment decisions. Thus, there exists a strong correlation between equity portfolio management and science of equity analysis. The equity portfolio management strategies involve using historical methods. They assess the relative valuation of individual stocks and move between stocks and industry groups when they are cheap by comparison. .On the other hand, Bond portfolio management strategies can help investors get the most of their portfolio, by actively managing fixed income investments to ensure maximum returns. These strategies include interest rate anticipation, sector rotation and security selection. Bond portfolio management strategies are based on managing fixed income investments in pursuit of a particular objective – usually maximizing return on investment by minimizing risk and managing interest rates. The management of the portfolio can be done by professional investment managers or by investors themselves. The most important aspect of active bond portfolio management is the fact that the manager of the portfolios takes a head- of- the-table role in creating, restructuring and operating the fund. When a portfolio is carefully watched and holdings are bought and sold to offset one another, hedge against risk and ultimately boost the overall profit of the fund, investors are most likely to attain the highest return on their investment. However, actively managed funds come with additional risk. It is up to the individual investors to decide if they are willing to take an extra risk for the opportunity of realizing greater returns on investment.

15.2 OBJECTIVES

The objectives of this lesson are:

- To discuss the concept of equity portfolio management strategies
- To discuss the concept of bond portfolio management strategies

15.3 EQUITY PORTFOLIO MANAGEMENT STRATEGIES

After we have chosen a certain asset mix, we have to formulate an appropriate portfolio strategy for each of the two components of the portfolio viz., stocks (equities) and bonds. This section discusses equity portfolio management strategies and the following section looks at bond portfolio management strategies. Two broad choices are available with respect to equity portfolio strategy, a passive portfolio strategy or an active portfolio strategy.

1. Passive Portfolio Strategy: Passive equity portfolio strategy seeks to design a portfolio meant to replicate the performance of a specific index. The passive strategy rests on the tenet that the capital market is fairly efficient with respect to the available information. Hence, the search for superior returns through an active strategy is considered futile.

Index Portfolio Construction Techniques: To construct a passive index portfolio, the following techniques may be used: full replication and sampling. In full replication, securities in the index are purchased in proportion of their weight in the index. While this technique ensures close tracking, it may be inefficient for two reasons: (a) Buying numerous securities increases transaction costs that may diminish performance (b) As most firms pay small dividends at different times in the year, reinvestment of dividends will entail high commission costs.

The technique of sampling addresses the problem of numerous stock issues. Just the way opinion pollsters query only a small sample of the population to assess public sentiment, a portfolio manager needs to buy a representative sample of stocks that comprise the benchmark index. While stocks with larger index weights are purchased in proportion to their weight

in the index, smaller stocks are purchased so that their aggregate characteristics (such as industry distribution, beta, and so on) approximate the benchmark index. This technique reduces transaction costs and rebalancing costs. But its disadvantage is that portfolio returns will not match the returns on the benchmark index, as closely as the full replication technique does.

Methods of Index Portfolio Investing While large institutional investors may be able to mimic a benchmark equity index, small investors may find it impractical to do so. Fortunately, they can conveniently and inexpensively achieve this goal by participating in index mutual funds or exchange-traded funds.

An index mutual fund is an equity fund that invests its corpus in a basket of equity stocks that comprise a given stock market index such as the S&P Nifty Index or the Sensex, with each stock being assigned a weight equal to what it has in the index. An exchange traded fund (ETF) is a hybrid of a closed-ended index fund and an open-ended index fund. Like a closed-ended index fund, it is listed on the stock exchange and like an open-ended index fund it creates and redeems units in line with the rise and fall in demand.

2. Active Portfolio Strategy: Most investors (individual as well as institutional) are not satisfied with a passive equity strategy that merely seeks to replicate the performance of a benchmark index. They strive to outperform a benchmark index, net of transaction costs, on a risk-adjusted basis. Active managers follow a variety of approaches which fall into two broad categories:

1. Fundamental approach

Sector rotation

Stock picking

Use of a specialised investment concept

2. Technical approach

Contrarian strategy

Momentum strategy

- a) **Sector Rotation:** Sector rotation involves shifting the weightings of different sectors and industries based on their assessed outlook. For example, if we believe that the financial services and pharmaceutical sectors would do well compared to other sectors in the forthcoming period (on year, two years, or whatever), we may overweight these sectors in our portfolio, relative to their position in the market portfolio.
- b) **Stock Picking:** Perhaps the most commonly used vector by those who follow an active portfolio strategy, stock picking involves identifying individual stocks that appear to be under-valued. Such stocks are overweighted in the portfolio, relative to their position in the market portfolio. Likewise, stocks which are perceived to be over-valued will be under-weighted relative to their position in the market portfolio.
- c) **Use of a Specialised Investment Concept:** A related approach to achieve superior returns is to employ a specialised concept or philosophy. As Charles D. Ellis put it, a possible way to enhance returns “is to develop a profound and valid insight into the forces that drive a particular sector of the market or a particular group of companies or industries and systematically exploit that investment insight or concept.” Some of the concepts that have been exploited successfully by investment practitioners are:

Growth stocks

Value stocks

Asset-rich stocks

Technology stocks

Cyclical stocks

The advantage of cultivating a specialised investment concept or philosophy is that it will help to:

- (i) focus your efforts on a certain kind of investment that reflects your abilities and talents,

- (ii) avoid the distractions of pursuing other alternatives, and
- (iii) master an approach or style through sustained practice and continual self-critique. As against these merits, the great disadvantage of focusing exclusively on a specialised concept or philosophy is that it may become obsolete. The changes in market place may cast a shadow over the validity of the basic premise underlying the investment philosophy.

2. Technical Analysis: Technical analysis involves a study of internal market data such as prices and volumes to determine the direction of future price movement. Technical analysts use either a contrarian strategy or a momentum strategy.

a) Contrarian strategy: A contrarian strategy presupposes that the best time to buy a stock is when the majority of other investors are bearish about it; likewise, the best time to sell a stock is when the majority of other investors are bullish about it. This strategy is based on the premise that stock returns are mean-reverting.

b) Momentum Strategy: In contrast to the contrarian strategy, a momentum strategy assumes that recent trends in prices will continue. Stocks that have been hot are expected to stay hot, whereas stocks that have been cold are expected to stay cold. While there may be valid economic reasons for the persistence of recent trends (such as acceleration of revenues and earnings during favourable times), it may also simply be a reflection of market's under reaction to the arrival of new information. This implies that the market absorbs new information, positive or negative, gradually over time. As a result, recent trends persist.

15.4 BOND PORTFOLIO MANAGEMENT STRATEGIES

There are three broad options with respect to bond portfolio management: passive strategy, immunization strategy, and active strategy.

1. **Passive Strategy:** The two commonly followed passive strategies are buying and hold strategy and indexing strategy. A buy and hold strategy involves selecting a bond portfolio and staying with it. An indexing strategy calls for building a portfolio that mirrors a well known index.
2. **Immunisation Strategy:** An immunisation strategy calls for creating a portfolio of bonds whose duration matches the duration of the liabilities that have to be met from the proceeds of the portfolio. A matching of this kind immunises the portfolio against interest rate risk. Obviously, the immunisation strategy involves periodic rebalancing of the portfolio so that the duration of the bond portfolio is continually matched with the duration of the liabilities. An alternative to the immunisation strategy is the dedication strategy which involves matching cash flows on a multiperiod basis. In this case, the bond portfolio manager buys a series of zero coupon bonds that match the stream of future obligations.
3. **Active Strategy:** An active bond portfolio strategy seeks to profit mainly by forecasting interest rate changes and/or exploiting relative mispricings among bonds. Since bond prices and interest rates are inversely related, an active bond manager would buy bonds when he expects interest rates to fall; on the other hand, he would sell bonds when he expects interest rates to rise. Active bond portfolio managers regularly monitor the bond market to identify temporary relative mispricings. They try to exploit such opportunities by engaging in bond swaps – purchase and sale of bonds – to improve the rate of return. The more popular bond swaps are substitution swap, pure yield pickup swap, intermarket spread swap, and tax swap.

15.5 SUMMARY

- Two broad choices are available with respect to equity portfolio strategy, a passive strategy or an active strategy.

- A passive equity portfolio strategy seeks to design a portfolio meant to replicate the performance of a specific index.
- An active equity portfolio strategy strives to outperform a benchmark index, net of transactions, on a risk-adjusted basis. Active managers follow a variety of approaches which fall into two broad categories: fundamental approach and technical approach.
- There are three broad options with respect to bond portfolio management: passive strategy, immunisation strategy, and active strategy.
- The two commonly followed passive strategies are buyand hold strategy and indexing strategy.
- An immunisation strategy calls for creating a portfolio of bonds whose duration matches the duration of the liabilities that have to be met from the proceeds of the portfolio.
- An active bond portfolio strategy seeks to profit mainly by forecasting interest rate changes and/or exploiting relative mispricings among bonds.

15.6 GLOSSARY

- **Passive strategy:** A passive portfolio strategy focuses on maximizing diversification with little expectational input. A passive portfolio fund essentially mirrors a market index. It is the opposite of an active management portfolio strategy, which aims to beat the market with several investing strategies and trading decisions.
- **Immunitation strategy:** Bond immunization is an investment **strategy** used to minimize the interest rate of bond investments by adjusting the portfolio duration to match the investors investment time horizon.
- **Active strategy:** Active strategies usually involve bond swaps,

liquidating one group of bonds to purchase another group, to take advantage of expected changes in the bond market, either to seek higher returns or to maintain the value of a portfolio.

- **Buy and hold strategy:** Buy and hold involves purchasing individual bonds and holding them to maturity. Cash flow from the bonds can be used to fund external income needs or can be reinvested in the portfolio into other bonds or other asset classes.

15.7 SELF ASSESSMENT QUESTIONS

Q1 Discuss the passive equity portfolio strategies.

Ans _____

15.8 LESSON END EXERCISE

Q1 Explain the factors of active equity portfolio strategy.

Ans _____

Q2 Discuss the following options with respect to bond portfolio management. Passive strategy, immunisation strategy, and active strategy.

Ans _____

15.9 SUGGESTED READINGS

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PROFIT PLANNING**STRUCTURE**

- 16.1 Introduction
- 16.2 Objectives
- 16.3 concept of profit planning
- 16.4 Basics of profit planning
- 16.5 Approaches of profit planning
 - 16.5.1 Break-Even Analysis
 - 16.5.2 Proforma Income statement
- 16.6 Summary
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- 16.8 Self Assessment Questions
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16.1 INTRODUCTION

Modern business world is full of competition, indecision and exposed to different types of risks. This complexity of managerial problems has led to the development of various managerial tools, techniques and procedures

useful for management in managing the business successfully. Management planning and control begins with the establishment of the fundamentals objectives of the organization, and continues as the process by which necessary resources are provided and employed effectively and efficiently toward achievement of desired levels of profits- a process that is generally called profit planning. Developing a budget is the most common and critical step in planning any economic activity. Planning horizons refers to the period of time into the future for which management should plan. Effective implementation of the planning concept requires that management of the enterprise establish a definite time dimensions for certain types of decisions. Profit planning is the set of actions taken to achieve a targeted profit level. These actions involve the development of an interlocking set of budgets that roll up into a master budget. The management team adjusts the information in this set of budgets to arrive at the combination of actions needed to arrive at the targeted profit level. The planning process may involve a significant amount of what-if analysis, to see what happens to projected profits in different scenarios.

When handled correctly and with an emphasis on making realistic estimates, profit planning can pinpoint those specific actions that must be taken to arrive at a profit goal. For example:

- Increase the investment in new product development in order to increase new product sales
- Expand the regions within which existing products are sold
- Target areas of declining sales where it can make the most sense to eliminate products or cut costs

Take steps to mitigate risks that may otherwise result in unusually large losses

- Target bottleneck operations to increase the productive capacity of the business

The plan may result in operational and financial issues that must be addressed. For example, it may be necessary to increase the headcount in certain areas, which in turn will require more office space and computer equipment. Further, an expansion of the business may call for more financing, either in the form of debt or equity. Profit planning is only effective if the management team follows through on the action items stated in the plan. All too often, profit planning is merely an annual exercise that management engages in, but does not follow through on. Also, profit planning must be revisited whenever there is a significant change in business conditions that invalidates the results of the old plan. Otherwise, management will continue to follow old directives that have no relevance in the new environment.

16.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of profit planning.
2. To highlight the basics of profit planning.
3. To understand the concept of strategic and financial planning
4. To discuss the various approaches of profit planning.

16.3 CONCEPT OF PROFIT PLANNING

Managerial efficacy in a profit seeking business enterprise is generally gauged in terms of profitability. The management, therefore, aims at maximising profitability of the enterprise. In furtherance of this objective, profit planning technique is very frequently employed.

Profit planning is a systematic and formalised approach of determining the effect of management's plans upon the company's profitability. In order to undertake planning for profits, finance manager makes projections of outflows and inflows of the enterprise. The essential inflows of an enterprise are people, capital and materials and they are generally cost incurring factors. On the other hand, the planned outflows are products, services and social

contributions that the enterprise generates. Having projected inflows and outflows the management manipulates the combinations of inflows and planned outflows so that the ultimate goal of the enterprise is reached.

Profit planning as a decisional tool involves establishment of specific goals for the enterprise, development of long range profit plans and short range annual profit plans which are prepared after integrating sales plan, production plan, administrative expense budget, distribution expense budget, etc.

Profit planning, thus, resembles comprehensive budgeting or managerial budgeting. It focuses directly on a rational approach to comprehensive planning that emphasises management by objectives. In profit planning exercises prudent management follows systems approach where all the functional and operational aspects of the enterprise are integrated.

It is noteworthy that profit planning is not an accounting technique, although it relates to accounting as it is related to other functions of the business which can be thought and operated independently of the total management process. Rather it is an integral aspect of the management process and is basically management activity with critical behavioural implications emerging out of the major decision-making role of the total management team.

16.4 BASICS OF PROFIT PLANNING

So as to lay down strong foundation of profit planning in a business enterprise the following fundamental principles must be kept in view

- 1) Profit planning is a decision-making process entailing streams of managerial decisions. Development of inflows and outflows “and manipulation of these flows implies a stream of well-conceived decisions. Fundamentally, managerial decision-making involves the task of manipulating the controlling variables and taking advantage of the non-controlling variables that may influence revenues, costs and investment.

- 2) Key to success of profit planning lies in the competence of the management to plan activities of the enterprise. The management must have absolute confidence in its ability to establish realistic objectives and to devise effective means to attain these objectives for the enterprise.
- 3) Comprehensive profit planning programme calls for involvement of all levels of management with a view to competently engaging in profit planning, management of all cadres, especially top management must have proper understanding of the nature and characteristics of profit planning, be convinced that this particular technique of management is preferable for their situation, be willing to devote intense and concerted managerial efforts required to make it operative and support the programme by all means. It must also have the support of each member of management. The management must recognise that individuals having managerial responsibilities will have to strive seriously and aggressively to carry out the tasks assigned to them in every respect which include participation in developing sub-unit plans and implementing these plans. Profit plans, if developed through full participation and in harmony with assigned responsibilities, assure a degree of understanding not otherwise possible.
- 4) Sound organisational structure and clear cut delineation of authorities and responsibilities are prerequisites to successful profit planning programme. This implies that planned performance must be tailored to and be in harmony with organisational responsibilities assigned to the various individual managers of the enterprise. Profit plans should be classified on the basis of organisational sub-divisions of the enterprise.
- 5) The management should refrain from being influenced by undue conservatism and irrational optimism. Profit plan should always be based on realistic expectations so that the management may feel motivated to achieve them. It is, therefore, advisable that inflows and

outflows of the enterprise should be projected in the light of conditions prevailing in the enterprise, scale of operation and its nature, characteristics of managers, leadership qualities, maturity of the enterprise, sophistications of the management at all levels and various psychological factors.

- 6) Profit planning programme should be so prepared as to allow sufficient flexibility in the plans. Flexible profit planning will enable the management to seize upon favourable opportunities even though they are not covered by the budget.

16.5 APPROACHES TO PROFIT PLANNING

There are two principal approaches to profit planning, *viz.*, Break-Even analysis and Proforma Income Statement. Each has a place in profit planning and may be used to complement the other as a part of the entire analysis. Break-even analysis provides the finance manager with information on the relationships among costs, volume, prices and profits and enables him to use such information in developing alternative operational strategies at reaching the company's profit-oriented objectives. The proforma income statement furnishes a more refined and detailed breakdown of costs and therefore, provides a better basis for establishing controls. However, proforma statements are not as flexible as break-even analysis because the entire statement must be revised every time a different strategy is tested. Break-even analysis enables the analyst to test at a time many alternatives with a minimum of difficulty.

16.5.1 Break-Even Analysis

Break-even analysis is an analytical technique employed for studying the cost-volume — profit relationship in an enterprise. This analysis is employed to determine the level of operations at which a company will neither make profit nor loss. A profit-seeking venture must reach the Break-Even Point (BEP) before going further to earn a profit. If the company has not reached the point, it means it has suffered loss. By determining this point the

company can assess precisely how it is actually away from that point. If the company is operating at a level above the BEP, it indicates that the enterprise is making profit.

Break-even analysis can be made in two ways, viz., by the Equation Technique and by the Unit Contribution Technique.

(a) *The Equation Technique*

The equation technique centres on the contribution approach to the income statement. The format of the contribution income statement can be expressed in equation form as follows:

$$\text{Break-Even Point} = \frac{F}{1 - v/p}$$

Where,

F = Fixed costs

I = Whole number

V = Variable cost per unit

P = Selling price per unit

Units needed to break-even = $\frac{F}{P - V}$

The following example will illustrate how the break-even volume of sales can be found with help of the above formula.

Illustration I

The fixed cost of Maharashtra Chemical Works for the year 2005 is ₹ 80,000, variable cost per unit for the Singh Product being made is ₹ 4. Estimated sales for the period is valued at ₹ 2,00,000. Number of units involved coincides with the expected value of output. Each unit is sold at ₹ 20. You are required to calculate the break-even point.

Solution:

Using the above formula, the break-even point of the company is :

$$= ₹ 80,000 / (1 - ₹ 4 / ₹ 20)$$

$$= ₹ 1,00,000 \text{ in terms of volume of sales}$$

$$\text{Break-Even Units are} = ₹ 80,000 / \text{Rs } 20 - 4 = 5,000$$

When break-even units are multiplied by sales price per unit, it would give break-even volume of sales.

$$\text{Thus, } 5,000 \text{ units} \times ₹ 20 = ₹ 1,00,000 \text{ break-even volume of sales.}$$

(b) *The Unit Contribution Technique*

This approach centres on the idea that each unit sold provides a certain amount of contribution margin (selling price — variable expenses) that goes toward covering of fixed costs. To find how many units must be sold to break-even, one must divide the total fixed cost by the contribution margin being generated by each unit sold. Thus,

$$\text{Sales} = \text{Variables costs} + \text{Fixed costs} + \text{Profits}$$

At the break-even point, profits will be zero. Therefore, the break-even point can be computed by finding that point where revenues and costs agree exactly.

Fixed costs are those costs that do not change with variation in the level of production activity. Rent of factory building, local taxes, insurance, depreciation on plant and machinery are examples of fixed expenses. These costs are unavoidable. Such costs tend to change only with time.

Variable costs include expenses which fluctuate in correspondence with changes in the level of output and sales. Cost of raw materials, direct wages and variable overheads are examples of variable costs. Should the level of output increase by 25 per cent, variable cost would shoot up by 25 per cent. Accordingly, per unit variable cost will remain the same.

Semi-variable costs bear some of the features of fixed costs and some features of variable costs. They fluctuate in the same direction as change in volume but not in a direct proportion. Salaries of assistant foreman and supervisors, employees, insurances, pension plans, maintenance of building and grounds fuel are examples of semi-variable expenses.

Given the amount of sales revenues, a portion must be applied to cover variable costs and the next portion to cover fixed costs. The remainder, if any is profit. If costs of an enterprise are at a level at which sales revenue would produce a margin of income above variable costs just sufficient to cover the fixed cost portion, it will be said that the enterprise is operating at the break-even point. For example, a company produce an item selling for one rupee. For each item produce the fixed cost for the year is ₹ 60,000. For the enterprise to break-even it must sell at ₹ one per item a sufficient number of items to meet the variable costs of ₹ 60,000. By inspection we can see that the company receives 60 paise above variable costs for each item sold, which can be applied to fixed costs. By selling 1,00,000 items at 60 paise above variable costs we arrive at ₹ 60,000 which covers total fixed cost.

