

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಮುಕ್ತಗಂಗೋತ್ರಿ, ಮೈಸೂರು - 570 006



**KARNATAKA STATE
OPEN UNIVERSITY**
MUKTHA GANGOTRI, MYSORE-570006

M.Com (Final)



COURSE-6

BLOCK:1-6

FINANCIAL MANAGEMENT

**DEPARTMENT OF STUDIES AND RESEARCH
IN COMMERCE**

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PREFACE

Dear Student,

Finance is the life blood of the business. It is imperative in all types of organisation to carry on with its operations so as to enable them to achieve their objectives. It is needless to say that one of the objectives of the company is to make profit. For this purpose, companies employ techniques to channelise the resources optimally. Companies have to follow financial prudence at the time of application of resources. Proper budgeting obviously enable the companies to keep themselves under check. Therefore, it is the duty of the finance manager to adopt proper techniques to garner more resources by alleviating the risks. The finance manager or fund manager as the case may be, shall keep themselves abreast with the reactions of the capital market. This obviously help them to reap more returns on investment made by shareholders. The company shall declare dividend for which they have to evolve dividend policy from time to time. The finance manager, in case he keeps all the stakeholders happy, he can give better smiling, if not his position will be precarious. Therefore every company shall adopt proper techniques to manage the finance, which you will understand through a paper entitled "Financial Management". The study on Financial Management is in interactive mode. I am sure you understand the various concepts and techniques of Financial Management by studying this material. Feel free to write to us for further improvement.

With best wishes

Truly Yours

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M.Com (Final)
Financial Management
Course - VI

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Block – 2 Capital Budgeting

Costs and Benefits - Investment Appraisal Criteria – Payback Period- Net Present Value – Internal Rate of Return – Accounting Rate of Return – Risk Analysis in Capital Budgeting – Use of Subjective Probability-Standardising the Distribution-Sensitivity Analysis.

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Block – 4 Cost of Capital

Basic Concepts – Rationals and Assumptions – Cost of Debt Capital- Preference Capital – Cost of Equity Capital – Cost of Retained Earnings – Weighted – Marginal Cost of Capital. Capital Structure Decisions – Net Income Approach – Net Operating Income Approach – Traditional Approach – Strengths and Limitations of Above Approaches.

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Walter's Model – Gardon's Model – Modigliani & Miller's Dividend Irrelevance Theory – Determinants of Dividends – Types of Dividends.

Block – 6 Working Capital Management

Concept and Role of Working Capital – Structure of Working Capital – Determinants of Working Capital – Approaches – Matching Approach- Conservative Approach – Aggressive Approach – Sources of Working Capital – Management of Working Capital – Inventory – Accounts Receivable – Cash.

Reference Books:

- | | | |
|---|---|--|
| 1. Financial Management Theory & Practice | – | Prasanna Chandra |
| 2. Fundamentals of Financial Management | – | James C. Vanhorne &
John M. Wachowicz |
| 4. Managerial Finance | – | Weston & Brigham |
| 5. Financial Management | – | M. Y. Khan & P. K. Jain |
| 6. Financial Management | – | R. S. Kulashreshta |
| 7. Financial Management | – | P. V. Kulkarni |
| 8. Financial Management | – | S. C. Kuchhal |



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Course – VI
FINANCIAL MANAGEMENT

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UNIT 1 : CORPORATE OBJECTIVES

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Profit maximization decision criterion
- 1.3 Limitations of profit maximization criterion
 - 1.3.1 Ambiguities
 - 1.3.2 Timings of benefits
 - 1.3.3 Quality of benefits
- 1.4 Wealth maximization criterion
- 1.5 Elements of wealth maximization
 - 1.5.1 Increase in profits
 - 1.5.2 Reduction in cost
 - 1.5.3 Sources of funds
 - 1.5.4 Minimum risks
 - 1.5.5 Long run value
- 1.6 Advantages of wealth maximization
- 1.7 Criticisms of wealth maximization objective
- 1.8 Separation of ownership & management
- 1.9 Let us sum up
- 1.10 Key words
- 1.11 Terminal Questions
- 1.12 Reference books

1.0 OBJECTIVES

After studying this unit, you will be able to

- Analyze profit maximization criterion
- Appreciate wealth maximization criterion
- Make a comparative study of both the criteria
- Explain the conflict of goal between management and owners

1.1 INTRODUCTION

Objective means goal or decision criterion. You are aware that financial management should ensure an optimum decision in three major areas namely investment, financing & dividend policy. The stress is more on what is operationally useful criterion than on what is relevant. The term also has a normative framework. The focus is on what the firm should try to achieve. The actual practice may be different.

The term objective as applied to financial management, refers to an explicit operational guide for the internal investment and financing of firm. It does not mean the overall goal of business operations.