It emanates from the above discussion that if a company is to avoid losses it must break-even volume of sales which produces a margin of income above variable costs that equals the amount of fixed cost incurred during the period. The higher the volume of sales in relation to the break-even level, the larger would be the volume of profit of the enterprise. Break even point of a business can be determined by the following formula :

$$\text{Break-Even Point} = \frac{\text{Total Fixed Costs}}{\text{Unit Contribution Margin}}$$

Suppose, for example, Maharashtra Chemical Works sale generates a contribution margin of ₹ 16 (₹ 20 selling price less ₹ 4 variable expenses). Since total fixed expenses are ₹ 80,000, the break-even point is:

$$\begin{aligned} \frac{\text{Total Fixed Cost}}{\text{Unit Contribution Margin}} &= \frac{\text{₹ } 8000}{\text{₹ } 16} \\ &= 5,000 \text{ Units} \end{aligned}$$

This formula can be used to work out break-even point even if only the percentage relationship between variable expenses and sales is known. In the case of Maharashtra Chemical Works, the unit contribution margin in percentage terms is 80 per cent. Therefore, the break-even computation is :

$$\begin{aligned} \text{Total Fixed Costs} / \text{Unit Contribution Margin} &= \text{₹ } 80000/8\% \\ &= \text{₹ } 1,00,000 \end{aligned}$$

(c) ***Profit-Volume Ratio***

When the unit contribution margin is expressed in terms of percentage, it is referred to as the profit-volume ratio or simply the P/V ratio. This ratio shows the relationship between the contribution and the value of sales. It is also known as the marginal profit ratio. The reason being that the marginal profit and contribution are one and the same. Both are determined by subtracting variable costs from sales. In both the cases the figure of net profit is calculated by deducting costs.

The formula needed to calculate it is :

$$\frac{P}{V} \text{ Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

The P/V ratio for the Maharashtra Chemical Works is 80 per cent. The P/V ratio plays a very significant part in solution the of problems sought to be dealt with by the break-even analysis. This ratio may be used to measure the relative contribution of a product of a company or measure the relative contribution of a producer or a company for different periods. This it is able to do through the calculation of break- even point and margin of safety.

Calculation of break- even point with the help of P/V ratio is done with the help of the following formula :

$$BEP = \frac{\text{Fixed Costs}}{\frac{P}{V} \text{ Ratio}}$$

Illustration 2

Calculation the P/V ratio from the following data:

$$\text{Sales} = ₹ 3,00,000$$

$$\text{Variable Costs} = ₹ 1,80,000$$

Solution :

$$\begin{aligned} \frac{P}{V} \text{ Ratio} &= \frac{\text{Contribution}}{\text{Sales}} \times 100 \\ &= \frac{\text{Rs. } 3,00,000 - 1,80,000}{\text{Rs. } 3,00,000} \times 100 \\ &= 40\% \end{aligned}$$

As stated earlier, the P/V ratio serves as a guide to the profitability in general. On the basis of this ratio it is possible for the management to choose the most profit selling area, line of product and method of sale. However, the ratio should not be taken as the sole index of profitability. So as to ascertain the actual profitability position, it is advisable to supplement the P/V ratio with the margin of safety.

Illustration 3

Bharat Electricals Ltd. manufactures four different products — A, B, C, D. The cost and price data of these products are given below. On the basis of P/V ratio, choose the best line of product which the company should expand.

<i>Type of Product</i>	<i>Price Per Unit</i>	<i>Variable Costs Per Unit</i>
	₹	₹
A	2	1.00
B	4	3.00
C	8	6.00
D.	10	9.00

Solution :

Type of Product	P/V Ratio Rs.
A	$(2.00-1.00) / 2.00 \times 100 = 50\%$
B	$(4.00-3.00) / 4.00 \times 100 = 25\%$
C	$(8.00-6.00) / 8.00 \times 100 = 25\%$
D	$(10.00-9.00) / 10.00 \times 100 = 10\%$

TABLE : THE P/V RATIO OF ALL THE FOUR PRODUCTS

It is evident from the above table that in case of A product, the P/V ratio is the highest and therefore, this product line should be expanded.

While using P/V ratio in break-even analysis it must be noted that this ratio does not take into account the capital outlays required by the additional productive capacity and the additional fixed costs, that are added. Further, P/V ratio gives only an indication of relative profitability of product/product lines and as such it may not be very helpful in taking final decision. Although higher P/V ratio per unit of sales or per cent of production indicates the most profitable item, this is possible only when other conditions remain constant.

(d) Margin of Safety

The margin of safety is the difference between the total sales and the

sales at the break-even point. Magnitude of the margin of safety (expressed in monetary terms or as a percentage in relation to total sales) is indicative of strength of a business enterprise. A company to be strong enough must have high margin of safety so that even if there is a decline in sales, it can make profit. On the contrary, if the margin of safety is small, any loss of sales may be a serious matter. The margin of safety can be calculated in the following manner :

Margin of Safety = Total Sales — Sales at Break-even Point, using figures given in Illustration 1:

₹ 2,00,000 - ₹ 1,00,000 = Margin of safety in monetary, terms being ₹ 1,00,000

Margin of safety as percentage of total sales = 50 per cent.

(e) **Graphic Approach to Break-Even Analysis**

The break-even point can be determined by graphing the data. Such a graph is known as break-even chart. It is also sometimes called a cost-volume-profit graph. This chart is, in fact, pictorial presentation of the likely profits or losses at different levels of output relationship between marginal variable costs and fixed costs, margin of safety, break-even point and the contribution. This chart gives a composite view of a company's operations by focusing attention on a few but vital classes of data.

Preparing break-even chart involves three steps listed below :

1. Draw a line parallel to the volume axis (X-axis) representing total fixed costs.
2. Choose some volume of sales above zero, and plot the point representing total costs (fixed and variable) at that volume of sales.

After the point is plotted, draw a line through it back to the point where the fixed expense line intersects the Y-axis.

3. Choose some volume of sales above zero, and plot the point representing total sales proceeds at that volume.

Illustration 4

From the following data construct the break-even chart:

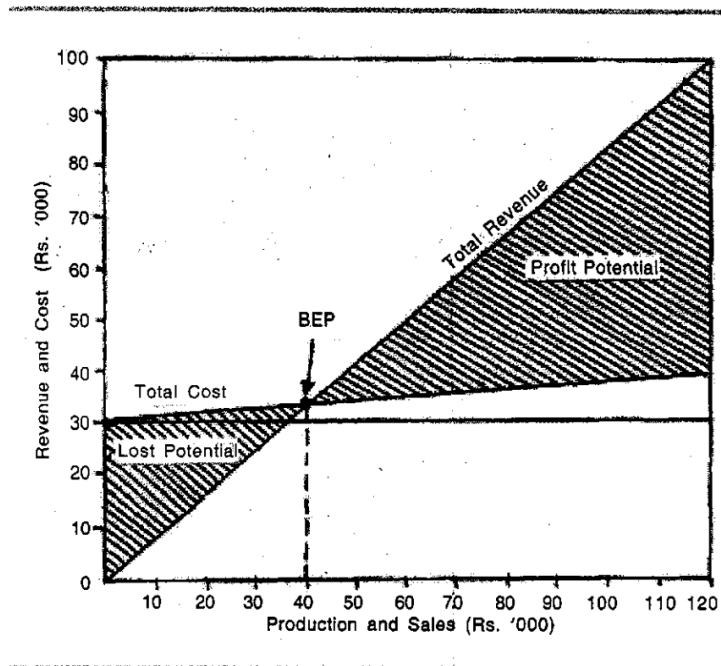
	Rs
(1) Total Costs	60,000
(2) Fixed Costs	30,000
(3) Production and Sales	1,00,000

The chart depicted in Exhibit 1 shows that break- even point of operations will be at ₹ 42,857 since total costs and revenues equal each other at that very level. The accuracy of this figure can be verified by the algebraic formula. The gap between the two lines towards the right of the BEP represents profits since the sale line is above the cost line, the gap towards the left represents loss. The vertical distance between the line of fixed cost and the line of total operating cost represents the amount of variable expenses.

Thus, break-even chart explains cost, income and volume relationship in a very simple but effective manner which could be easily comprehended by a layman.

The break- even chart helps the management to ascertain the level of sales at which the company will break-even. Significance of the break-even chart also stems from the fact the management can obtain a quick visual picture of the impact of changes in volume of sales on profit with the help of the break- even chart.

Exhibit : 1



Another use of break-even chart is to show visually the amount of sales needed to earn a certain level of profits. Suppose, for example, that a company wants to know the amount of sales needed to make a profit of ₹ 1,60,000. One would take a ruler and compute from either the vertical or the horizontal line, the linear distance equivalent to ₹ 1,60,000. One then moves the ruler to the profit area and finds the place where distance between the total income line and the total cost line is equivalent to ₹ 1,60,000. Next, an imaginary line is dropped perpendicular to the base. The scale of operations needed to reach this profit goal is ₹ 1,40,000 and it can be read from the chart.

(f) Underlying Assumptions of Break-Even Chart

A thoughtful look at the break-even graph provides insight into the underlying assumptions of the break-even analysis; important among them are listed below:

- 1) The break-even chart shows costs separated into, fixed and variable components. This classification implies that the decision-maker has been successful in finding and using a method of segregating fixed and variable costs.
- 2) There exists direct linear relationship between cost and production.
- 3) The revenue line is also linear. The break-even analysis assumes that the management is not offering any price concession to obtain higher volume of sales.
- 4) While plotting cost and revenues data on the same volume (X-axis), it is assumed that all products were sold or there were no significant changes in the inventory levels.
- 5) The analysis assumes a constant contribution margin. This implies that there is only one product or if more than one, that the combination of products sold produces a constant contribution margin.
- 6) Level of business activity, product mix, price level, labour productivity and fixed cost shall remain unchanged.

We may now examine one by one how the above assumptions are unrealistic:

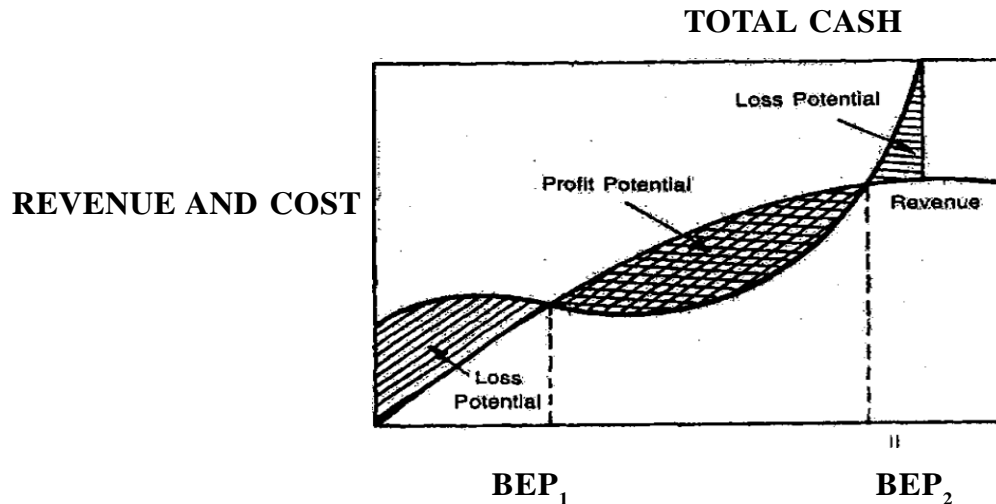
- Total cost line cannot be shown as a straight line because in actual practice costs do not usually vary in direct proportion. Each unit produced and sold will not necessarily incur the same variable cost.
- To assume that unit selling price to be the same at all levels of sales is also wrong. In many cases the company's sales volume may influence the market price of a product. Increased output, for example, may lead to a decline in market price.
- The separation of all costs into either fixed or variable costs is not an easy task. In practice, many costs defy clear classifications because they bear characteristics of both fixed and variable costs.

- Another weakness of the break-even chart is that it presents static picture which is far from what is found in actual practice. Changes take place all the time which may outlive the utility of the chart soon after it is prepared.
- The assumption of the break-even chart level of business activity, product mix, labour productivity and inventory position will remain unchanged is not found in practice. A single chart will fail to mirror the changes in the above state of affairs. For example, when the product mix changes, the existing chart cannot depict the changes. For that, it may be necessary to prepare a separate chart for each product.

(g) A Curvilinear Approach to Break-Even Analysis

Curvilinear approach to break-even analysis has been evolved to compensate for some weaknesses of the break-even analysis based on linear relationships. Exhibit 2 shows an example of some hypothetical curvilinear relationships. On this chart the revenue line recognises the necessity of price reductions to obtain higher volume. It also recognises that as volume increases there will be diminishing returns in the production factors. In other words, number of units of output for each unit of input will be fewer. The decreasing rate of the revenue line and the increasing rate of the cost line provide two Break-Even Points (BEP_1 and BEP_2). At a volume less than BEP_1 and more BEP_2 the company will have losses. There is one optimum production level where profits will be higher than at any other level. This optimum level is where marginal costs equal marginal revenue

Exhibit : 2



(h) Utility of Break-Even Analysis

Break-Even analysis serves as the most useful and powerful managerial tool to study cost-output-profit relationships at varying levels of output. This will enable the top management to plan its operational strategies. The finance manager can also make use of this analysis while estimating profit at various levels of sales and production. A finance manager is not only interested in knowing at what level of activity the operations of the enterprise will break-even but he is also keen on estimating the level of operation that will yield optimum profits. Analysis of cost-volume relationships will be immensely useful in profit planning programme.

Finance manager may use break-even analysis for establishing or reviewing pricing policies. If the management is contemplating to reduce price of the product, he may use these relationships to determine what changes in volume of sales would be necessary to compensate for the price reduction so contemplated without affecting reduction in profits. Likewise, if price increase is being considered, the break-even analysis will aid in predicting the maximum reduction in volume that the company can tolerate without upsetting profitability. He may also apply this analysis in determining the

implications of proposed changes in policies. For example, a 15 per cent increase in wages will definitely raise time break--even point. The break-even chart will clearly portray the approximate increase in output or rise in selling price to obtain the same level of profits before the wage increase.

The break-even analysis aids a finance manager in planning the make-up of capitalisation of the enterprise. The analysis provides a good deal of information about the operating risk of the enterprise. Given an estimated break-even point, finance manager can compare fluctuations in expected future volume with this point to determine the degree of stability of profits. This will enable finance manager to determine the ability of the company to service debt.

Such an analysis provides the management with a means to decide whether or not to acquire assets involving additional fixed costs. A finance manager is generally averse to buy an asset acquired at additional fixed cost unless sufficient benefits are assured because increase in the fixed costs entails the company in greater operating risk. A study of change in level of profits following a change in pricing and costs is inevitable to arrive at this sort of decision. The break-even analysis can be used to undertake such study.

Utility of the break-even analysis can be realised only when it is interpreted wisely and used carefully because the analysis is founded on several unrealistic assumptions as spelt out in the preceding paragraphs. In view of these unrealistic assumptions, this technique suffers from the following weaknesses:

- a. Break-even analysis may not prove useful to rapidly growing companies and to companies which frequently change their product mix or methods of production and where material and labour costs change very widely because break-even analysis is a short run analysis of cost-volume relationships.
- b. The break-even analysis has limited utility in studying cost-profit-output relationships in the case of multiproducts. A separate break-even

chart for each product has to be used. Then there is also the problem of allocation of expenses which are common to a number of products. In that case it may be an impossible task even to determine the marginal cost.

- c. Another limitation of the break-even analysis is that it does not take due cognizance of factors like uncertainty and risk involved in estimates of costs, volume and profits. As a matter of fact, this analysis is based on historical relationships of cost, profits and output. These relationships may not remain the same over a long period of time. For extreme volume changes, there may be no historical precedent. Furthermore, it should not be forgotten that the break-even analysis is used to determine profits level for future and not for the past relationships of cost, volume and profits which may not necessarily hold good in future.
- d. Finally, the break-even analysis may not prove as potent a tool for longer range planning as in short-term planning. The analysis may not justify incurring those expenditure where benefits are not realised during the period encompassed by break-even analysis although these expenditures may be necessary to the continued life of the enterprise.

The aforesaid limitations of the break-even analysis should be kept in mind by a finance manager while using it for the decision-making purpose.

16.5.2 Proforma Income Statement

Although break-even analysis is considerably helpful in studying cost-volume-profit relationships, it does not make detailed analysis of costs and revenues needed to make specific estimates of profits and to control expenses for the forthcoming period. It is for this end in view that the management makes use of proforma income statement. The proforma income statement is a projection of income for a period of time in the future.

The preparation of proforma income statement is one more step in the

process of budgeting. It is prepared with the help of various departmental operating and cost budgets. The process begins with estimation of sales. Projected sales figures can be had from sales budget. In the absence of a detailed budgetary programme due consideration should be given to the reasonableness of the figures being used.

If planning period is full of uncertainty, finance manager should prepare more than one set of forecasts and proforma statements. There is general tendency of preparing three sets of forecasts: one based on an optimistic forecast; one based on a pessimistic forecast and one representing the most likely outcome of operations.

The next step involved in preparation of projected income statement is to estimate cost of goods sold. Past figures regarding percentage of goods sold to sales adjusted in the light of future wage and price expectations may help the management to work out precisely figures of cost of goods sold. However, for purposes of effective cost control projection of each component of cost of goods sold as percentage of future sales has to be made. This is to be based on estimates of materials used, labour costs and overhead costs and then adjust these estimates in the light of likely change in levels of work-in-process and finished goods inventory. Where operating plans call for an increase in the level of finished goods inventory, the costs charged to the sales of the period will have to be less than the costs of production incurred during the period. Likewise costs charged to sales of the period will be more than the production cost if operating plans call for increase in the level of finished goods inventory.

Selling and administrative expenses are estimated next. Since these expenses are gradually budgeted in advance, finance manager has just to assemble the information from the marketing and sales departments. In the absence of budgetary plan, past percentage of selling and administrative expenses to sales can be gainfully used to project the future relationship between these expenses and sales after making necessary adjustments in the light of anticipated changes in scale of operations of the enterprise.

Other income and expenses such as rent, interest, gains and losses from the sale of assets and so on do not ordinarily pose much of an estimating problem.

After deducting cost of goods, selling and administrative expenses and other expenses from the sales revenue, net income before taxes figure is obtained. Anticipated income tax liability, which is calculated on the basis of existing tax rate applicable to the enterprise, is then deducted to arrive at projected net income after taxes. This is how proforma income statement is prepared.

Proforma Income Statement of Smriti Manufacturing Company for the period January 1 — December 31, 1999 is set out in Table The Company has comprehensive budgetary programme and hence requisite data have been gathered from departmental budgets.

Figure 1: Proforma Income Statement of Smriti Manufacturing Company, January 1 - December 31, 1999

Sales			21000
Less : Cost of Goods Sold	-		
Raw Material Used	94000		
Direct Expenses	23000		
Other Manufacturing Expenses :			
Direct Factory	21000		
Depreciation	3000		
Total Cost of production		141000	
Add : Opening Inventory		2000	
		143000	
Less : Closing Inventory		18000	125000
Gross Profit			85000
Less : Administrative Expenses		8000	
Selling Expenses		14000	22000
Opening Profit			63000
Less : Expenses			3000
Net Income before taxes			60000
Less : Income taxes @ 60%			36000
Net income after taxes			24000

16.6 SUMMARY

Profit planning aims to set a profit objective for a budgeting period. Also, to establish the main policy decisions on how to achieve the objectives. The profit objective will normally be related to the 'return' required on the investment in the business. Profit planning evaluates alternatives to select the most likely to give the required profit objective. Managers can plan their budgets on this basis. In other words profit planning, is a disciplined method whereby the environment encroaching on an organization are analyzed, the available resources and internal competences identified, agreed objectives established and plans made to achieve them.

16.7 GLOSSARY

- **Break- even analysis:** A break-even analysis is a financial tool which helps to determine at what stage a company, or a new service or a product, will be profitable. In other words, it's a financial calculation for determining the number of products or services a company should sell to cover its costs (particularly fixed costs). Break-even is a situation where we are neither making money nor losing money, but all the costs have been covered.
- **Contribution margin:** Break-even analysis also deals with the contribution margin of a product. The excess between the selling price and total variable costs is known as contribution margin. For an example, if the price of a product is ₹ 100, total variable costs are ₹ 60 per product and fixed cost is ₹ 25 per product, the contribution margin of the product is ₹ 40 (₹ 100 – ₹ 60). This ₹ 40 represents the revenue collected to cover the fixed costs. In the calculation of the contribution margin, fixed costs are not considered.
- **Proforma income statement:** A proforma income statement is a projected income statement. Pro forma in this context means projected.

An income statement is the same as a profit and loss statement, a financial statement that shows sales, cost of sales, gross margin, operating expenses, and profits.

- **Fixed costs:** Fixed costs are also called as the overhead cost. These overhead costs occur after the decision to start an economic activity is taken and these costs are directly related to the level of production, but not the quantity of production. Fixed costs include (but are not limited to) interest, taxes, salaries, rent, depreciation costs, labour costs, energy costs etc. These costs are fixed no matter how much we sell.
- **Variable costs:** Variable costs are costs that will increase or decrease in direct relation to the production volume. These cost include cost of raw material, packaging cost, fuel and other costs that are directly related to the production.

16.7 SELF ASSESSMENT QUESTIONS

Q1 Define profit planning.

Ans _____

Q2 Discuss the basics of profit planning.

Ans _____

16.8 LESSON END EXERCISE

Q1 Discuss in detail the various approaches of profit planning.

Ans _____

Q2 What is profit planning? Also discuss the various fundamental principles or basics of profit planning.

Ans _____

16.8 SUGGESTED READINGS

1. R M. Shrivastava Financial Management
2. I. M. Pandey Financial Management
3. Profit-Planning and the Finance Function , Sidney Robbins and Edward Foster, Jr., *The Journal of Finance* , Vol. 12, No. 4 (Dec., 1957), pp. 451-467
4. Profit Planning: The Continuing Feasibility Study, Robert W. Lee, Earl W. Powell, November 1, 1972

STRATEGY AND FINANCIAL PLANNING**STRUCTURE**

- 17.1 Introduction
- 17.2 Objectives
- 17.3 Meaning of strategy
 - 17.3.1 Features of strategy
- 17.4 Summary
- 17.5 Glossary
- 17.6 Self Assessment Questions
- 17.7 Lesson End Exercise
- 17.8 Suggested Readings

17.1 INTRODUCTION

An important part of a successful company is how well it plans. The two major types of planning within a company is how well it uses financial and strategic planning. Two major links impact how managers handle the overall planning process. Financial planning defined as being able to manage finances in such a way that enables meeting the facility's needs. Strategic planning described as being able to understand the process of direction that the service will take, goals that are set to obtain, and how to achieve these

aims. Both type of planning will involve defining objectives, gather and analyzing data, implement the plan and monitor the results. The purpose of strategic planning is to give a road map for the progression of your business. With a good business road map, one should be able to eliminate areas of inefficiency. Ultimately, this should increase revenue or decrease costs. When this happens, they end up with more money to use for the business. This means they have a larger budget for the next budget period and may be able to do more than they did before. Investors and lenders view this as evidence of stability and growth.

Companies that make a concerted effort at financial planning can grow their revenues at a more accelerated pace than organizations that have an inefficient planning process. Financial planning provides the numerical logic for decision making. It shows where the business should concentrate its resources for maximum effectiveness in building revenues and managing costs. Efficient financial management allows more funds to be available for marketing, expanding operations and product development, which in turn brings about more growth. Strategic planning determines the course of action the company will take: the tasks scheduled to be accomplished, as well as who is responsible for their timely completion. Financial planning takes the actions described in the strategic plan and converts them into dollars. The financial plan shows the revenues projected to result from the implementation of the strategies and the expenses required to implement the action steps. Senior management and marketing and operations personnel are heavily involved in the strategic planning process. Their efforts must be coordinated with those of the financial staff in charge of preparing the financial plan.

Strategic planning for any business involves allocating resources toward long-range goals. Almost without exception, long-term planning involves depending on certain financial assumptions, whether they relate to product success, marketing costs, key employees, the outcome of litigation matters or any number of contingencies. Accordingly, various unexpected financial problems may arise which will impact strategic planning.

17.2 OBJECTIVES

The objectives of this lesson are:

1. To understand the concept of strategy.
2. To understand the concept of financial planning.
3. To discuss about the importance of financial planning.
4. To discuss the importance of budgeting in financial planning.

17.3 MEANING OF STRATEGY

Strategy is an action that managers take to attain one or more of the organization's goals. Strategy can also be defined as "A general direction set for the company and its various components to achieve a desired state in the future. Strategy results from the detailed strategic planning process". A strategy is all about integrating organizational activities and utilizing and allocating the scarce resources within the organizational environment so as to meet the present objectives. While planning a strategy it is essential to consider that decisions are not taken in a vacuum and that any act taken by a firm is likely to be met by a reaction from those affected, competitors, customers, employees or suppliers. Strategy can also be defined as knowledge of the goals, the uncertainty of events and the need to take into consideration the likely or actual behavior of others. Strategy is the blueprint of decisions in an organization that shows its objectives and goals, reduces the key policies, and plans for achieving these goals, and defines the business the company is to carry on, the type of economic and human organization it wants to be, and the contribution it plans to make to its shareholders, customers and society at large.

Whereas, Strategic planning can be defined as a managerial process of developing and maintaining a viable fit between organization's objectives, skills and resources and its changing environment. The company's strategic plan is the starting point for planning. It serves as a guide to the development of sound sub-plans to accomplish the organizational objectives. The aim of

strategic planning is to help a company select and organize its businesses in a way that would keep the company healthy in spite of unexpected changes in the environment. It purports to shape or reshape the company's businesses and products so that they yield target profits and growth.

17.3.1 Features of Strategy:

Strategy has the following features:

1. It is generally long-run in nature. It discounts the future to analyse its impact on present activities. However, strategies can be made for shorter periods also.
2. The effectiveness of a strategy cannot be known in near future. Non-achievement of goals in the immediate future should not render the strategies ineffective.
3. It is an action plan and more specific than objectives.
4. It is a single-use plan made for non-repetitive activities. It provides direction to goals. Other plans move towards this direction.
5. It is formulated by top-level managers and provides a guide for middle and lower-level managers to make sub-strategies.
6. It coordinates organisation's internal environment with the external environment. It focuses on systems approach to management where the organisation is part of the social system in terms of receiving inputs and giving them back to the society in the form of outputs. Interaction of business with the environment is, thus, an important aspect of strategy.
7. It allocates scarce organisational resources over different areas for their optimum utilisation.
8. It enables the firm to outperform the competitors.
9. It is pervasive and required at each level in each functional area.

17.4 MEANING OF FINANCIAL PLANNING

Financial planning is a two way process. It starts with determining and defining the financial needs for the unforeseeable future and completes with exploring the resources to achieve them. Financial planning is identifying about investment and activities to be undertaken with objective of meeting long term goals in relation to financial well-being in the long run. Thus, meeting the defined goals of life through adequate management of financial resources. Financial planning means deciding in advance how much to spend, on what to spend according to the funds at your disposal.

In the words of Gerestenbug financial planning includes:

- (i) Determination of amount of finance needed by an enterprise to carry out its operations smoothly: The financial planning begins with determination of total capital requirement. For this the finance managers do the sales forecast and if the future prospects appear to be bright and expect increase in sale, then firm needs to increase its production capacity which means more requirement of long term funds. Higher level of production and increase in sales will require higher fixed as well as working capital.
- (ii) Determination of sources of funds, i.e., the pattern of securities to be issued: After estimating the requirement of funds the next step of financial planning is deciding how to raise this finance. Finance may be internally generated by the business or capital may have to be raised from external sources such as equity shares, preference shares, debentures, loans, etc.
- (iii) Determination of suitable policies for proper utilisation and administration of funds: Financial planning is broader in scope as it does not end by raising estimated finance. It includes long term investment decision. In financial planning finance manager analyses various investments plans and selects the most appropriate. Finance managers make short term financial plan called budgets.

17.4.1 Importance of Financial Planning:

Sound financial planning is essential for success of any business enterprise. Its need is felt because of the following reasons:

1. It Facilitates Collection of Optimum Funds:

The financial planning estimates the precise requirement of funds which means to avoid wastage and over-capitalization situation.

2. It Helps in Fixing the Most Appropriate Capital Structure:

Funds can be arranged from various sources and are used for long term, medium term and short term. Financial planning is necessary for tapping appropriate sources at appropriate time as long term funds are generally contributed by shareholders and debenture holders, medium term by financial institutions and short term by commercial banks.

3. Helps in Investing Finance in Right Projects:

Financial plan suggests how the funds are to be allocated for various purposes by comparing various investment proposals.

4. Helps in Operational Activities:

The success or failure of production and distribution function of business depends upon the financial decisions as right decision ensures smooth flow of finance and smooth operation of production and distribution.

5. Base for Financial Control:

Financial planning acts as basis for checking the financial activities by comparing the actual revenue with estimated revenue and actual cost with estimated cost.

6. Helps in Proper Utilisation of Finance:

Finance is the life blood of business. So financial planning is an integral

part of the corporate planning of business. All business plans depend upon the soundness of financial planning.

7. Helps in Avoiding Business Shocks and Surprises:

By anticipating the financial requirements financial planning helps to avoid shock or surprises which otherwise firms have to face in uncertain situations.

8. Link between Investment and Financing Decisions:

Financial planning helps in deciding debt/equity ratio and by deciding where to invest this fund. It creates a link between both the decisions.

9. Helps in Coordination:

It helps in coordinating various business functions such as production, sales function etc.

10. It Links Present with Future:

Financial planning relates present financial requirement with future requirement by anticipating the sales and growth plans of the company.

17.4.2 Budgeting in financial planning:

Financial planning consists of the firm's investments and financing plans. Once we know the firm's investment plan we need to figure out when funds are needed and where they will come from. We do this by developing a budget, which is basically the firm's investment and financing plans. A Budget can represent details such as what to do with cash in excess of needs on a daily basis, or it can reflect broad statements of a firm's business strategy over the next decade. Budgeting for a short- term (less than a year) is usually referred to as operational budgeting; budgeting for the long-term (typically three to five years ahead) is referred to as long- term planning or long- run planning. But since long-term planning depends on what is done in the short-term, the operational and long- term planning are closely related. The budgeting process involves putting together the financing and investment

strategy into terms that allow the financial manager to determine what investments can be made and how these investments should be financed. In other words, budgeting pulls together decisions regarding capital budgeting, capital structure, and working capital. Managers prepare budget by preparing financial statements that represents these decisions

Budget generally begins four to six months prior to the end of the current fiscal period. Most firms have a set of procedures that must be followed in compiling the budget. The budget process is usually managed by either a Vice-President to Planning, the Director of the budget, the Vice President of Finance, the Chief Financial Officer, or the Corporate Controller. Each department or division provides its own budgets that are then merged into a firm's centralized budget by the manager of the budget. A budget looks forward and backward. It identifies resources the firm will generate or need in the near and long- term, and it serves as a measure of the current and past performance of departments, divisions, or individual managers. But we have to be care ful when we measure deviations between budgeted and actual results. We must separately identify deviations that were controllable from deviations that were uncontrollable.

In order to succeed in its industry or field, a corporation, institution or organization has to know where it is going. A strategic plan can help define and set the course. A strategic plan is the result of strategic planning. It is during this process that the organization decides, in finite, simple terms, its place in the world right now, and where it ultimately would like to go. Whereas financial planning is all about allocating finite resources such as money, employees and equipment over time, to reach the broad goals set out in strategic planning. To do so, it involves measuring current performance against past data and trends for the future.

17.5 SUMMARY

This unit broadly outlines how the strategic and financial planning are used in a business. The success of strategic planning is largely dependent

on the success of financial planning. Without access to capital, plans cannot be put into action. So, if a company is relying on credit to finance an expansion, and suddenly credit is unavailable due to adverse market conditions, strategic planning will suffer. Likewise, if a company is depending on equity capital to fund its strategic objectives, it may be disappointed if cash is misappropriated, or if due to an emergency the capital must be allocated to more urgent matters. Furthermore, assumptions about profitability may be overly optimistic, thus there may be insufficient retained earnings available for re-investment in strategic objectives.

17.6 GLOSSARY

- **Strategy:** Strategy implies a course of action that defines and achieves organisation's objectives and implements its missions. Strategy is a means to achieve the goals. In a broader perspective, it represents organisation's responses to its environment over a period of time.
- **Financial planning:** Financial Planning is the process of estimating the capital required and determining its composition. It is the process of framing financial policies in relation to procurement, investment and administration of funds of an enterprise.
- **Budgeting:** Budgeting is the process of planning future business activities by establishing performance goals and putting them into a formal plan. In other words, budgeting is the process of making financial goals for a company and creating a plan to achieve those goals.

17.7 SELF ASSESSMENT QUESTIONS

Q1 What do you mean by strategy?

Ans

Q2 Give the importance of financial planning.

Ans _____

17.8 LESSON END EXERCISE

Q1 Discuss in detail the role of budgeting in financial planning.

Ans _____

Q2 Explain in detail the role of strategy and financial planning while taking important business decisions.

Ans _____

17.9 SUGGESTED READINGS

1. Financial Management and Analysis by Frank J. Fabozzi and Pamela P. Peterson, John Wiley & Sons
2. Analysis for Financial Management by Robert C. Higgins, McGraw Hill Education.
3. Financial Analysis Tools and Techniques by Erich A. Helfert, McGraw Hill Education.

CAPITAL EXPENDITURE DECISIONS**STRUCTURE**

- 18.1 Introduction
- 18.2 Objectives
- 18.3 Meaning of capital expenditure decisions
- 18.4 Nature of capital expenditure decisions
- 18.5 Importance of capital expenditure decisions
- 18.6 Factor affecting capital expenditure decision
- 18.7 Techniques of capital expenditure decisions
- 18.8 Meaning of capital expenditure decisions
- 18.9 Summary
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- 18.12 Lesson End Exercise
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18.1 INTRODUCTION

Capital budgeting is made up of two words ‘capital’ and ‘budgeting.’ In this context, capital expenditure is the spending of funds for large expenditures like purchasing fixed assets and equipment, repairs to fixed assets or equipment, research and development, expansion and the like. Budgeting is setting targets for projects to ensure maximum profitability. Capital budgeting is a process of evaluating investments and huge expenses in order to obtain the best returns on investment. An organization is often faced with the challenges of selecting between two projects/investments or the buy vs replace decision. Ideally, an organization would like to invest in all profitable projects but due to the limitation on the availability of capital an organization has to choose between different projects/investments. Capital budgeting is a company’s formal process used for evaluating potential expenditures or investments that are significant in amount. It involves the decision to invest the current funds for addition, disposition, modification or replacement of fixed assets. The large expenditures include the purchase of fixed assets like land and building, new equipments, rebuilding or replacing existing equipments, research and development, etc. The large amounts spent for these types of projects are known as capital expenditures. Capital Budgeting is a tool for maximizing a company’s future profits since most companies are able to manage only a limited number of large projects at any one time.

Under the category of capital expenditure decision is also included to reallocate funds when the asset acquired fails to fetch the return as expected .For many kinds of capital investment decisions it is essential that the corporate management gives careful consideration to expanded investment in current assets that will have to be made in addition to the investment in fixed assets in relation to the investment in fixed assets in relation to expanded sales of existing products, the taking on of new product lines, and so on. Broadly speaking, capital expenditure decision tends to fall into two categories-screening decision and preference decision .Screening decision

refers to such decision as relates to whether a proposed project fulfils current standard of acceptance. For example, a firm may have a policy of accepting cost reduction projects only if they promise a return of , say, 25 percent before taxes. Preference decision in contrast relates to choosing among several competing courses of actions .To illustrate ,a company may be seized with the problem of replacing a worn and antiquated equipment by new one and the management has to choose among the five different equipments. The choice as to which of the five equipments to buy is a preference decision.

18.2 OBJECTIVES

The objectives of this lesson are:

- To understand the concept of capital expenditure decisions.
- To highlight the importance of capital expenditure decisions.
- To discuss the various factors affecting capital expenditure decisions.
- To discuss the techniques of capital expenditure decisions.

18.3 MEANING OF CAPITAL EXPENDITURE DECISIONS

The capital expenditure decision is the process of making decisions regarding investments in fixed assets which are not meant for sale such as land, building, plant & machinery, etc. Thus, it refers to long-term planning for proposed capital expenditures and includes raising of long-term funds and their utilization. The key function of the finance manager is selection of the most profitable project for investment. This task is very crucial because any action taken by the manager in this area affects the working and profitability of the firm for many years to come. Capital expenditure decisions are just the opposite of operating expenditure decisions. It is the planning, evaluation and selection of capital expenditure proposals, the benefits of which are expected to accrue over more than one accounting year.

Managers in all organizations periodically face major decisions that involve cash flows over several years. Decisions involving the acquisition of

machinery, vehicles, buildings, or land are examples of such decisions. Although the tendency is to focus on the financial dimensions, such decisions are made even more complex because they usually involve a number of nonfinancial components as well. Thus, the final decision may involve consideration of architectural, engineering, marketing, regulatory, and numerous other variables. These types of decisions involve considerable risk because they usually involve large amounts of money and extended durations of time. In addition, capital expenditure decisions (also called capital budgeting) are usually accompanied by a number of alternatives from which to choose. Sometimes, an option that is best in the long term may be the least desirable in the near term and vice versa.

Capital budgeting usually involves calculation of each project's future accounting profit by period, the cash flow by period, the present value of cash flows after considering time value of money, the number of years it takes for a project's cash flow to pay back the initial cash investment, an assessment of risk, and various other factors. Capital budgeting follows a set series of steps that help businesses effectively evaluate investments. Within businesses of many sizes and dynamics, multiple factors are considered to evaluate whether or not a new project is a sound investment to activate or bring into a company's portfolio. Capital budgeting takes all possible considerations into account so that companies can readily see which investments are useful, profitable, and which can be justified in joining their portfolios. The process provides structured accountability and measurability, thoroughly considering every potential risk and return. Thus, we can say that Capital budgeting is imperative to business health, to keeping shareholders at peace and to ensure that utilizing money are actually turning around and making money for the company. The more competitive a company wants to be, the more precisely it must capitalize on investment opportunities, and do so with extremely minimal margins of error

Charles T. Horngreen has defined capital budgeting as, "Capital

budgeting is long term planning for making and financing proposed capital outlays.”

According to G.C. Philippatos, “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 streams of earning from a project, with the immediate and subsequent streams of expenditures for it”.

18.4 NATURE OF CAPITAL EXPENDITURE DECISIONS:

The nature of the capital expenditure decisions are discussed as under:

1. Long term effect

Such decisions have long term effect on future profitability and influence pace of firms growth. A good decision may bring amazing/good returns and wrong decision may endanger very survival of firm. Hence capital budgeting decisions determine future destiny of firm.

2. High degree of risk

Decision is based on estimated return. Changes in taste, fashion, research and technological advancement leads to greater risk in such decisions.

3. Huge funds

Large amount/funds are required and sparing huge funds is problem and hence decision to be taken after proper care/analysis

4. Irreversible decision

Reverting from a decision is very difficult as sale of high value asset would be a problem.

5. Most difficult decision

Decision is based on future estimates/uncertainty. Future events are affected by economic, political and technological changes taking place.

6. Impact on firm's future competitive strengths

These decisions determine future profit/ cost and hence affect the competitive strengths of firm.

7. Impact on cost structure

Due to this vital decision, firm commits itself to fixed costs such as supervision, insurance, rent, interest etc. If investment does not generate anticipated profit, future profitability would be affected.

8. Creative search for profitable opportunities:

The concept of the profit – making idea must be embodied in the capital facility. Profitable opportunities for the company's invested capital must be turned up. A corporation's future profitability and growth are linked to the soundness of its capital expenditure policy. This calls for the need of the clearly identifying the steps of a capital expenditure management programme.

9. Measurement of project worth :

In order to permit an objective ranging of projects, the productivity of the proposed outlay will have to be measured properly.

10. Screening and selection:

A screening standard should be set in the light of the supply of cash available for capital expenditures, the cost of money to the company, and the attractiveness of alternative investment opportunities .

18.4 IMPORTANCE OF CAPITAL EXPENDITURE DECISIONS

- (i) **Large Investments:** Capital budgeting decisions, generally, involve large investment of funds. But the funds available with the firm are always limited and the demand for funds far exceeds the resources. Hence, it is very important for a firm to plan and control its capital expenditure.