1.2 PROFIT MAXIMIZATION DECISION CRITERION

According to this criterion, the investment, financing and dividend policy decisions of a firm should be oriented to the maximization of profits. The term profit can be used in two senses. It refers to the amount and share of national Income, which is paid to the owners of the business. Also it is described as profitability signifying economic efficiency. Profitability refers to a situation where output exceeds input. Profitability maximization would imply that the firm should select assets, projects and decisions which are profitable and reject those which are not.

The core of financial policy is to maximize earnings in the longrun and optimize them in the short run. The alternative uses of funds and allocation of resources should be carefully evaluated for this purpose. The performance of any business can be measured in terms of its profits. A business can satisfy its shareholders, employers & creditors, when it earns huge profits. Increasing profits boost the confidence of managements. It inspires the management to go for expansion and diversification programmes. Higher profits attract the investors. Thereby the supply of funds is assured. The business will be sound enough as far as the resources are considered. Above all, higher profit is considered to be the indicator of efficiency. Due to these reasons, privately owned and controlled firms have the objective of profit maximization or its variant of profitability maximization.

1.3 LIMITATIONS OF PROFIT MAXIMIZATION CRITERION

Profit maximization criterion has been questioned and criticized on several grounds. The comments are mainly based on the apprehensions about its workability & difficulty in practice. Let us look into these limitations in a sequence.

1.3.1 Ambiguity

The term profit is a vague concept. There is no precise connotation for it. There are various interpretations of the term profit. Profit may be shortterm or longterm ; total profit or rate of profit, before tax or after tax profit, and so on. There is no clarity as to what is the 'version' of profit highlighted under profit maximisation objective. Due to these, the term profit becomes a loose expression.

If profit stands for net profit, the manager can maximize it by issuing stock and investing it in low yielding government securities. Assume a business unit earns a profit of Rs. 100000 on the stock of Rs. 10,00,000. There is further issue of stock worth 10,00,000. This additional amount raised is invested in 4% government securities. Now, the total profit is 1,00,000 + 40,000 = Rs. 1,40,000. There is maximization of net profit. But there is a decrease in owners share of profit. The earning per share before the new issue was

$$\frac{1,00,000}{10,00,000} \times 100 = 10 \%$$

and after the issue it has come down to

$$\frac{1,40,000}{20,00,000} \times 100 = 7 \%$$

This approach will not help the shareholders. Therefore, maximizing earning per share is advocated as an improved version of profit maximization. Even then, profit maximization has not proved to be an appropriate objective of companies.

1.3.2 Timing of benefits

Profit maximization objective does not specify the timing or duration of expected returns. If you have to chose between an investment project, which will produce Rs. 90,000 return five years from now and the one which will produce Rs. 15,000 in each of the next five years, how would you decide? While working out profitability "bigger the better" principle is adopted. Is it wise to adopt "a bird in the hand is worth two in the bush" approach? Consider the following example.

Table 1.1 Time pattern of profits

	Project A (Rs. in Lakhs)	Project B (Rs. in Lakhs)
I Year	20	50
II Year	30	30
III Year	50	20

It can be seen from the above table that the total profits from both the projects are identical. Therefore both the projects can be ranked equally. The difference between these two is that, project A gives higher returns in the later years & project B gives higher returns in the initial years. Therefore these projects are not identical. Which project is to be selected among these two? The basic dictum of financial planning is "the earlier the better". Benefits received sooner are more valuable. Such benefits can be reinvested. This is referred to as time value of money Profit maximization objective treats all benefits equally.

1.3.3 Quality of benefits

Quality in this context means degree of certainty with which the benefits are expected. The quality of the return is reflected in its certainty. Uncertainty and fluctuating flow of returns implies that there is higher risk. Investors generally are risk averse.

Consider the following example

Table 1.2 Uncertainty about expected benefits

	Project A (Rs. in Crores)	
State of Economy	Project A	Project B
Recession	15	00
Normal	18	20
Boom	22	35
	<hr/>	<hr/>
	55	55

Both the projects are identical considering the total profit. But considering the range of variation project A provides more steady flow of income & project B is highly fluctuating. Alternative A is better considering the risk & uncertainty. But profit maximisation objective fails to recognize this.

The profit maximization objective has been criticized on various other grounds also. It encourages corrupt practices to increase the profits. The true and fair picture of the organization is not reflected through profit maximization. The objective may result in cut-throat competition. When the profit gets accumulated the government tend to intervene. Though profit maximization is the common objective, some of the industries may forgo profit in order to attain industry leadership. They do not bother about getting low profits to claim huge marketshare. Huge profit invites problems from workers. They demand high salary and fringe benefits. It is said that huge profit also disturbs the morale of the customers. It gives a feeling that the profit is squeezed from the customers pocket. The customer feels exploited by the company. Profit maximization for a shortrun is a narrow concept. In the long run, it affects the liquidity of the company.