- (ii) **Long-term Commitment of Funds:** Capital expenditure involves not only large amount of funds but also funds for long-term or more or less on permanent basis. The long-term commitment of funds increases the financial risk involved in the investment decision. Greater the risk involved, greater is the need for careful planning of capital expenditure, i.e. Capital budgeting.
- (iii) **Irreversible Nature:** The capital expenditure decisions are of irreversible nature. Once the decision for acquiring a permanent asset is taken, it becomes very difficult to dispose of these assets without incurring heavy losses.
- (iv) **Long-Term Effect on Profitability:** Capital budgeting decisions have a long-term and significant effect on the profitability of a concern. Not only the present earnings of the firm are affected by the investments in capital assets but also the future growth and profitability of the firm depends upon the investment decision taken today. An unwise decision may prove disastrous and fatal to the very existence of the concern. Capital budgeting is of utmost importance to avoid over investment or under investment in fixed assets.
- (v) **Difficulties of Investment Decisions:** The long term investment decisions are difficult to be taken because:
- Decision extends to a series of years beyond the current accounting period,
 - Uncertainties of future and
 - Higher degree of risk.
- (vi) **National Importance:** Investment decision though taken by individual concern is of national importance because it determines employment, economic activities and economic growth. Thus, we may say that without using capital budgeting techniques a firm may involve itself in a losing project. Proper timing of purchase, replacement, expansion and alternation of assets is essential

- (vii) **Capital budgeting has long term implications:** The most significant reason for which capital budgeting decisions are taken is that it has long-term implications, i.e. its effects will extend into the future, and will have to be endured for a longer period than the consequences of current operating expenditure. Because, a proper investment decision can yield spectacular returns, whereas a wrong investment decision can endanger the very survival of the firm. That is why it may be stated that the capital budgeting decisions determine the future destiny of the firm. Moreover, it also changes the risk complexion of the enterprise. When the average benefits of the firm increase as a result of an investment proposal which may cause frequent fluctuations in its earnings that will become a risky situation
- (viii) **Substantial outlays:** Capital expenditures usually involve substantial outlays. An integrated steel plant, for example, involves an outlay of several thousand million. Capital costs tend to increase with advanced technology.

18.5 FACTORS AFFECTING CAPITAL EXPENDITURE DECISIONS:

1. Availability of Funds

All the projects are not requiring the same level of investments. Some projects require huge amount and having high profitability. If the company does not have adequate funds, such projects may be given up.

2. Minimum Rate of Return on Investment

Every management expects a minimum rate of return or cut-off rate on capital investment. It refers to the point of below which a project would not be accepted.

3. Future Earnings

The future earnings may be uniform or fluctuating. Even though, the

company expects guaranteed future earnings in total which affects the choice of a project.

4. Quantum of Profit Expected

It is necessary to assess the quantum of profit expected on implementation of selected project. Here, the term profit refers to realized amount of projects as per the accounting records.

5. Cash Inflows

The term cash inflows refers to profit after tax but before depreciation. The reason is that recording of depreciation is a book entry and there is no actual cash outflow. Hence, depreciation amount is included in the cash inflow.

6. Legal Compulsions

The management should consider the legal provisions while-selecting a project. In the case of leather and chemical industries, there are number of legal provisions created to protect environment pollution. Now, the management gives much importance to legal provisions rather than cost and profit.

7. Ranking of the Capital Investment Proposal

Sometimes, a company has two or more profitable projects in hand. If there is only one profitable project out of many and huge amount is available in the hands of management, there is no need of ranking of capital investment proposal. Ranking is necessary if there is many profitable projects in hand and limited funds is available in the hands of management.

8. Degree of Risk and Uncertainty

Every proposal involves certain risk and uncertainty due to economic conditions, competition, demand and supply conditions, consumer preferences etc. The degree of risk and uncertainty affects the

profitability of the project. Hence, degree of risk and uncertainty of the project is taken into consideration for selection.

9. Urgency

A project may be selected immediately due to emergency or urgency. The reason is that such immediate selection saves the life of the company i.e. survival of a company is the primary importance than other factors.

10. Research and Development Projects

Research and Development project is highly required for technology based industries. The reason is that there is a lot of changes made within short period in technology. The research and development project gives more benefits in the long run. Hence, profitability is getting less importance and survival of business is getting much importance in the case of research and development project.

11. Obsolescence

The replacement of existing fixed assets is compulsory since there is an obsolescence of plant and machinery.

12. Competitors Activities

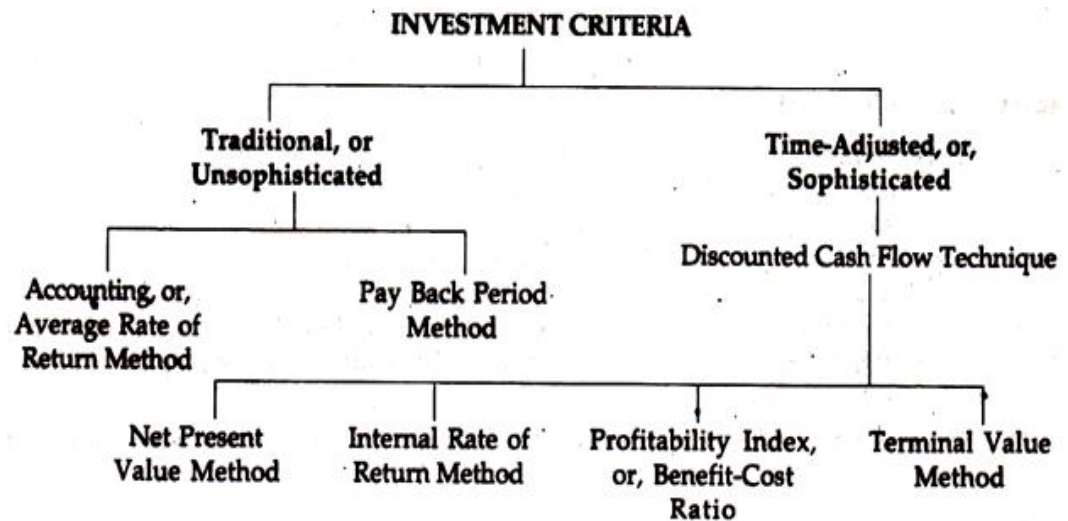
Every company should watch the activities of the competitors. The company should take a decision by considering the activities of the competitors. If so, the company can withstand in competition by implementing new projects.

13. Intangible Factors

Goodwill of the company, industries relations, safety and welfare of the employees are considered while selecting a project instead of considering profit alone. These factors are also high responsible for selection of any project.

18.7 TECHNIQUES OF CAPITAL EXPENDITURE DECISION

The following points highlight the two categories of methods of appraising capital expenditure decisions.



Traditional or Unsophisticated Techniques Accounting or Average Rate of Return Method:

1. Accounting or Average Rate of Return Method:

The Average Rate of Return (ARR) method is used in order to measure the profitability of the investment proposals.

This is practically an accounting method and it incorporates the expected return which may be obtained from the project.

Under this method, average annual profit (after tax) is expressed as a percentage of investment. There are a number of alternatives for calculating ARR.

Although there is no unanimity regarding its definition, the most common usage of the ARR which is found out by dividing the average annual

profit or, income after tax by the average investment. In this connection, it may be noted that the average investment must be equal to the original investment plus salvage value, if any, divided by two.

Moreover, the ARR can also be found out by dividing the total book value of investment (after depreciation) by the life of the project.

Therefore, this is nothing but an average rate which is expressed as a percentage and can be determined with the help of:

$$\text{ARR} = \text{Average Annual Profit after tax} / \text{Average Investment} \times 100$$

Under this method, the investment which will give the highest rate of return will be accepted. Sometimes, a firm may fix a standard rate or cut-off rate of return and, as such, investments which will not produce this rate will be excluded.

Advantages of ARR:

- (i) It is very simple and easy to calculate.
- (ii) It supplies the readily available accounting information.

Disadvantages of ARR:

- (i) The significant demerits of the method is that it does not recognise the timings of cash inflows and outflows since it is based on accounting income instead of cash flows.
- (ii) Moreover, competing projects generally have a varying length of life. In order to find out the average earnings, additional years' earnings of a project which has a longer life are compared with the earnings of a project which has a comparatively short life. This is unfair. As such, that system will be taken into consideration which will satisfy both the factors, viz. timing of income and varying length of life.

Additional Rate of Return:

It is the average additional profit expressed as percentage of investment. Under the circumstances, if it is found that the return is

satisfactory in comparison with what is available, the replacement may be made. Before discussing the principles, it becomes necessary to explain the related terms in that respect, viz. (a) Investment, and (b) Average additional profit.

(a) Investment:

- (i) The original cost of investment
- (ii) Average investment.

We know that the original cost of an asset gradually diminishes from year to year over its effective life since the capital cost is recovered by way of depreciation charges. As such, if the Straight Line Method of depreciation is followed, the average investment will be half of the depreciable part plus whole of the non-depreciable (remaining) part of the cost of the investment. It should be mentioned that the depreciation portion is divided by two, since the uncovered investment declines from the original cost of the asset to zero.

(b) Average Additional Profit:

It is simply the difference between the profit which arises out of the sale proceeds of output produced by the new machine and those which are produced by the machine which is proposed to be replaced. It may be taken (for the purpose of calculating return on investment) as the profit either before-tax or after-tax.

Illustration 1:

ABC Co. has a machine which has been in operation for 6 years. The management is considering a proposal to purchase an improved model of a similar machine which gives an increased output.

Give your opinion as a Cost Accountant in regard to the proposal from the following data:

	Old Machine	New Machine
(1) Purchase price of machine (Rs.)	60,000	1,20,000
(2) Expenditure p.a. (Rs.) on account of :		
(i) Power consumption	7,000	8,000
(ii) Consumable stores	4,000	5,000
(iii) Repairs and maintenance	5,000	4,000
(3) Labour cost per running hour (Rs.)	2	2.25
(4) Units of output per hour	40	60
(5) Machine running hours p.a.	2,000	2,000
(6) Material cost per unit (Paise)	40	40
(7) Selling price of output per unit (Re.)	1	1
(8) Estimated life (years)	10	10

[I.C.W.A. Final]

Solution :

Compare profitability statements of both the machines :

Comparative Profitability Statement

	Old Machine			New Machine		
	Amount	Amount	Amount	Amount	Amount	Amount
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Purchase Price	60,000			1,20,000		
Estimated life (years)	10			10		
Units produced p.a.	80,000			1,20,000		
Sales (80,000 @ Re. 1)			80,000			1,20,000
Less : Cost of Production						
Materials (80,000 × .40)	32,000			48,000		
(1,20,000 × .40)						
Wages (2,000 × Rs. 2)	4,000			4,500		
(2,000 × Rs. 2.25)						
Prime Cost		36,000			52,500	
Variable Overheads						
Power Consumptions		7,000			8,000	
Consumable Stores		4,000			5,000	
Repairs & Maintenance		5,000			4,000	
Depreciation :		6,000			12,000	
Total Cost			58,000			81,500
Profit before tax			22,000			38,500
Tax (say, @ 50%)			11,000			19,250
Profit (after tax)			11,000			19,250

Average Additional Profit per annum

(i) Before tax (Rs. 38,500 ÷ Rs. 22,000) = Rs. 16,500

(ii) After tax (Rs. 19,250 ÷ Rs. 11,000) = 8,250

$$\therefore \text{Profitability} \left(\frac{\text{Average Additional Profit}}{\text{Average Additional Investment}} \times 100 \right)$$

$$\therefore \text{Before tax} = \frac{\text{Rs. } 16,500}{\text{Rs. } 60,000} \times 100 = 27.5\%$$

$$\text{After tax} = \frac{\text{Rs. } 8,250}{\text{Rs. } 60,000} \times 100 = 13.75\%$$

Hence, if the proposed project is undertaken, there will be an additional return on capital invested @ 27.5% before tax and 13.75% after tax, which may be considered as satisfactory. Therefore, the new project may be taken into consideration.

Acceptance Rule:

From the foregoing discussion it becomes clear that the financial decision-maker can decide whether a particular project will be undertaken or not with the help of the ARR, i.e. whether a project will be accepted or rejected. The accept-reject criterion, on the basis of the ARR, is followed by the management.

In other words, those projects will be accepted whose ARR is higher than the minimum established rate/standard rate and those projects will be rejected whose ARR is less than the said minimum established rate/standard rate. Ranking method may also be used here. That project will be given rank one which has highest ARR and, on the contrary, lowest rank will be assigned if the ARR is lowest.

2. Pay Back Period Method:

The Pay Back Period Method is the second unsophisticated method of capital budgeting and is widely employed in order to overcome some of the shortcomings of ARR method. It recognises that recovery of the original investment is an important element while appraising capital expenditure decisions.

It may be stated that it is simply an application of ‘break-even’ concept to investment. Practically, this method gives the answer about the question. ‘How many years will it take for the cash benefits to pay the original cost of an investment?’

It is defined as the number of years required to cover the original cash outlay which are invested in a project. In other words, Pay, Back Period is the period required for the savings in costs or net cash flow after tax but before depreciation, to recover the cost of investment. Thus, Pay Back Period is computed when

(i) Cash flow accrues at even rate, i.e. where there is equal cash inflow:

$$\text{Pay Back Period (P.B.P.)} = \frac{\text{Cost of the Investment Cash Outlay}}{\text{Annual Net Cash Inflow}}$$

(ii) Where there is unequal cash inflow:

The P.B.P. can be found out by adding up the cash inflows until the total is equal to the initial cash investment.

Illustration 2 (Where there is equal cash inflow):

A project requires an investment of ₹ 1,00,000 with a life of 10 years which yields an expected annual net cash inflow of ₹ 25,000. Compute the pay-back period.

Solution:

$$\text{Pay Back Period (P.B.P)} = \frac{\text{Cost of the investment (Projects)}}{\text{Annual Net Cash Inflow}}$$

$$= \frac{\text{₹ 1,00,000}}{\text{₹ 25,000}} = 4 \text{ Years}$$

Illustration 3 (Where there is unequal cash inflow):

Calculate the pay-back period for a project which requires a cash outlay of ₹ 40,000 but the same generates a cash inflow of ₹ 16,000; ₹ 12,000; ₹ 10,000 and ₹ 6,000.

Solution:

If we add the cash inflows for the first three years, we find that ₹ 38,000 are recovered against the total cash outlay of ₹ 40,000 leaving an unrecovered part of ₹ 2,000. But, in the fourth year, generation of cash inflow is ₹ 6,000 and over ₹ 2,000 of the original outlay remains to be recovered. If cash inflows occur at an even rate during the year, the time required to cover ₹ 2,000 will be $(\text{₹ } 2,000 / \text{₹ } 6,000 \times 12)$ 4 months. Thus, the Pay Back Period is 3 years plus 4 months.

Under the Pay Back Period Method, the time period which is necessary in order to recover its capital cost is calculated and that project will be treated as best which will take the shortest pay-back period. This principal is based on the understanding that the original outlay must be returned if the enterprise continues its operation.

It should be remembered that if the estimated productive period does not exceed the estimated pay-back period, a part of the invested capital may be lost and, hence, such project is rejected. This method is particularly applicable where (i) the cost of the project is comparatively small and which is completed in a short period; (ii) the project is productive immediately after the investment is made.

Advantages:

1. It is simple to operate and easy to understand. Since it is very easy the same is used in many advanced countries, viz., U.K., U.S.A.
2. It shows how soon the cost of purchasing an asset will be recovered. In other words, it considers the liquidity aspect of working on the ground that a project with short pay off period is better than those with long pay off period.
3. Short-term approach reduces the loss through obsolescence, particularly when there is any rapid technological development.
4. It considers risks as well which may arise due to

- (i) Political instability;
 - (ii) Nature of the product; and
 - (iii) Introduction of a new product.
5. It acts as a yardstick in comparing the profitability of two projects.
 6. In some cases Pay Back Period is closely related to ARR and, as such, it enjoys the benefit of ARR. This is particularly applicable where the projects have substantially longer lives than their pay back periods and annual savings on cash inflows are comparatively uniform.

Disadvantages:

1. It recognises only the recovery of purchase costs, not profits earned during the working life of the asset.
2. It gives much stress on converting capital into cash, which is not important in case of those assets which have longer working life.
3. It does not recognise the time value of money.
4. It does not take into consideration that profits from different projects may accrue at an uneven rate.
5. It ignores the basic fact that actual profitability depends on the number of years it will continue to operate after the pay-back period. Thus, Profitability = Net Cash Flow, or Saving x (Expected life of the project – Pay Back Period).

II. Time Adjusted/Sophisticated or Discounted Cash Flow Techniques:

The earlier two methods, viz. ARR method and Pay Back Period method, discussed so far for the purpose of appraising the investment proposals, do not consider the basic fact i.e. timing of cash flows. Because the Accounting or Average Rate of Return method recognises cash proceeds to the original or average cost of investment whereas Pay Back Period method considers all each flows received before the Pay Back Period. Thus, both

methods fail to recognise the basic fact that the sum of money received in future is less valuable than it is today, i.e., the time value of money.

There are three reasons for this:

- (a) Reinvestment opportunities,
- (b) Uncertainty, and
- (c) Inflation.

In order to overcome the shortcomings of ARR and Pay Back Period described earlier, Discounted Cash Flow (DCF) methods are recognised since they actually provide a more realistic basis. The distinguishing feature of the DCF is that it recognises the time value of money. Moreover the commendable characteristic of these techniques is that they consider all benefits and costs occurred during the life of the project.

1. Net Present Value (NPV) Method:

The Net Present Value (NPV) Method is the time value of money approach to evaluate the return from an investment proposal. Under this method, we discount a project using the required return as the discount factor. In other words, a stipulated compound interest rate is given and, by the use of this percentage, net cash flows are discounted to present values. The present value of the cost of the project is subtracted from the sum of present values of various cash inflows. The surplus is the net present value.

Symbolically, NPV of a project can be calculated as follows:

$$\begin{aligned} \text{NPV} &= \frac{C_1}{(1+K)^1} + \frac{C_2}{(1+K)^2} + \dots + \frac{C_n}{(1+K)^n} - C_0 \\ &= \sum_{t=1}^n C_t - C_0 \end{aligned}$$

Where, C_1, C_2, \dots, C_n = Cash inflows of different years

C_0 = Cash outflows of the project.

If the NPV is positive, the proposal's forecast return exceeds the required return the proposal is acceptable. But if the NPV is negative, the forecast return is less than the required return, the proposals is not acceptable. Thus, the decision rule for a project under NPV is to accept the project if the NPV is positive and reject if the NPV is negative.

The following rules should be adopted for accepting or rejecting a project under NPV:

When, $NPV > \text{zero}$ – Accept the project.

$NPV < \text{zero}$ – Reject the project.

$NPV = \text{zero}$ – Be indifferent.

Illustration 2:

The initial investment required for a project is ₹ 2, 00,000 having life of 3 years. The expected cash inflows from the project are ₹ 1,10,000, ₹ 1, 60,000 and ₹ 30,000 for 1st, 2nd and 3rd year respectively. Assuming cost of capital at 10% compute the NPV

Solution :

Computation of Net Present Value

Year	Cash Inflows (Rs) (a)	PV Factor at 10% (b)	Present Value (a × b)
1	1,10,000	0.909	99,990
2	1,60,000	0.826	1,32,160
3	30,000	0.751	22,530
			2,54,680

$$NPV = 2,54,000 - 2,00,000$$

$$= \text{Rs } 54,680$$

(i) **Advantages:**

The advantages of NPV are:

- (a) It recognizes the time value of money.

- (b) It takes into account the entire series of cash flows for analysis.
- (c) Selection of project under mutually exclusive projects is easy under NPV

(ii) Disadvantages:

The NPV method also suffers from certain limitations. These are;

- (a) In comparison to traditional method, it is slight difficult to understand and calculate.
- (b) Selection of the discount rate for discounting of cash inflows is another problem of NPV.

2. Internal Rate of Return (IRR) or Yield Method:

The Internal Rate of Return (IRR) method is the second discounted cash flow or time adjusted also known as yield on investment, marginal efficiency of capital, rate of return over cost, time-adjusted rate of return , and so on. Internal rate of return is a rate which actually equates the present value of cash inflows with the present value of cash outflows. It is actually the rate of return which is earned by a project, i.e., it is a rate at which the NPV of investment is zero. This method also recognises the time value of money like NPV method by discounting the cash streams. Since it exclusively depends on the initial outlay and cash proceeds of the projects, and not by any rate determined outside the investment, it is appropriately called as Internal Rate of Return.

Under this method, the IRR should be compared with a required rate of return which is the cut-off or hurdle rate. A project is profitable only when the IRR is not less than the required rate, i.e. a firm is to undertake any project whose internal rate of return exceeds required rate. In the opposite case, it is rejected.

In other words, where there are a number of alternative proposals, the acceptances criterion can be considered after analysing the following:

- (i) IRR to be found out in each alternative case.

- (ii) Compare the IRR with cut-off rate and those projects are rejected whose IRR is less than the cut-off rate.
- (iii) Comparing the IRR of each alternative and selecting one which produces the highest rate and is the most profitable one.

IRR can be found out by solving the following equation (mathematically). It is represented by the rate, r, such that

$$C = \left(\frac{P_1}{(1+r)^1} \right) + \left(\frac{P_2}{(1+r)^2} \right) + \left(\frac{P_3}{(1+r)^3} \right) + \dots + \left(\frac{P_n}{(1+r)^n} \right)$$

where C = Initial cash outlay;

P₁, P₂, P₃ = Stream of future net cash flows.

The main shortcoming of this method is to ascertain the IRR which equates P. V. or NCF with that of initial cash outlay.

In most cases, the rate is chosen at the first attempt and consequently one has to resort to trial and error (that is why this method is sometimes called ‘Trial and Error’ method):

$$C = \left(\frac{P_1}{(1+r)^1} \right) + \left(\frac{P_2}{(1+r)^2} \right) + \left(\frac{P_3}{(1+r)^3} \right) + \dots + \left(\frac{P_n}{(1+r)^n} \right)$$

$$= \frac{P}{r} \{ (1 - (1+r)^{-n}) \}$$

Here, C, P, and n are known and, as such, r can be found out by solving the equation. But the problem arises since the value of log (1 + r)ⁿ cannot be determined.

Naturally, after applying three or four trial runs, an area can be noticed where the actual rate lies and simple interpolation or graph may be used in order to approximate the actual rate.

The above principles may be explained with the help of the following illustration under two conditions:

(a) Where there is even series of net cash flows:

Under the circumstances, initial cash outlay should be divided by the NCF per annum and locating the nearest discount factors. And choosing that discount rate which corresponds to the approximate rate of return. For this purpose, simple interpolation may be used for accuracy.

The following illustration will, however, make the principle clear:

Illustration 3:

Initial Outlay ₹ 40,000

Annual Net Cash Flow (NCF) ₹ 12,000

Estimated life 5 years

Calculate the Internal Rate of Return (r) of the project.

Solution:

In order to find out IRR, we are to calculate the rate which will actually equate the original investment (₹ 40,000) with the present value of ₹ 12,000 received annually for five years.

Suppose, we start with 14% rate of interest. The present value of Re. 1 received annually for 5 years at 14% is ₹ 3.4331 which is the discount factor. At the same time, the total present value of ₹ 12,000 received annually for 5 years becomes ₹ 60,000 (₹ 12,000 x 5) which actually comes to ₹ 41,197.2. The present value of future cash streams exceeds the initial investment (i.e. ₹ 40,000).

Alternatively, it can be stated that the NPV > zero. As such, this rate is naturally not the IRR. As the NPV > zero we are to search for a higher rate of interest in order to have a lower NPV.

Let us try again on the assumption that the discount rate is 16%. Thus, the discount factor is 3.2743 which, multiplied by ₹ 12,000, presents a total

present value of ₹ 39,291.6. As a result, the present value of cash stream falls short of the outlay (by ₹ 708.4) and, as such, the NPV < zero.

Therefore, the IRR lies between 14% and 16%. We consider again 15% rate of interest which is 3.3522. In that case the present value of Rs 12,000, after five years, will be ₹ 40,226.4, i.e. slightly more than the original outlay.

So, the IRR will be slightly more than 15% but not more than 16%.

However the exact figure can be obtained by the application of the following interpolation formula:

$$\text{IRR} = \text{LR} + (\text{PVC} - \text{PVL}/\text{DCL}) \times \text{DR}$$

where,

LR = Lower rate of discount;

PVC = Calculated Present Value of cash inflows;

PVL = Present Value of cash outlay;

DCP = Difference in Present Value so calculated;

DR = Difference in rate of interest.

Substituting the above values, we get,

$$\begin{aligned} \text{IRR} &= 15\% + \left(\frac{40,226.4 - 40,000}{40,226.4 - 39,291.6} \right) \times 1\% \\ &= 15\% + \left(\frac{226.4}{934.8} \right) \times 1\% \\ &= 15\% + .24\% \\ &= 15.24\% \end{aligned}$$

Therefore the IRR is 15.24%.

From the above, it is evident that the said principle is particularly applicable if there is a constant annual cash flow. But, in actual practice, that is not always possible. The calculation in such a case is more difficult. This principle is explained below.

(b) Where there is uneven series of net cash flow:

It has already been stated above that if there is any uneven series of net cash flow, calculation is comparatively difficult. In this case, in order to reduce the number of trial runs, the first trial rate should be carefully selected.

It should be remembered that if net cash flow is not too uneven, selection of first rate may be considered as:

$$\begin{aligned}
 \text{IRR} &= \text{HR} - \left(\frac{\text{PVL} - \text{PVC}}{\text{DCP}} \right) \times \text{DR} \\
 &= 16 - \left(\frac{40,000 - 39291.6}{934.8} \right) \times 1 \\
 &= 16 - .76 \\
 &= 15.24\% \\
 &\quad \frac{\text{Average excess cash flow over Cost of Investment}}{\text{Average Investment}} \times 100
 \end{aligned}$$

Note : Average excess cash flow = $\frac{\text{Total Net Cash flows minus Cost of Investment}}{\text{Projected Life}}$

When the first trial rate is applied for converting net cash flows to present values, the next trial rates can be selected on the basis of:

- (i) When the present value of NCF is < the cost of the project = the second trial rate will be less than the first trial rate;

- (ii) When the present value of NCF is > the cost of the projects = the second trial rate will be more than the first one.

In this matter, there will be a place where the exact discount rate will lie and the same can be ascertained with the help of simple interpolation.

The following illustration will help to make the principle clear:

Illustration 4:

A Co. Ltd. desires to purchase a new machine in order to increase its present level of production. Two alternative machines, viz., Machine X and Machine Y, are available in the market. The details of the machines are:

	Machine X	Machine Y
Initial outlay	Rs. 1,00,000	Rs. 1,20,000
Estimated life	5	5
Net Cash Flows after tax		
Years	Rs.	Rs.
1	25,000	15,000
2	35,000	35,000
3	55,000	55,000
4	30,000	45,000
5	17,500	30,000
	<u>1,62,500</u>	<u>1,80,000</u>

You are asked to ascertain the more profitable machine (assume that the minimum rate of return laid down by the management is 16% p.a.).

Solution :

The first rate is selected on the basis of the following Guide Rate :

Project X

$$\text{Average excess cash flows} = \frac{(\text{Rs. } 1,62,500 - \text{Rs. } 1,00,000)}{5} = \frac{\text{Rs. } 62,500}{5} = \text{Rs. } 12,500$$

$$\text{Average Investment} = \frac{\text{Rs. } 1,00,000}{2} = \text{Rs. } 50,000$$

$$\therefore \text{Guide Rate} = \frac{\text{Rs. } 12,500}{\text{Rs. } 50,000} \times 100 = 25\%$$

**Profitability Statement
For Project X**

Years	Net Cash Flow	Trial 1		Trial 2		Trial 3	
		Discount Rate		Discount Rate		Discount Rate	
		25% p.a.		20% p.a.		15% p.a.	
		P.V. of Re. 1	P.V. of N.C.F. Rs.	P.V. of Re. 1	P.V. of N.C.F. Rs.	P.V. of Re. 1	P.V. of N.C.F. Rs.
1	25,000	0.800	20,000	0.833	20,825	0.870	21,750
2	35,000	0.640	22,400	0.694	24,290	0.756	26,460
3	55,000	0.512	28,160	0.579	31,845	0.658	36,190
4	30,000	0.410	12,300	0.482	14,460	0.572	17,160
5	17,500	0.328	5,740	0.402	7,035	0.497	8,698
	<u>1,62,500</u>		<u>88,600</u>		<u>98,455</u>		<u>1,10,258</u>

Therefore, from the above statement, it becomes quite clear that actual rate will be between 15% and 20% which may be found out with the help of the following interpolation :
(Following the earlier method but by a different approach)

Discount Rate	P. V. of N. C. F.
%	Rs.
15	1,10,258
20	98,455
5	11,803

\therefore Actual Rate = $15\% + \frac{[10,258 (1,10,258 - 1,00,000)]}{11,803} \times 5\% (20\% - 15\%)$
 = $15\% + 4.35\%$
 = 19.35%

Project Y

The first trial rate is calculated as :

$$\begin{aligned} \text{Average excess cash flows} &= \frac{(\text{Rs. } 1,80,000 - \text{Rs. } 1,20,000)}{5} = \text{Rs. } 12,000 \\ \text{Average Investment} &= \frac{\text{Rs. } 1,20,000}{2} = \text{Rs. } 60,000 \\ \therefore \text{ Guide Rate} &= \frac{\text{Rs. } 12,000}{\text{Rs. } 60,000} \times 100 = 20\% \end{aligned}$$

**Profitability Statement
For Project Y**

Years	Net Cash Flow	Trial 1		Trial 2		Trial 3	
		Discount Rate		Discount Rate		Discount Rate	
		25% p.a.		20% p.a.		15% p.a.	
		P.V. of Re. 1	P.V. of N.C.F. Rs.	P.V. of Re. 1	P.V. of N.C.F. Rs.	P.V. of Re. 1	P.V. of N.C.F. Rs.
1	15,000	0.833	12,495	0.870	13,050	0.909	13,635
2	35,000	0.694	24,290	0.756	26,460	0.827	28,945
3	55,000	0.579	31,845	0.658	36,190	0.751	41,305
4	45,000	0.482	21,690	0.572	25,740	0.683	30,735
5	30,000	0.402	12,060	0.497	14,910	0.621	18,630
	<u>1,80,000</u>		<u>1,02,380</u>		<u>1,16,350</u>		<u>1,33,250</u>

Thus, the actual rate will be between 10% and 15% which is calculated as

	Discount Rate	P. V. of N. C. F.
	%	Rs.
	10	1,33,250
	15	1,16,350
	5	16,900
∴ Actual Rate	$= 10\% + \left(\frac{13,250}{16,900} \right) \times 5\% (15\% - 10\%)$ $= 10\% + 3.92\%$ $= 13.92\%$	

Comments:

Project X is to be undertaken by the management since it satisfies the norms prescribed by the latter (i.e., 16%) and the rate of return is also higher than the project Y.

Acceptance Rule:

It has already been highlighted in the present context that a project is profitable only when the IRR is not less than the required rate (which is also known as the firm’s cost of capital or cut-off or hurdle rate), i.e., when IRR is higher than or at least equal to the minimum required rate.

Similarly, in the opposite case, that is, if the IRR is less than the cost of capital, the project shall be rejected. For example, if the required rate of return were 12% and this criterion is used, the investment proposal considered above would be accepted. If the required rate of return is the return the investors expect the firm to earn on the project, accepting a project with an internal rate of return in excess of the required rate of return should result in an increase in the market price of the stock. Because, the firm accepts a project with a return greater than that required to maintain the present market price per share.’

Evaluation of IRR:

The Internal Rate of Return Method has few advantages:

- (a) It recognises the time value of money like Net Present Value Method;
- (b) It also takes into account the cash flows throughout the life of the project.
- (c) This method also reveals the maximum rate of return and presents a fairly good idea about the profitability of the project even if the firm's cost of capital is absent since the latter is not a precondition for use of it;
- (d) The percentage which is calculated under the method is more meaningful and justified and that is why it is acceptable to the users since it satisfied them in relation to cost of capital.

Although the IRR method is theoretically sound it is not even free from snags. Some of them are:

- (a) The method of calculation is, no doubt, complicated and it is difficult to use and understand.
- (b) This method does not present unique answers under all circumstances and situations. It may even present a negative rate or multiple rates under certain circumstances.
- (c) This method recognises the fact that intermediate cash inflows which are generated by the project are reinvested at the internal rate, whereas the NPV method recognises that cash inflows are reinvested at the firm's cost of capital, which is more appropriate and justified in comparison with the IRR method
- (d) It may present inconsistent result with the NPV method when the projects actually differ from their expected life or cash outlays or timing of cash flows.

Illustration 5:

The particulars relating to two alternative capital projects are:

	Project X	Project Y
Life of the project	4 years	6 years
	(Rupees in lakhs)	
Estimated Cash Outflow	15	15
Estimated Cash Inflow		
1st year	8	7
2nd year	10	8
3rd year	7	8
4th year	3	6
5th year	—	5
6th year	—	4

Compute internal rate of projects X and Y and state which project you would recommend.

You may use the present value table given below:

P. V. of Re. 1							
After	20%	25%	30%	35%	40%	45%	50%
1st	0.833	0.800	0.769	0.741	0.741	0.690	0.677
2nd	0.694	0.640	0.592	0.549	0.510	0.476	0.444
3rd	0.579	0.512	0.455	0.406	0.364	0.328	0.296
4th	0.482	0.410	0.350	0.301	0.260	0.226	0.198
5th	0.402	0.328	0.269	0.223	0.186	0.156	0.132
6th	0.335	0.262	0.207	0.165	0.133	0.108	0.088

[A.C.S. Final]

Solution :

Profitability Statement For Project X					
Years	Discount Rate at 35%		P.V. of N.C.F.	Discount Rate at 40%	
	Cash Inflow	P.V. of Re. 1		P.V. of Re. 1	P.V. of N.C.F.
	Rs.		Rs.		Rs.
1	8,00,000	0.741	5,92,800	0.714	5,71,200
2	10,00,000	0.549	5,49,000	0.510	5,10,000
3	7,00,000	0.406	2,84,200	0.364	2,54,800
4	3,00,000	0.301	90,300	0.260	78,000
			15,16,300		14,14,000

Estimated Cash Out Flows = ₹ 15,00,000

Thus from the above statement it becomes clear that actual rate will be between 35% and 40% which may be found out with the help of the following:

	Discount Rate	P.V. of N.C.F. Rs.
	35%	15,16,300
	40%	14,14,000
	<u>5%</u>	<u>1,02,300</u>
∴ Actual Rate	= $35\% + \left(\frac{16,300}{1,02,300} \right) \times 5\% (40\% - 35\%)$	
	= 35% + .80%	
	= 35.80%	
∴ IRR	= 35.80%	

Profitability Statement

For Project Y

Years	Discount Rate at 40%		P.V. of N.C.F.	Discount Rate at 45%	
	Cash Inflow	P.V. of Re. 1		P.V. of Re. 1	P.V. of N.C.F.
	Rs.		Rs.		Rs.
1	7,00,000	0.714	4,99,800	0.690	4,83,000
2	8,00,000	0.510	4,08,000	0.476	3,80,000
3	8,00,000	0.364	2,91,200	0.328	2,62,400
4	6,00,000	0.260	1,56,000	0.226	1,35,600
5	5,00,000	0.186	93,000	0.156	78,800
6	4,00,000	0.133	53,200	0.108	43,200
			<u>15,01,200</u>		<u>13,83,000</u>

Estimated Cash outflow = ₹ 15,00,000

IRR lies between 40% and 45%.

Actual Rate-will be:

Difference in Rate (40% – 45%) = 5%.

Difference in P. V. (15,01,200 – 13,83,000) = 1,18,200

$$\begin{aligned}\text{IRR} &= 40\% + \left(\frac{1,200}{1,18,200} \right) \times 5\% \\ &= 40\% + .05\% \\ &= 40.05\%\end{aligned}$$

Therefore, Project Y is recommended since its IRR is higher in comparison with Project X.

3. Profitability Index (PI) or Benefit-Cost Ratio Ratio):

Another time-adjusted technique for evaluating investment proposals is the Profitability Index (PI) or Benefit-Cost Ratio (B/C—Ratio). It is the relation between present value of future net cash flows and the initial cash outlay, i.e., this ratio is computed by dividing the present value of net cash flows by the initial cash outlay.

$$\text{Profitability Index (PI}^\dagger) = \frac{\text{Present value of net cash flows}}{\text{Initial cash outlay}}$$

It is similar to the NPV approach. It measures the present value of return of per rupee invested. Whereas, NPV depends on the difference between PV of NCF and PV of cash outflow. This is actually a drawback of NPV method which has been mentioned above since it is an absolute measure; PI, on the other hand, is a relative measure.

Illustration 6:

Initial Cash Outflow	Rs.	50,000
Cash Inflow :		
End of Years		Rs.
1		20,000
2		15,000
3		25,000
4		10,000

Calculate the NPV and PI of the project assuming that the discount factor is 10%.

Solution :

Calculation of Profitability Index

Years	Cash Inflow Rs.	Discount Factor @ 10%	P.V. of N.C.F. Rs.
1	20,000	0.909	18,180
2	15,000	0.826	12,390
3	25,000	0.751	18,775
4	10,000	0.683	6,830
			<u>56,175</u>
Less : Initial Outlay			<u>50,000</u>
		N.P.V.	6,175

$$\begin{aligned}
 \therefore \text{Profitability Index (PI)} &= \frac{\text{PV of NCF}}{\text{Initial Cash Outlay}} \\
 &= \frac{\text{Rs. } 56,175}{\text{Rs. } 50,000} \\
 &= 1.12
 \end{aligned}$$

Under this method it should be remembered that an investment proposal may be accepted when the Profitability Index (PI) is greater than one. However, in case of mutually exclusive proposals, the acceptance criterion will be—the higher the index, the more profitable is the proposal, and vice versa.

Acceptance Rule, (Accept-Reject Decision):

We know that an investment proposal is accepted when the PI is greater than one. When PI equals 1 the firm is indifferent to the project. Similarly,

where PI is greater than, less than or equal to 1, the NPV is greater than, less than, or equal to 0, respectively, i.e.

NPV will be positive = $PI > 1$ NPV will be negative = $PI < 1$ Therefore, NPV and PI present the same result about the investment proposals. Evaluation of Profitability Index

Like other DCP techniques, PI is, no doubt, conceptually sound—since it satisfies almost all the requirements of appraising an investment project, viz., time value of money, totality of benefit etc.

Although it involves more calculations than the traditional methods (viz. ARR or Pay Back Period Methods) it is less than the IRR method. According to this method, it has already been stated that ranks are assigned to the projects on the basis of PI and, naturally, higher ranks will be given to the project which has the highest PI.

Illustration 7:

M/s L. & Co. has ₹ 2,00,000 to invest. The following proposals are under consideration.

The cost of capital for the company is estimated to be 15%:

Project	Initial Outlay Rs.	Annual Cash Rs.	Life of Project (Years)
A	1,00,000	25,000	10
B	70,000	20,000	8
C	30,000	6,000	20
D	50,000	15,000	10
E	50,000	12,000	20

Rank the above projects on the basis of (i) NPV Method, and (ii) Profitability Index Method.

Present value of annuity of Re. 1 received in steady stream discounted @ 15% :

8 years	=	4.6586
10 years	=	5.1790
20 years	=	6.3345

Solution :

(i) **Calculation under Net Present Value Method**

Project	Annual Cash Flow	Life of Project (Years)	P.V. at 15%	Present Value of N.C.F.	Initial Outlay	Net Present Value	Ranks
	Rs.			Rs.	Rs.	Rs.	
A	25,000	10	5.1790	1,29,475	1,00,000	29,475	1
B	20,000	8	4.6586	93,172	70,000	23,172	4
C	6,000	20	6.3345	38,007	30,000	8,007	5
D	15,000	10	5.1790	77,685	50,000	27,685	2
E	12,000	20	6.3345	76,014	50,000	26,014	3

(ii) Profitability Index = $\frac{P.V. \text{ of Net Cash Flows}}{\text{Initial Cash Outlay}}$

Calculation under Profitability Index Method

Project	P.V. of N.C.F.	Initial Outlay	Profitability Index	Rank
(1)	(2)	(3)	(4) = $\frac{(2)}{(3)}$	(5)
A	1,29,475	1,00,000	1.29	4
B	93,172	70,000	1.33	3
C	38,007	30,000	1.27	5
D	77,685	50,000	1.55	1
E	76,014	50,000	1.52	2

4. Terminal Value (TV) Method:

Under this method, it is assumed that each cash inflow is reinvested in another asset at a certain rate of return and calculating the terminal value of net cash flow at the end of project life. In short, the NCF and the outlay are compounded forward rather than backward by discounting which is used by NPV method.

The following illustration will make the principle clear:

Illustration 8:

Initial Outlay	Rs. 20,000
Project Life	5 years
Net Cash Inflow	Rs. 8,000 each for 5 years
Cost of Capital	@ 10% (k)
Expected interest rates	

End of the Year	Percentage
1	6%
2	6%
3	6%
4	8%
5	8%

Solution:

Before preparing the table we are to know that we will reinvest ₹ 8,000 (which is received) at the end of year 1 for 4 years @ 6%. The NCF of year 2 will also be reinvested for 3 years. Similarly, the NCF of year 3 will be reinvested for 2 years, and so on. Naturally there will be no reinvestment at the end of the 5th year. Therefore, the total sum of this compound NCF is then discounted back to the present at (k) in order to compare the PV of cash outflow which, in this case, is ₹ 20,000.

PV of Terminal Sum is shown below under consideration that the cost of capital is 10%:

Years	N.C.F. (- Rs. 20,000) Rs.	Internal Rate	Years for Investment	Compounding Factor	Compound Sum Rs.
1	8,000	6 %	4	1.262	10,096
2	8,000	6 %	3	1.191	9,528
3	8,000	6 %	2	1.166	9,328
4	8,000	8 %	1	1.080	8,640
5	8,000	8 %	0	1.000	8,000
				Total	<u>45,592</u>

Here the discount rate represents the cost of capital (k) (10%). We are

also to find out the PV of ₹ 45,592 which will actually be received at the end of five years.

Therefore, the PV of the total compounded sum will be calculated as:

$$PV = ₹ 45,592 / (1 + .10)^5 = ₹ 28,313$$

(Note: PV of Re. 1, received 5 years @ 10% discount rates, is 0.621. The sum of the PV will be ₹ 45,592 x 0.621 = ₹ 28,313.)

Since TV is positive here, the project can be accepted. Its TV is ₹ 8.313.

Acceptance Rule:

From the foregoing discussion, it becomes clear that, if the value of the total compounded reinvested cash flow is greater than the present value of outflow, i.e., if NCF have a higher terminal value in comparison with the outlay, the project is accepted, and vice versa.

The accept-reject rule can thus be formulated as:

(1) If there is a single project:

Accept the project if the terminal value (TV) is positive.

(2) If there are mutually exclusive:

The project will be more profitable which has projects the highest positive terminal value (TV).

It can also be stated that if TV is positive, accept the project and, if TV is negative, reject the project.

It should be remembered that TV method is similar to NPV method. The only difference is that, in case of former, values are compounded while, in case of latter, values are discounted. Of course, both of them will present the same result provided the rate is same (i.e., discounting and compounding).

Taxation Effect:

Net cash flows are calculated after tax but before charging depreciation. As such, it requires explanation about the relevant provisions for depreciation and other allowances charges which are contained in the Income-tax Act, 1961.

They are:**(1) Normal Depreciation [Section 32(1)(i) and (ii)]**

(i) Such depreciation is allowed at prescribed rates on actual or written-down value (WDV) of building machinery, plant or furniture u/s 32(1), (ii) and on actual cost of ship u/s 32(1)(i). Where the actual cost of any machine or plant does not exceed ₹ 5,000, the actual cost thereof shall be allowed as a deduction. No normal depreciation will be allowed on asset sold or discarded or destroyed after using a part of the year.

Normal depreciation will be allowed on an asset in full on the basis of Diminishing Balance Method at prescribed rates even if it worked only for the last day of the year. But it should be remembered that, whatever method is followed, the amount of depreciation is to be added back to the profit after tax in order to ascertain the net cash flow for a specific period.

(2) Initial Depreciation [Section 32(1)(iv) and (v)]:

Initial Depreciation is allowed on assets in the following two cases,— in respect of erection of a building or installation of an asset.

- (a) At the rate of 40% of the actual cost of a building which has been newly erected after 31st March 1961.
- (b) At the rate of 25% of the actual cost of a building, erection of which is completed after 31st March 1967.

The initial depreciation shall not be deducted in determining the written-down value of an asset, but it should be taken into account while ascertaining terminal allowance u/s 32(1)(iii) or Balancing Charge u/s 41(2) on disposal or destruction of such building or asset.

Terminal Depreciation [Section 32(1)(iii)]:

According to Section 32(1)(iii), in the case of any building, machinery, plant or furniture which is sold, discarded, demolished or destroyed, the amount by which the money payable in respect of such asset together with the amount of scrap value, if any fall short of the written-down value thereof, as reduced by initial depreciation, if any, shall be deductible by way of terminal depreciation or allowance provided such deficiency is actually written-off in the books of the assessee. Terminal depreciation cannot be claimed if the asset is not used for the purpose of business or profession.

Balancing Charge [Section 41 (2)]:

According to Section 41(2), where any depreciated asset, such as building, machinery, plant or furniture, which are used for the purpose of business or profession, is sold, discarded, demolished or destroyed and the money paid or payable in respect of such asset together with the scrap value, if any, exceeds the written-down value, so much of the excess as does not exceed the difference between actual cost and the written-down value, i.e., the total depreciation (including initial depreciation, if any) allowed up-to-date, shall be chargeable to income-tax by way of Balancing Charge, and the remaining surplus, if any, as taxable as capital gains.

It may be mentioned here that where the insurance company replaces the asset lost or discharge the liability in respect of claim for asset lost under conditions of the policy, question of Balancing Charge will not arise in that case as there is no payment of money. The rules laid down by explanation 2 to Section 32(1)(iii) in respect of terminal depreciation are applicable in case of Balancing Charge.

Practically, the amount of balancing charge will bring down the amount of net cash flow or the amount realised on sale by the amount of tax payable on such Balancing Charge. In order to encourage the development of industries, development rebate was also introduced by the Finance Act, 1955 (Section 33) in respect of certain machinery or plant, apart from the provisions already disused above.

Working Capital:

Requirement of additional working capital in the various components of additional current assets, viz. Inventory (raw materials, work-in-progress and finished goods), as well as to pay off wages and other bills, is needed in addition to the investment in fixed asset on a project. Therefore, while determining total amount of investment, requirement of additional working capital should also be taken into consideration.

Similarly, when the project comes to an end, the amount of working capital (in full or in part) so realised, should also be considered along with the scrap value of fixed assets, if any. Sometimes a run-down of working capital investment may so happen before the project actually comes to an end. In that case, the release of funds must be considered in the respective years during the life of the project carefully.

The following illustration will, however, make the principle clear:

Illustration 9:

Initial Outlay	Rs. 20,000
Life	5 years
Profit before tax and depreciation	Rs. 8,000
Requirement of additional working capital	Rs. 4,000
Rate of tax	40%
Rate of depreciation on diminishing balance method	10%
Initial depreciation	20%
Scrap value of the investment will fetch	Rs. 3,122
Cost of capital is	10% p.a.

Advise management as to the profitability of the project, assuming that the working capital can be recovered in full at the end of the project life.

Solution :

Workings :

Statement of Depreciation and Terminal Allowance

	Rs.		Rs.
Cost of the Project	20,000	Written-Down Value at the end	
Year 1. Dep. @ 10%	2,000	of 4th year	20,000
	<u>18,000</u>	Cost of Project	
Year 2. Dep. @ 10%	1,800	Less : Total Dep.	
	<u>16,200</u>	Initial @ 20% on Rs. 20,000	4,000
Year 3. Dep. @ 10%	1,620	Normal Dep.	
	<u>14,580</u>	(2,000 + 1,800 + 1,620 + 1,458)	6,878
Year 4. Dep. @ 10%	1,458		<u>10,878</u>
	<u>13,122</u>	Less : Scrap Value	3,122
		Terminal Allowance	<u>6,000</u>

Profitability Statement

Years	Profit before tax and Depreciation	Depreciation and Allowance	Taxable Profit	Tax @ 40% on (c)	Profit after tax	Profit after tax but before Depreciation	P.V. Factor. at 10%	Present Value
	(a)	(b)	(c) = (a) - (b)	(d)	(e) = (c) - (d)	(f) = (b) + (e)	(g)	(h) = (f) × (g)
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	8,000	6,000	2,000	800	1,200	7,200	0.909	6,555
2	8,000	1,800	6,200	2,480	3,720	5,520	0.827	4,565
3	8,000	1,620	6,380	2,552	3,828	5,448	0.751	4,091
4	8,000	1,458	6,542	2,617	3,925	5,383	0.683	3,676
5	8,000	6,000	2,000	800	1,200	7,200	0.621	4,471
								23,348
						3,122	0.621	1,939
						4,000	0.621	2,484
								<u>27,771</u>

Thus the total amount of discounted cash flow, ₹ 27,771, exceeds the total cost of investment (both fixed capital and working capital i.e., ₹ 20,000 and ₹ 4,000) = ₹ 24,000. Hence, the project should be accepted. If, however, the Profitability Index (PI) is considered, the same is found to be 1.16 (i.e. ₹ 27,770/ ₹ 24,000).

18.8 SUMMARY

Capital expenditures refer to funds that are used by a company for the purchase, improvement, or maintenance of long-term assets to improve the efficiency or capacity of the company. Long-term assets are usually physical, fixed and non-consumable assets such as property, equipment, or infrastructure, and that have a useful life of more than one accounting period. Also known as capital expenses, capital expenditures include the purchase of items such as new equipment, machinery, land, plant, buildings or warehouses, furniture and fixtures, business vehicles, software, or intangible assets such as a patent or license. The expenditure amounts for an accounting period are usually stated in the cash flow statement. Capital expenditures normally have a substantial effect on the short-term and long-term financial standing of an organization. Therefore, making wise Capital Expenditure decisions is of critical importance to the financial health of a company. Many companies usually try to maintain the levels of their historical capital expenditure to show investors that the managers of the company are investing effectively in the business.

18.9 GLOSSARY

- **Net present value:** Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyze the profitability of a projected investment or project.
- **Internal rate of return:** The internal rate of return (IRR) is a discounting cash flow technique which gives a rate of return earned by a project. The internal rate of return is the discounting rate where the total of initial cash outlay and discounted cash inflows are equal to zero. In other words, it is the discounting rate at which the net present value (NPV) is equal to zero.

- **Payback period method:** The payback period method is used to quickly evaluate the time it should take for an investor to get back the amount of money put into a project. Those investments with even cash flows are computed by dividing the cost of the investment by the annual net cash flows

18.10 SELF ASSESSMENT QUESTIONS

Q1 Discuss the nature of capital expenditure decisions.

Ans _____

Q2 Give the definition of capital expenditure decisions.

Ans _____

18.11 LESSON END EXERCISE

Q1 Explain in detail the various techniques of capital expenditure decisions

Ans _____

Q2 Explain the nature and importance of capital expenditure decisions.

Ans _____

18.12 SUGGESTED READINGS

1. I.M. Pandey Financial Management
2. Khan & Jain Financial Management
3. R.M. Shrivastava Financial Management
4. Griner, E. H. and Gordon, L. A. (1995), Internal cash flow, insider ownership, and capital expenditure. *Journal of Business Finance and Accounting*, Vol. 22 (March), pp. 179-199.
5. McConnell, J. J., and Muscarella, C. J. (1985), Corporate capital expenditures decisions and the market value of the firm. *Journal of Financial Economics*, Vol. 14 (September), pp. 399-422.
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PROJECT FINANCING & CREDIT IMPACT OBJECTIVES

STRUCTURE

- 19.1 Introduction
- 19.2 Objectives
- 19.3 Project financing
- 19.4 Key features of project financing
- 19.5 Various stages of project financing
- 19.6 Advantages of project financing
- 19.7 Disadvantages of project financing
- 19.8 Credit impact objectives
- 19.9 Summary
- 19.10 Glossary
- 19.11 Self Assessment Questions
- 19.12 Lesson End Exercise
- 19.13 Suggested Readings

19.1 INTRODUCTION

Project finance is a means of funding projects that are typically infrastructure heavy, capital-intensive or related to public utilities. During its lifetime, these projects are treated as distinct entities from its parent. A project finance venture undertaken is completely an off-balance sheet item for the parent. Therefore, all financing this entity avails, must be repaid exclusively out of its own cash flow and subject to its own assets. The assets of the parent cannot encroach for payback of its subordinate's liabilities even if the venture fails. Popular sectors where project finance finds its applications include real estate, mining, telecommunication and power to name a few. There are elements of project finance that are present in all project financings. Project finance provides long-term, limited recourse or non-recourse loans used to finance large commercial, industrial, infrastructure, and sovereign projects throughout the world. The debt and repayment structure are based on the project finance model where projected cash flow of the project rather than the balance sheets of the project sponsor. Usually, project financings involve a number of equity participants, who can be project sponsors or equity investors, and a consortium of lenders that provide the project loan to the project. Project finance loans are almost always extended on a non-recourse or limited recourse basis and are secured by the project assets and operations. Repayment of the loans occurs entirely from project cash flow, not from the assets or credit of the borrower. These are just some of the common elements of project finance.

Financing infrastructure projects through the project finance route offers various benefits such as the opportunity for risk sharing, extending the debt capacity, the release of free cash flows, and maintaining a competitive advantage in a competitive market. Project finance is a useful tool for companies that wish to avoid the issuance of a corporate repayment guarantee, thus preferring to finance the project in an off-balance sheet manner. The project finance route permits the sponsor to extend their debt capacity by enabling the sponsor to finance the project on someone's credit, which could

be the purchaser of the project's outputs. Sponsors can raise funding for the project based simply on the contractual commitments. Project finance also permits the sponsors to share the project risks with other stakeholders. The basic structure of project finance demands that the sponsors spread the risks through a network of security arrangements, contractual agreements, and other supplemental credit support to other financially capable parties willing to assume the risks. This helps in reducing the risk exposure of the project company.

In spite of these advantages, project finance is quite complex and costly to assemble. The cost of capital arranged through this route is high in comparison with capital arranged through conventional routes. The complexity of project finance deals is due to the need to structure a set of contracts that must be negotiated by all of the parties to the project. This also leads to higher transaction costs on account of the legal expenses involved in designing the project structure, dealing with project-related tax and legal issues, and the preparation of necessary project ownership, loan documentation, and other contracts.

19.2 OBJECTIVES

The objectives of this lesson are :

1. To understand the meaning of project financing.
2. To discuss the advantages and disadvantages of project financing.
3. To highlight the key features of project financing.
4. To discuss the various stages in project financing.
5. To discuss about the credit impart objectives.

19.3 PROJECT FINANCING

Project Financing is a long-term, non-recourse or limited recourse financing scheme that is used to fund massive projects which can be repaid using the project cash flow obtained after the completion of the project. This

scheme offers financial aid off balance sheet, therefore, the credit of the shareholder and Government contracting authority does not get affected. In Project Financing, multiple participants are allowed to handle the project while the ownership of the project is entitled according to the terms of the loan only after the project is completed. This financial scheme offers better credit margin to lenders while shifting some of the risk from the sponsors to the lenders. Project finance is a method of financing very large capital intensive projects, with long gestation period, where the lenders rely on the assets created for the project as security and the cash flow generated by the project as source of funds for repaying their dues. Simply put, project finance is essentially financing on the security of the project itself, with limited or no recourse against the sponsors of the project or other parties involved in the development and implementation of the project. Due to such characteristics of project finance, the loans sought by the borrowers are always approved by the lenders on the basis of strong in-house appraisal of the cost and viability of the ventures as well as the credit standing of project promoters. Project finance generally covers green-field industrial projects, capacity expansion at existing manufacturing units, construction ventures or other infrastructure projects. The term 'infrastructure projects' is used here in its general and wide meaning to describe physical structures (such as roads, highways, ports, airports etc.) or systems (such as electricity transmission system, pipeline distribution systems) that are designed, built, operated and maintained to provide for certain physical facilities (such as roads, railways, airports, urban mass rapid transit systems) or commodities (such as natural gas, petroleum, electricity) or for the due utilization of natural resources (water, crude oil, minerals) or provision of services (telecommunications, broadcasting, air transport services, waste handling and treatment) through the general public within the specified geographical area. Capital intensive business expansion and diversification as well as replacement of equipment may also be covered under project finance.

19.4 KEY FEATURES OF PROJECT FINANCING

Below mentioned are the key features of Project Financing:

- **Capital intensive financing scheme:** Project Financing is ideal for ventures requiring huge amount of equity and debt, and is usually implemented in developing countries as it leads to economic growth of the country. Being more expensive than corporate loans, this financing scheme drives costs higher while reducing liquidity. Additionally, the projects under this plan commonly carry Emerging Market Risk and Political Risk. To insure the project against these risks, the project also has to pay expensive premiums.
- **Risk allocation:** Under this financial plan, some of the risks associated with the project is shifted towards the lender. Therefore, sponsors prefer to avail this financing scheme since it helps them mitigate some of the risk. On the other hand, lenders can receive better credit margin with Project Financing.
- **Multiple participants applicable:** As Project Financing often concerns a large-scale project, it is possible to allocate numerous parties in the project to take care of its various aspects. This helps in the seamless operation of the entire process.
- **Asset ownership is decided at the completion of project:** The Special Purpose Vehicle is responsible to overview the proceedings of the project while monitoring the assets related to the project. Once the project is completed, the project ownership goes to the concerned entity as determined by the terms of the loan.
- **Zero or limited recourse financing solution:** Since the borrower does not have ownership of the project until its completion, the lenders do not have to waste time or resources evaluating the assets and credibility of the borrower. Instead, the lender can focus on the feasibility of the project. The financial services company can opt for limited recourse

from the sponsors if it deduces that the project might not be able to generate enough cash flow to repay the loan after completion.

- **Loan repayment with project cash flow:** According to the terms of the loan in Project Financing, the excess cash flow received by the project should be used to pay off the outstanding debt received by the borrower. As the debt is gradually paid off, this will reduce the risk exposure of financial services company.
- **Better tax treatment:** If Project Financing is implemented, the project and/or the sponsors can receive the benefit of better tax treatment. Therefore, this structured financing solution is preferred by sponsors to receive funds for long-term projects.
- **Sponsor credit has no impact on project:** While this long-term financing plan maximises the leverage of a project, it also ensures that the credit standings of the sponsor has no negative impact on the project. Due to this reason, the credit risk of the project is often better than the credit standings of the sponsor.

19.5 VARIOUS STAGES OF PROJECT FINANCING

1. Pre-Financing Stage

- **Identification of the Project Plan** - This process includes identifying the strategic plan of the project and analysing whether its plausible or not. In order to ensure that the project plan is in line with the goals of the financial services company, it is crucial for the lender to perform this step.
- **Recognising and Minimising the Risk** - Risk management is one of the key steps that should be focused on before the project financing venture begins. Before investing, the lender has every right to check if the project has enough available resources to avoid any future risks.
- **Checking Project Feasibility** - Before a lender decides to invest on a

project, it is important to check if the concerned project is financially and technically feasible by analysing all the associated factors.

2. **Financing Stage**

Being the most crucial part of Project Financing, this step is further sub-categorised into the following:

- **Arrangement of Finances** - In order to take care of the finances related to the project, the sponsor needs to acquire equity or loan from a financial services organisation whose goals are aligned to that of the project
- **Loan or Equity Negotiation** - During this step, the borrower and lender negotiate the loan amount and come to a unanimous decision regarding the same.
- **Documentation and Verification** - In this step, the terms of the loan are mutually decided and documented keeping the policies of the project in mind.
- **Payment** - Once the loan documentation is done, the borrower receives the funds as agreed previously to carry out the operations of the project.

3. **Post-Financing Stage**

- **Timely Project Monitoring** - As the project commences, it is the job of the project manager to monitor the project at regular intervals.
- **Project Closure** - This step signifies the end of the project.
- **Loan Repayment** - After the project has ended, it is imperative to keep track of the cash flow from its operations as these funds will be, then, utilised to repay the loan taken to finance the project.

19.6 ADVANTAGES OF PROJECT FINANCE

1. **Non-recourse/limited recourse financing:** Non-recourse project financing does not impose any obligation to guarantee the repayment

of the project debt on the project sponsor. This is important because capital adequacy requirements and credit ratings mean that assuming financial commitments to a large project may adversely impact the company's financial structure and credit rating (and ability to access funds in the capital markets).

2. **Off balance sheet debt treatment:** The main reason for choosing project finance is to isolate the risk of the project, taking it off balance sheet so that project failure does not damage the owner's financial condition. This may be motivated by genuine economic arguments such as maintaining existing financial ratios and credit ratings. Theoretically, therefore, the project sponsor may retain some real financial risk in the project as a motivating factor, however, the off balance sheet treatment will effectively not affect the company's investment rating by credit rating analysts.
3. **Leveraged debt:** Debt is advantageous for project finance sponsors in that share issues (and equity dilution) can be avoided. Furthermore, equity requirements for projects in developing countries are influenced by many factors, including the country, the project economics, whether any other project participants invest equity in the project, and the eagerness for banks to win the project finance business.
4. **Avoidance of restrictive covenants in other transactions:** Because the project financed is separate and distinct from other operations and projects of the sponsor, existing restrictive covenants do not typically apply to the project financing. A project finance structure permits a project sponsor to avoid restrictive covenants, such as debt coverage ratios and provisions that cross-default for a failure to pay debt, in the existing loan agreements and indentures at the project sponsor level.
5. **Favourable tax treatment:** Project finance is often driven by tax efficient considerations. Tax allowances and tax breaks for capital investments etc. can stimulate the adoption of project finance. Projects contract to provide a service to a state entity can use these tax breaks

(or subsidiaries) to inflate the profitability of such ventures.

6. **Favourable financing terms:** Project financing structures can enhance the credit risk profile and therefore obtain more favourable pricing than that obtained purely from the project sponsor's credit risk profile.
7. **Political risk diversification:** Establishing SPVs (special purpose vehicles) for projects in specific countries quarantines the project risks and shields the sponsor (or the sponsor's other projects) from adverse developments.
8. **Risk sharing:** Allocating risks in a project finance structure enables the sponsor to spread risks over all the project participants, including the lender. The diffusion of risk can improve the possibility of project success since each project participant accepts certain risk.. However, the multiplicity of participating entities can result in increased costs which must be borne by the sponsor and passed on to the end consumer.
9. **Collateral limited to project assets:** Non-recourse project finance loans are based on the premise that collateral comes only from the project assets. While this is generally the case, limited recourse to the assets of the project sponsor is sometimes required as a way of incentivizing the sponsor.
10. **Lenders are more likely to participate in a workout than foreclose:** The non-recourse or limited recourse nature of project finance means that collateral (a half-completed factory) has limited value in a liquidation scenario. Therefore, if the best chance of success lies in finding a workout solution rather than foreclosing. Lenders will therefore more likely cooperate in a workout scenario to minimize losses.

19.7 DISADVANTAGES OF PROJECT FINANCE

1. **Complexity of risk allocation:** Project financings are complex

transactions involving many participants with diverse interests. This results in conflicts of interest on risk allocation amongst the participants and protracted negotiations and increased costs to compensate third parties for accepting risks.

2. **Increased lender risk:** Since banks are not equity risk takers, the means available to enhance the credit risk to acceptable levels are limited, which results in higher prices. This also necessitates expensive processes of due diligence conducted by lawyers, engineers and other specialized consultants.
3. **Higher interest rates and fees:** Interest rates on project financings may be higher than on direct loans made to the project sponsor since the transaction structure is complex and the loan documentation lengthy. Project finance is generally more expensive than classic lending because of:
 - the time spent by lenders, technical experts and lawyers to evaluate the project and draft complex loan documentation;
 - the increased insurance cover, particularly political risk cover;
 - the costs of hiring technical experts to monitor the progress of the project and compliance with loan covenant;
 - the charges made by the lenders and other parties for assuming additional risks.
4. **Lender supervision:** In order to protect themselves, lenders will want to closely supervise the management and operations of the project. This supervision includes site visits by lender's engineers and consultants, construction reviews, and monitoring construction progress and technical performance, as well as financial covenants to ensure funds are not diverted from the project. This lender supervision is to ensure that the project proceeds as planned, since the main value of the project is cash flow via successful operation.

5. **Lender reporting requirements:** Lenders will require that the project company provides a steady stream of financial and technical information to enable them to monitor the project's progress. Such reporting includes financial statements, interim statements, reports on technical progress, delays and the corrective measures adopted, and various notices such as events of default.
6. **Increased insurance coverage:** The non-recourse nature of project finance means that risks need to be mitigated. Some of this risk can be mitigated via insurance available at commercially acceptable rates. This however can greatly increase costs, which in itself, raises other risk issues such as pricing and successful syndication.
7. **Transaction costs may outweigh the benefits: The complexity of the project financing** arrangement can result in a transaction whose costs are so great as to offset the advantages of the project financing structure. The time-consuming nature of negotiations amongst various parties and government bodies, restrictive covenants, and limited control of project assets, and burgeoning legal costs may all work together to render the transaction unfeasible.

19.8 CREDIT IMPACT OBJECTIVE

While the sponsor or sponsors of a project financing ideally would prefer that the project financing be a non-recourse borrowing which does not in any way affect its credit standing or balance sheet, many project financings are aimed at achieving some other particular credit impact objectives, such as any one or several of the following:

- To avoid being shown on the face of the balance sheet.
- To avoid being shown as debt on the face of the balance sheet so as not to impact financial ratios.
- To avoid being shown in a particular footnote to the balance sheet.
- To avoid being within the scope of restrictive covenants in an indenture

or loan agreement which precludes direct debt financing or leases for the project.

- To avoid being considered as a cash obligation which would dilute interest coverage ratios, and affect the sponsor's credit standing with the rating services.
- To limit direct liability to a certain period of time such as during construction and/or the start – up period, so as to avoid a liability for the remaining life of the project.
- To keep the project off -balance sheet during construction and / or until the project generates revenues.

19.9 SUMMARY

Project Financing is a long-term, non-recourse or limited recourse financing scheme that is used to fund massive projects which can be repaid using the project cash flow obtained after the completion of the project. This scheme offers financial aid off balance sheet, therefore, the credit of the shareholder and Government contracting authority does not get affected. In Project Financing, multiple participants are allowed to handle the project while the ownership of the project is entitled according to the terms of the loan only after the project is completed. This financial scheme offers better credit margin to lenders while shifting some of the risk from the sponsors to the lenders. As the Indian Government continues to investment on the infrastructure of the country, it is expected that there will be massive developments in future in terms of power, transportation, bridges, dams etc. Most of these projects will be using the Public Private Partnership (PPP) method indicating a rise in Project Financing during the upcoming years

19.10 GLOSSARY

- **Project financing:** Project finance is the funding (financing) of long-term infrastructure, industrial projects, and public services using a non-

recourse or limited recourse financial structure. The debt and equity used to finance the project are paid back from the cash flow generated by the project.

- **Non- recourse or limited recourse finance:** Non-recourse finance is a type of commercial lending that entitles the lender to repayment only from the profits of the project the loan is funding and not from any other assets of the borrower. Such loans are generally secured by collateral.

19.11 SELF ASSESSMENT QUESTION

Q1 What are the key features of project financing?

Ans _____

Q2 What do you mean by project financing?

Ans _____

19.12 LESSON END EXERCISE

Q1 Define project financing. Discuss its advantages and disadvantages also.

Ans _____

Q2 Explain in detail the various stages of project financing.

Ans _____

19.13 SUGGESTED READINGS

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TAXATION AND SPECIFIC DECISIONS**STRUCTURE**

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20.1 INTRODUCTION

Tax payment has never been a pleasure for any tax payer. Though tax is defined as a contribution by the people to the government but it is a levy and an unpleasant burden on every assessee. Tax is defined as something which taxes your strength, our patience on our resources it uses nearly all of them so that we have great difficulty in carrying out what we are trying to do. It is a task which requires lot of physical and mental efforts. One tries to reduce tax burden by many means because tax is reduction in his disposable income which he earned from his physical and mental efforts. Therefore every tax payers tries to minimize the burden of tax by his own means. Tax Planning is an activity conducted by the tax payer to reduce the tax liable upon him/her by making maximum use of all available deductions, allowances, exclusions, etc. feasible under law. In other words, it is the analysis of a financial situation from the taxation point of view. The objective behind tax planning is insurance of tax efficiency. Tax planning allows all elements of the financial plan to function in sync to deliver maximum tax efficiency. Tax planning is critical for budgetary efficiency. A reduced tax liability and maximized the ability of retirement plans

Tax planning is a process of analysing and evaluating an individual's financial profile. The aim of this activity is to minimise the amount of taxes you pay on your personal income. In short, employing ways that the government has provided to save tax is a perfectly legal method to cut down your annual tax liability. There are a number of tax saving investments in India that are useful in saving money. There are three key characteristics of tax planning—investing to reduce taxes; planning your finances in such a way that you attract the least amount of tax, and the process of tax filing. As a result, tax planning affects all aspects of your money matters.

Tax planning is the analysis of one's financial situation from a tax efficiency point of view so as to plan one's finances in the most optimized manner. Tax planning allows a taxpayer to make the best use of the various tax exemptions, deductions and benefits to minimize their tax liability over a

financial year. This process varies from person to person and depends, among many factors, taxable income, time schedule for investments, risk bearing inclination, existing investment pattern, expected returns etc. Over the years, tax planning scenario has become more dynamic and complicated, due to constant changes in the tax laws and falling interest rates. Further tax planning cannot be done in isolation; it should be a part of overall financial planning. Tax is defined as something which taxes your strength, your patience or your resources it uses nearly all of them so that you have great difficulty in carrying out what you are trying to do. It is a task which requires lot of mental and physical efforts. One tries to reduce tax burden by many means because tax is reduction in his disposable income which he earned from his physical and mental efforts. Therefore every tax payer tries to minimise the burden of tax by his own means.

20.2 OBJECTIVES

The objectives of this lesson are:

- To understand the scope of tax planning in India
- To discuss the strategic considerations in make or buy decisions.
- To understand the concept, importance and factors affecting capital structure policies
- To explain the concept of taxation and dividend decisions.

20.3 SCOPE OF TAX PLANNING IN INDIA

Some of the more important areas where planning can be attempted in an organized manner, have been briefly indicated below:

- **Form of organization:** In the case of a company, tax law interface with the corporate planning process from the moment of the company's legal existence. At times, tax law affect even the period prior to the existence of a company and move hand in hand with it upto the point of time when the company ceases to exist and in some cases even

after it holds up. So, planning for tax affairs should begin before starting the organization. The various forms of organization available for an entrepreneur are: (i) proprietary concern; (ii) partnership firm; (iii) joint hindu family; and (iv) company. Depending upon the level of operation, profitability of the organization and the need of external financing to run the business at the required level, expected requirements of technical expertise, a suitable form may be chosen. For example, a promoter keeping in view of the above factors may choose to adopt a partnership concern. But later, due to change in the above factor or due to some other reason, he might think of converting the partnership firm into a limited company. Even in such a situation, the need for a tax planner's advice would be felt since such a conversion of the form of organization might invoke new tax liabilities, for example a tax on capital gains.

- **Choice of business:** The problems of choosing the right product mix or business would be next important area where tax planning may be helpful. For example, even an existing company which is planning to expand would always be confronted with a problem while choosing the right product mix. A company producing some products after purchasing the raw material inside its factory instead, or in other cases, a company might plan to produce the final product and may not just stop by producing the required raw materials for producing the intermediate production process, but it would always be important to know whether any tax disincentives are attached to this. The business may be trading or a manufacturing business or a combination of both. In the case of a trading business, the company may like to take up an export market, to get benefits under section 35-B, or other concessions provided by the Minister of Commerce or FERA or customs and excise laws, etc. A company running a manufacturing business will be getting a lot of tax concessions like tax holiday benefit, investment allowance, higher depreciation, lower tax rates, etc. It may be noted that the income tax Act 1961 provides for differential treatment for business

popularly known as “priority industries”. It provides special benefits to new industrial undertakings, export markets development plans; etc. Also special deductions from income from assesses supplying these technical know how etc. are available, keeping in view all these factors, the right choice of business is made.

- **Location of business:** From the point of view of income tax, certain concessions are available for opening new industrial undertakings in backward area or rural areas (Section 80-HHA). However this tax benefits and subsidies obtainable from the government in various forms should be weighted against additional overheads to be incurred like transport, etc. if the business is in backward areas. Often in such cases, non tax factors need a thorough examination and analysis.
- **Capital structure decisions:** While deciding the optimal mixture proper tax planning should be carried out. This is necessary in view of the differential tax treatment given to servicing the various forms of capital, viz, equity share capital and debt capital (which includes various outside sources of finance in addition to public deposits). This differential tax treatment given to various modes of raising capital, makes debt capital the cheapest source of funds, a company cannot afford to increase the quantum of debt indiscriminately. In such a situation, the need for integration of tax planning with financial planning arises. Successful planning can sustain the element of success only if they expand. This calls for an examination and integration of planning the capital structure decisions and the expansion proposals. But in the case of public enterprises, debt is not a cheaper form of capital, since both debt and equity capital flow from the same owner, viz, the government. Hence, the various arguments regarding capital gearing may not be valid for them.
- **Expansion and diversification:** Expansion may be internal or external. Internal expansion involves expanding existing operations by either starting a new branch or new unit or a new company. In such a case, if

the new business is financed by ploughing back profits, more tax holiday benefit may be available to the company. If the old company borrow funds, interest on borrowing may be claimed by it as a deduction. Also, such borrowings do not affect the quantum of capital employed in the new business. If the new business is started as subsidiary company, attention may be paid to provisions under Section 47 (iv) (v) and Section 43 (1). External expansion generally involves amalgamation of two or more companies to form either an altogether different company or one of the existing companies taking over the other. Many successful companies have diversified their operations to new lines of business mainly to solve the financial problems attached to their capital structure decisions, working capital management, capital budgeting decisions etc. In respect of diversifications, it would be better to invest retained profits for starting anew unit rather than a new company, since the possibility of securing taxable profits in the initial years is less. In all these areas, proper planning of tax affairs should be attempted to increase the net retained income.

- **Capital investment decisions:** The tax problems relating to capital gains tax, etc. will be discussed in this connection. For example, investment planning without having regard to various investment allowances available in the Income Tax Act, may not be completed and conclusive.
- **Choice of method of accounting:** Generally, the methods available to the assessee are the mercantile system, the cash system and the hybrid system of accounting. It is generally felt that the hybrid system of accounting is beneficial to the assessee since whereas in respect of income tax, will be levied only if it is realized, in the case of expenditure, tax deduction may be claimed even if the actual payment is postponed to a date falling after the accounting period.
- **Sick units:** In the case of a sick units, it is important to study the

effects of closing them, running them at a low level of operation or amalgamating them with healthier units.

- **Form and source of finance:** The provisions of the companies (Profits) Sur-Tax Act, 1964, should also be considered in this respect while tax planning.
- **Choice of previous year:** The choice of previous year or the date of closing the accounting year, will not be made without considering the tax advantages in doing so. For example, benefits under Section 32A or 36 (3B) or 80HHA and 80J depend also upon the previous year selected by the assessee. This also depends upon date of incorporation, set up and the commencement of business of the company or the date when the company installs its plant and machinery or the date when the company begins to manufacture articles.
- **Reorganisation:** Tax factors are to be considered even in the reorganizing an existing business. For example, conversion of a partnership into a company, splitting up or amalgamation of companies, capital reduction etc. In these cases, tax benefits like investment allowance, tax holiday benefit, and their continuation to the reorganized business have to be considered.
- **Close or continue a business:** This is a case where year around planning is to be adopted. For example, a company might run two businesses, one running at a profit or other at a loss. The management may like to close down the losing business. But the soundness of such a decision cannot be confirmed unless the tax implications are considered in depth. The timing of executing such a decision may have to be considered with due regard to the tax implications like the quantum and the age of the losses etc.
- **Leasing or buying a fixed assets:** Even in such cases tax matters demand due attention and it is only after equating the tax benefits in addition to all other financial or non- financial benefits, that one should

take the decision. The present values of future benefits computed should also be considered in order to make the correct choices.

- **Foreign collaboration agreements:** In framing such agreements, it is necessary to note the special impact of taxation on them.
- **Research and development:** Tax incentive are said to induce companies to enter into research activities.
- **Financial policies:** In framing the financial policies, it is essential to induce taxation in them. For example, in the declaration of dividend, it is essential to consider the effects of section 104 relating to Additional Income Tax on undistributed profits. Similarly, in the inventory valuation, a set pattern should be consistently followed and filed for tax purposes.

20.4 TAXATION AND MAKE OR BUY DECISIONS

This applies to industries where assembly of products takes place to make a finished product. Like a manufacturing of car, thousands of different parts or components are assembled to make a car. It is quite natural every components or part of a car cannot be manufactured by one company. Since part manufacture involves cost, time, energy, and different kinds of technology and expertise. Therefore, in such cases company purchases parts from outside agencies. But where the cost involved in purchasing from outside market is high, then the company might go in for in house production. Apart from costing consideration following factors also go in decision-making process:

1. Utilizations of Capacity
2. Inadequacy Fund
3. Latest Technology
4. Dependence of supplier
5. Labor problem in the factory

What are the cost involved in making of a Pat.

1. Fixed Cost : Purchased of Plant etc.
2. Variable Cost : Raw Materials, Labour, Electricity etc.

What are the cost involved in buying of a part from outside agency:

1. Buying Cost
2. Inventory Cost

Comparison of the above two cost shall determine which decisions the company shall follow. But, however it should be kept in mind that while comparing Cost, common cost should not be take into account. It should also be noted that the cost incurred in making a product and buying a product, both involves incurring of revenue expenditure. Therefore, tax saved in both the cases are same. It comes into picture only when there is a need for extension or establishment of new unit to manufacture that new components.

Tax consideration

1. ***Establishing a new Unit*** : If the decision to manufacture a part or component involves a setting up a separate industrial unit than tax incentives available u/s 10A, 10B, 32, 80IA and 80IB should be considered,
2. ***Export*** : If 'Make or Buy' decision is taken for exporting goods then tax incentives available u/s 80HHC depends upon whether goods manufactured by taxpayer himself are exported or goods manufactured by others are exported by the taxpayers.
3. ***Sale of Plant & Machinery***: If buying is cheaper than manufacturing and the assessee decides to buy parts or components for along period of time, he may like to sell the existing plant and machinery. Tax implication as specified by Sec. 50 has to considered.

20.4.1 Strategic Considerations in Make or Buy Decisions

1. Quality considerations
2. Quantity considerations
3. Cost considerations
4. Service considerations
5. Competence of know-how required
6. Age of the firm
7. Tax considerations
8. Labour union compulsions
9. Emotional Considerations
10. Sub-contracting

1. Quality Considerations in Make or Buy Decision

Compare the quality of the purchased item and the quality that the company could have achieved, had it made on its own. If there is no possibility of a very wide variation, quality considerations do not weigh heavily in reaching a make-or-buy decision. On the other hand, if there is a possibility of very wide variations between the two alternatives, the quality factor becomes crucial in taking a decision either in favour of 'make' or in favour of 'buy'. Before making a decision to make on our own, enough thought should be given to ensure whether the component given to a specialist outside to be produced for us, could be manufactured in a better way by us overcoming technical difficulties, if any. There should be strict adherence to quality control procedures for eliminating the supply of sub-standard components by the supplier. The organisation should also come forward to provide technical know how to smaller ancillary units to produce the component to desired standards. If the outside supplies are defective, it would jeopardize saleability of an otherwise good finished product. Unpatented designs or processes are generally not entrusted to outsiders to protect business interests by preventing others from copying them for a prolonged period of time.

2. Quantity Considerations in Make or Buy Decision

Quantity is always in a state of flux and it is related with time element, the correct quantity under a given condition at a given time may not be valid at another time under changed circumstances. Normally, the make decision is taken when the supplies are likely to be too small to interest an outsider. However, it should be considered whether the order can be made big enough to induce outsiders or whether a corresponding large inventory can be maintained to meet production needs.

Quantity required may be so high that either a decision is taken to make it or to split the requirements among several suppliers. However, when a product is made with the help of dyes or patterns, 'split purchases' are ruled out totally. Each supplier in such a case cannot be given the dyes or patterns in view of the high costs involved. Thus, a large quantity requirement often has a slant towards make-decisions. On the contrary, an exceptionally large quantity requirement may hamper production of the regular product line. It then becomes prudent to buy from a supplier.

3. Cost Considerations in Make or Buy Decision

Cost has relevance in make-or-buy decisions when all the other factors are equal, or else reasonable cost estimates of the variations should be included to make up for any inequality. For example, let us consider that the quantity and service factors are equal. The decision to make-or-buy rests on a comparison between a known cost and an estimated unknown cost. The known cost is the price charged by the vendor, the unknown estimated cost is the cost of making. If there is only negligible difference between the two costs, the item should be purchased. In most cases, a known cost is rather more reliable than a slightly lower estimated cost. How is the cost of making estimated? The estimation of the cost accurately becomes difficult when overhead costs are to be allocated on item that is made in the plant from the materials and on the machines being used for other it.

A plant operating at full or near capacity gives a different cost sheet

of the item now being purchased than a plant having idle capacity would give. Idle capacity results in a high ratio of fixed costs to total costs. Therefore, additional output can be obtained with only a nominal increase in total cost. On the other hand, a firm operating at full capacity gives additional output at substantially increased costs. A plant with excess capacity can increase production by merely adding incremental costs that are variable in nature. A plant working at full capacity, however can give additional output only by increasing its capacity. In such a situation, it is right on the part of the company to purchase from outside at any price less than the unit total costs of making the item.

4. Service Considerations in Make or Buy Decision (Assured or Timely Supply)

The guarantee of supply is an important service consideration. Generally, it can be said that supply is more assured when a company makes an item than when it buys. Assured supply to the assembly line is often a reason for making rather than buying. Such decisions are valid for large industrial concerns where uninterrupted supply is necessary to prevent a breakdown in the supply line. One more consideration is about the effect of the make or buy decision is the buyer's flexibility. While negotiating on buying with various suppliers, the suppliers can be selected as the occasion demands to get the right quality, the right quantity, at the right time and for the right price. Once a company starts making an item on its own, then flexibility is lost.

5. Competence of Know-how required

At any time, a firm wanting to produce an item can acquire the necessary potentialities of making the item. But the feasibility of such acquisition largely depends on the costs which will have to be incurred in acquiring such competence vis-a-vis "buying cost" of the same item. This has to be evaluated and a decision taken accordingly.

6. The Age of Firm

The firm going for 'a make' decision must view its decision from its own age point of view. If it is in its infancy, it is better to rely on outside suppliers. Even if a firm is at a developing stage, it may favour a buying decision instead of plunging itself into an uncertain future unless the exigencies of plant and firm's competence in producing is far superior in all respects and quality, price and service considerations favour the making decision.

7. Tax Considerations in Make or Buy Decision

India is a highly taxed country and the proportion of indirect taxes is till higher. The customs, foreign exchange, import and export restrictions, priority sector subsidies, excise duty are a few examples of tax and restrictive measures which attract the attention of the management when it is posed with a problem of taking a make or buy decision. Profit is the prime motive behind any management's decision. Taxes erode profits and thereby leave little incentive to increase profits, if the management decides to take more than a normal risk while taking a decision 'to make' and save, thus reducing the cost of production.

8. Labour Union Compulsions in Make or Buy Decision

Sometimes labour unions may be against a decision which they fear might go against their interest. Generally, Making rather than buying items may enable a firm to give more assured and regular employment to its employees.

9. Emotional Considerations in Make or Buy Decision

Motivated by the idea of expansion and enlargement of its activities, the management may go for a make decision. Such an expansion scheme might have come out of economic reasons or emotional or even both but what has to be decided is whether the management can be allowed to go ahead with its purely emotional decision in view of grave implications.

10. Sub-Contracting in Make or Buy Decision

Sub-contracting is a practice wherein the producer hires the services of another producer to perform some of the manufacturing processes or to help in assembling or sub-assembling so as to have the end product at their door-step without going into the formalities of purchasing operations. Sub-contracting, in other words, is one method of buying instead of making and hence many of the factors discussed above, influence the subcontracting desions. It may avoid the need for a new plant and equipment on the part of the buyer. Sub-contracting will generally save the buyer from incurring investment costs in specialized machinery and tooling which may not be needed for his regular production requirements.

20.5 TAXATION AND CAPITAL STRUCTURE POLICIES

The growing sickness among industries, big or small, in our country has been mainly attributed to the poor attention paid by their managements to maneuver this rather complicated aspect of financial management, viz. capital structure decisions. Capital structure decisions deal with developing the right kind of debt-equity relationship. The effective cost of raising and servicing the equity capital and borrowed funds is different, because of the tax factor. The term ‘structure’ means the arrangement of the various parts. So capital structure means the arrangement of capital from different sources so that the long-term funds needed for the business are raised. Thus, capital structure refers to the proportions or combinations of equity share capital, preference share capital, debentures, long-term loans, retained earnings and other long-term sources of funds in the total amount of capital which a firm should raise to run its business.

Few definitions of capital structure given by some financial experts:

“Capital structure of a company refers to the make-up of its capitalisation and it includes all long-term capital resources viz., loans, reserves, shares and bonds.”—**Gerstenberg**.

“Capital structure is the combination of debt and equity securities that comprise a firm’s financing of its assets.”—**John J. Hampton.**

“Capital structure refers to the mix of long-term sources of funds, such as, debentures, long-term debts, preference share capital and equity share capital including reserves and surplus.”—**I. M. Pandey.**

20.5.1 Importance of Capital Structure policies

The capital structure policies adopted by companies either influenced or are influenced by the following crucial factors:

1) Cost of capital

In simple words, companies accepting a particular project would expect a return from the project, at least equal to the costs involved in raising and maintaining the amount invested, i.e. the cost of capital. If the company deals with, say, a single project in a year and finances it from a single source, then the problems will be simple. But this is hardly ever the case. Companies have access to multiple sources of finance and also deals with a variety of projects every year. It would be essential to find out the cost of each type of capital raised by the company individually and compute the weighted average cost of capital for project evaluation purposes. But the cost involved in raising and servicing each type of capital vary with the nature of capital involved. Broadly, capital may be either externally or internally generated. Again it may be debt or equity. Though financial statements are prepared annually and hence the weighted average cost of capital keeps on changing the moment the new money flows into the company. So, analysis have identified a problem, viz. to evaluate a project proposals on the ground of costs involved in raising the finance from a specific source. In that case naturally, a company, say, taking up the identical projects and financing them from different sources, has to quote different terms for acceptance.

(Also, if the funds raised by the company are partly used for, say constructing residential quarters for the employees of the company, then the relevance of cost of capital to this project may not be there!) This would be

rather unwelcome, and may not be in the long run interest of the company. So, it is suggested that a company should evolve (perhaps through a process of trial and error) an optimum capital structure suitable to the specific needs and problems of the company. For deciding this, the company has to specially probe into the following questions

- a) What are the recurring costs involved in raising a particular source of capital?
- b) What are the invisible costs and risks involved in them?
- c) What is the nature of the company's income? For example, in the case of a company dealing mainly in letting out its building, will it be having a regular rental income?
- d) What is the debtor's collection period? Or what is the certainty of receiving the income regularly. For example, it is painful to note that payments from government departments are often irregular. If these departments form a major customer group of the company, then the cash inflow problem may be great. Also, if the company is dealing in either projects with long gestation periods or products having a prolonged operating cycle period (generally so in case of capital intensive industry like BHEL) then the company might face acute cash flow problems, unless suitable arrangements are made. Of course raising a loan to discharge a "senior loan" is not uncommon.
- e) What is the nature of the industry? Is it cyclical?
- f) What is the risk bearing capacity of the shareholders and what is their attitude towards raising more loans?
- g) What is the trend in the country's capital market?
- h) What is the current and anticipated profit performance of the company?
- i) Is the company following a set pattern of discipline in funds management?

- j) What is the debt capacity of the company?
- k) If it is a listed company, what is the market price of its shares?
- l) What is the change in earnings per share (E.P.S) at different debt-equity levels?

Depending upon these and other important aspects, which will be discussed later, the company should evolve a suitable debt- equity ratio. The optimum capital structure thus evolved, should only be revised in the light of some material change in the above factors. Unless this is so, the optimum capital mixture would generally be stable and hence useful for project evaluation purposes. The weighted average cost of such stable capital mixture should be used as the cut off rate for project evaluation.

2) **Capital rationing**

Another major problem is the acute shortage of funds at some times, when the management have to make choices of projects at their disposal, known as capital rationing

3) **Corporate and funds properly used**

Awareness of the cost of capital principle would help management to optimize utilization of funds and explore various opportunities at their disposal with minimum cost. It would thus help maximizing shareholders wealth and hence would guide the management to perform well.

20.5.2 Factors Determining Capital Structure:

The following factors influence the capital structure decisions:

1. Risk of cash insolvency:

Risk of cash insolvency arises due to failure to pay fixed interest liabilities. Generally, the higher proportion of debt in capital structure compels the company to pay higher rate of interest on debt irrespective of the fact that the fund is available or not. The non-payment of interest charges and principal amount in time call for liquidation of the company. The sudden withdrawal

of debt funds from the company can cause cash insolvency. This risk factor has an important bearing in determining the capital structure of a company and it can be avoided if the project is financed by issues equity share capital.

2. Risk in variation of earnings:

The higher the debt content in the capital structure of a company, the higher will be the risk of variation in the expected earnings available to equity shareholders. If return on investment on total capital employed (i.e., shareholders' fund plus long-term debt) exceeds the interest rate, the shareholders get a higher return. On the other hand, if interest rate exceeds return on investment, the shareholders may not get any return at all.

3. Cost of capital:

Cost of capital means cost of raising the capital from different sources of funds. It is the price paid for using the capital. A business enterprise should generate enough revenue to meet its cost of capital and finance its future growth. The finance manager should consider the cost of each source of fund while designing the capital structure of a company.

4. Control:

The consideration of retaining control of the business is an important factor in capital structure decisions. If the existing equity shareholders do not like to dilute the control, they may prefer debt capital to equity capital, as former has no voting rights.

5. Trading on equity:

The use of fixed interest bearing securities along with owner's equity as sources of finance is known as trading on equity. It is an arrangement by which the company aims at increasing the return on equity shares by the use of fixed interest bearing securities (i.e., debenture, preference shares etc.). If the existing capital structure of the company consists mainly of the equity shares, the return on equity shares can be increased by using borrowed capital. This is so because the interest paid on debentures is a deductible expenditure

for income tax assessment and the after-tax cost of debenture becomes very low. Any excess earnings over cost of debt will be added up to the equity shareholders. If the rate of return on total capital employed exceeds the rate of interest on debt capital or rate of dividend on preference share capital, the company is said to be trading on equity.

6. Government policies:

Capital structure is influenced by Government policies, rules and regulations of SEBI and lending policies of financial institutions which change the financial pattern of the company totally. Monetary and fiscal policies of the Government will also affect the capital structure decisions.

7. Size of the company:

Availability of funds is greatly influenced by the size of company. A small company finds it difficult to raise debt capital. The terms of debentures and long-term loans are less favourable to such enterprises. Small companies have to depend more on the equity shares and retained earnings. On the other hand, large companies issue various types of securities despite the fact that they pay less interest because investors consider large companies less risky.

8. Needs of the investors:

While deciding capital structure the financial conditions and psychology of different types of investors will have to be kept in mind. For example, a poor or middle class investor may only be able to invest in equity or preference shares which are usually of small denominations, only a financially sound investor can afford to invest in debentures of higher denominations. A cautious investor who wants his capital to grow will prefer equity shares.

9. Flexibility:

The capital structures of a company should be such that it can raise funds as and when required. Flexibility provides room for expansion, both in terms of lower impact on cost and with no significant rise in risk profile.

10. Period of finance:

The period for which finance is needed also influences the capital structure. When funds are needed for long-term (say 10 years), it should be raised by issuing debentures or preference shares. Funds should be raised by the issue of equity shares when it is needed permanently.

11. Nature of business:

It has great influence in the capital structure of the business, companies having stable and certain earnings prefer debentures or preference shares and companies having no assured income depends on internal resources.

12. Legal requirements:

The finance manager should comply with the legal provisions while designing the capital structure of a company.

13. Purpose of financing:

Capital structure of a company is also affected by the purpose of financing. If the funds are required for manufacturing purposes, the company may procure it from the issue of long-term sources. When the funds are required for non-manufacturing purposes i.e., welfare facilities to workers, like school, hospital etc. the company may procure it from internal sources.

14. Corporate taxation:

When corporate income is subject to taxes, debt financing is favourable. This is so because the dividend payable on equity share capital and preference share capital are not deductible for tax purposes, whereas interest paid on debt is deductible from income and reduces a firm's tax liabilities. The tax saving on interest charges reduces the cost of debt funds. Moreover, a company has to pay tax on the amount distributed as dividend to the equity shareholders. Due to this, total earnings available for both debt holders and stockholders is more when debt capital is used in capital structure. Therefore, if the corporate tax rate is high enough, it is prudent to raise capital by issuing debentures or taking long-term loans from financial institutions.

15. Cash inflows:

The selection of capital structure is also affected by the capacity of the business to generate cash inflows. It analyses solvency position and the ability of the company to meet its charges.

16. Provision for future:

The provision for future requirement of capital is also to be considered while planning the capital structure of a company.

20.6 TAXATION AND DIVIDEND DECISIONS

Dividend decision refers to the policy that the management formulates in regard to earnings for distribution as dividends among shareholders. Dividend decision determines the division of earnings between payments to shareholders and retained earnings. The Dividend Decision, in Corporate finance, is a decision made by the directors of a company about the amount and timing of any cash payments made to the company's stockholders. The Dividend Decision is an important part of the present day corporate world. The Dividend decision is an important one for the firm as it may influence its capital structure and stock price. In addition, the Dividend decision may determine the amount of taxation that stockholders pay.

The amount of dividend that can be legally distributed is governed by company law, judicial pronouncements in leading cases and contractual restrictions. The important provisions of Company law pertaining to dividends are described below

1. Companies can pay only cash dividends (with the expectations of bonus).
2. Dividends can be paid only out of the profits earned during the financial year after providing for depreciation and after transferring to reserves such percentage of profits as prescribed by law.
3. Due to inadequacy or absence of profit in any year, dividend may be

paid out of the accumulated profits of previous years. In this context the following conditions is stipulated by the companies (Declaration of dividend out of reserves) Rules 1975 have to be satisfied.

- a) The rate of dividend shall not exceed the average of the rates at which dividend was declared by it in 5 years immediately preceding that year or 10 percent of its paid up capital and free reserves.
- b) The total amount to be drawn from the accumulated profits earned in previous years and transferred to the reserves shall not exceed an amount equal to one tenth of the sum of its paid up capital and free reserves. The amount so drawn shall first be utilized to set off the losses incurred in the financial year .before any dividend in respect of preference or equity shares is declared and
- c) The balance of reserves after such drawl shall not fall below 15 percent of its paid up capital.
- d) Dividends cannot be declared for past years for which the accounts have been closed.

In the finance act 1995-96, under section 80L of the Income Tax Act, income by way of interest and dividend from certain specified financial assets is exempt from Income Tax to the extent of ₹ 100000 per annum. In order to provide greater fill up to domestic savings by individuals and HUFs the limit now has been raised to ₹ 13000.

Section 80-M deals with the deduction in respect of certain inter-corporate dividends. Under section 80 N the deduction in respect of dividends received from certain foreign companies.

20.6.1 Factors influencing Dividend Decisions.

1. **Legal position:** Section 205 of the Companies Act, 1956 which lays down the sources from which dividend can be paid, provides for payment of dividend (i) out of past profits and (ii) out of moneys provided by the Central/State Government, apart from current profits.

Thus, by law itself, a company may be allowed to declare a dividend even in a year when the profits are inadequate or when there is absence of profit.

2. **Magnitude and Trend in EPS:** EPS is the basis for dividend. The size of the EPS and the trend in EPS in recent years set how much can be paid as dividend a high and steadily increasing EPS enables a high and steadily increasing DPS. When EPS fluctuates a different dividend policy has to be adopted.
3. **Taxability:** According to Section 205(3) of the Companies Act, 1956 'no dividend shall be payable except in cash'. However, the Income-Tax Act defines the term dividend so as to include any distribution of property or rights having monetary value. Therefore liberal dividend policy becomes unattractive from the point of view of the shareholders/investors in high income brackets. Thus a company which considers the taxability of its shareholders, may not declare liberal dividend though there may be huge profit, but may alternatively go for issuing bonus shares later.
4. **Liquidity and Working Capital Position:** Apparently, distribution of dividend results in outflow of cash and as such a reduction in working capital position. Even in a year when a company has earned adequate profit to warrant a dividend declaration, it may confront with a weak liquidity position. Under the circumstance, while one company may prefer not to pay dividend since the payment may impair liquidity, another company following a stable dividend policy, may wish to declare dividends even by resorting to borrowings for dividend payment in cash.
5. **Impact on share price:** The impact of dividends on market price of shares, though cannot be precisely measured, still one could consider the influence of dividend on the market price of shares. The dividend policy pursued by a company naturally depends on how far the

management is concerned about the market price of shares. Generally, an increase in dividend payout results in a hike in the market price of shares. This is significant as it has a bearing on new issues.

6. **Control consideration:** Where the directors wish to retain control, they may desire to finance growth programmes by retained earnings, since issue of fresh equity shares for financing growth plan may lead to dilution of control of the dominating group. So, low dividend payout is favoured by Board.
7. **Type of Shareholders:** When the shareholders of the company prefer current dividend rather than capital gain a high payment is desirable. This happens so, when the shareholders are in low tax brackets, they are less moneyed and require periodical income or they have better investment avenues than the company. Retired persons, economically weaker sections and similarly placed investors prefer current income i.e. dividend. If, on the other hand, majority of the shareholders are moneyed people, and want capital gain, then low payout ratio is desirable. This is known as clientele effect on dividend decision.
8. **Industry Norms:** The industry norms have to be adhered to the extent possible. In most firms in the industry adopt a high payout policy, perhaps others also have to adopt such a policy.
9. **Age of the company:** Newly formed companies adopt a conservative dividend policy so that they can get stabilized and think of growth and expansion.
10. **Investment opportunities for the company:** If the company has better investment opportunities, and it is difficult to raise fresh capital quickly and at cheap costs, it is better to adopt a conservative dividend policy. By better investment opportunities we mean those with higher 'r' relative to the 'k'. So, if $r > k$, low payout is good and vice versa.
11. **Restrictive covenants imposed by debt financiers:** Debt financiers, especially term lending financial institutions, may impose restrictive

conditions on the rate, timing and form of dividends declared. So, that consideration is also significant.

12. **Floatation cost, cost of fresh equity and access capital market:** When floatation costs and cost of fresh equity are high and capital market conditions are not congenial for a fresh issue, a low payout ratio is adopted.
13. **Financial signaling:** Dividends are the best medium to tell shareholder of better days ahead of the company. When a company enhances the target dividend rate, it overwhelmingly signals the shareholders that their company is on stable growth path. Share prices immediately react positively.

20.6.1 Significance of dividend decision

The significance of dividend decisions are discussed as under:

- The firm has to balance between the growth of the company and the distribution to the shareholders
- It has a critical influence on the value of the firm.
- It has to also to strike a balance between the long term financing decision(company distributing dividend in the absence of any investment opportunity) and the wealth maximization.
- The market price gets affected if dividends paid are less.
- Retained earnings help the firm to concentrate on the growth, expansion and modernization of the firm.

20.7 SUMMARY

This lesson highlights how the taxation and specific management decisions are to be taken in the enterprises. It has also discussed about the scope of tax planning. It also stresses upon the specific management decisions i.e. capital structure policies and dividend decisions and their significance and factors also.

20.8 GLOSSARY

- **Tax planning:** Tax planning is the analysis of a financial situation or plan from a tax perspective. The purpose of tax planning is to ensure tax efficiency. Through tax planning, all elements of the financial plan work together in the most tax-efficient manner possible. Tax planning is an essential part of an individual investor's financial plan. Reduction of tax liability and maximizing the ability to contribute to retirement plans are crucial for success.
- **Capital structure:** The capital structure is the particular combination of debt and equity used by a company to finance its overall operations and growth. Debt comes in the form of bond issues or loans, while equity may come in the form of common stock, preferred stock, or retained earnings.
- **Dividend decisions:** The Dividend Decision is one of the crucial decisions made by the finance manager relating to the payouts to the shareholders. The payout is the proportion of Earning per Share given to the shareholders in the form of dividends.

20.9 SELF ASSESSMENT QUESTION

Q1 What do you mean by tax planning?

Ans _____

Q2 Discuss the significance of capital structure policies.

Ans _____

Q3 What is tax planning?

Ans _____

20.10 LESSON END EXERCISE

Q1 How are dividend decisions influenced by tax planning? Discuss in detail.

Ans _____

Q2 What strategic considerations should be kept in mind while taking make or buy Decisions?

Ans _____

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