All these criticisms suggest that the criterion of a business should be long range profit maximization. The goals should be beneficial to all concerned parties to the business. i.e., owners, management, employees and customers. Maximizing the value of the firm is proved to be the only attitude to achieve this.

1.4 WEALTH MAXIMIZATION CRITERION

The objective of shareholders wealth maximization is an appropriate and operationally feasible criterion. There is not any ambiguity here and the objective also takes into account the time value of money. Before going for a discussion on this, you should be thorough with the meaning of this objective. Shareholders wealth maximization means maximizing the net present value (or wealth) of a course of action to shareholders. To arrive at the NPV, you would calculate the present value of future benefits & compare it with costs.

An explicit way of defining present value is given below.

$$W = \frac{A_1}{(1+k)} + \frac{A_2}{(1+k)^2} + \frac{A_3}{(1+k)^3} + \dots + \frac{A_n}{(1+k)^n} - C_0$$

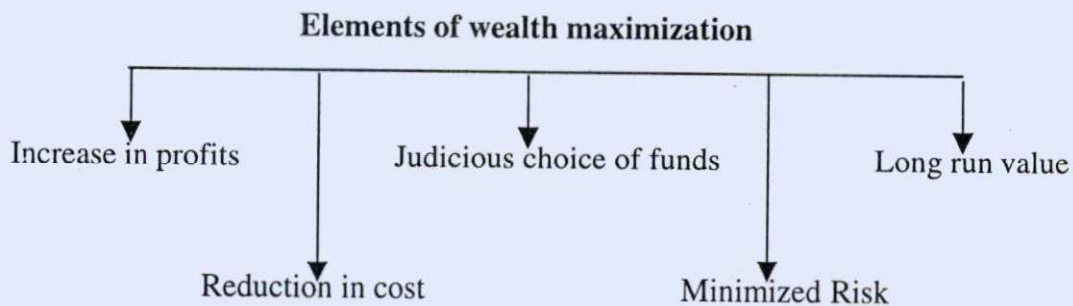
$$= \sum_{t=1}^n \frac{A_t}{(1+k)^t} - C_0$$

Where A1, A2 etc., represent the stream of benefits expected by adopting a course of action. Co is the cost of that action and K is the discount rate applicable. K reflects both timings & risk of benefits. W is the net present value or wealth. The criterion for accepting any course of action is, W should be positive. There should be net increase in the wealth of the firm. This is a very simple model of expressing wealth maximization principle.

From the shareholders point of view wealth maximizing is reflected in the market value of the company's shares. Therefore, maximizing the market value of shares becomes the fundamental objective of a firm. The value of the shares is reflected by their market price, which is a reflection of the firms financial decisions.

1.5 ELEMENTS OF WEALTH MAXIMIZATION

To maximize the market price of shares certain decisions are to be taken with utmost care. The elements involved in value maximization are given below.



(Adopted form – Financial Management – P.V.Kulkarni, B.G. Satya Prasad)

1.5.1 Increase in profit

Increase in profits is essential to maximize the value. Increase in profits certainly is the result of boost in sales. Plan of expansion & utilization of every opportunity is needed for this: Theoretically the maximum profit is earned at the stage of equilibrium, where marginal cost is equal to marginal revenue and Average cost is minimum. Of course increase in sales should be with the increase in demand. There is a need to control overhead costs also.

1.5.2 Reduction in cost

Sources of finance should be carefully used. Equity & capital funds should be economically used. i.e cost of capital should be minimum.

1.5.3 Sources of funds

Judicious choice of funds adds to the efficiency of the firm. Each source has an inherent risk. Issue of equity stocks results into the increase in ownership funds. From the point of view of share holders, it dilutes the ownership and control. Issue of debentures results in adding to the fixed & recurring obligations. It provides the advantage of leverage, if the firms rate of return is higher than the cost of debt. These issues are to be carefully considered in the choice of funds.

1.5.4 Minimum risks

'Higher the risk, higher is the profit' is the common adage. Another saying which follows this is 'no risk no profit'. This implies that risk should be taken, if one has to excel. Business world is a world of uncertainties. Though there is inherent risk in every course of action. There is a need to calculate it. In all its endeavours, the management will have to consider the interest of equity shareholders as the central focus of financial policies.

1.5.5 Long run value

Getting rich quick methods will not help in maximizing the value of the firm. Higher profits can be earned by pricing the products high, or pushing an inferior quality good into the market; not bothering about the employees and resorting to cheap methods of making profits. To gain long run value, the approach should be consistent with the goals of financial management.

1.6 ADVANTAGES OF WEALTH MAXIMIZATION

Wealth maximization objective has proved to be advantageous over profit maximisation for various reasons. The term wealth is clear and unambiguous. The central point here is the present value of cashflows. It is possible to measure the cost & benefits of investment quantitatively.

Time value of money is the concept to be considered in financial management. Present value of cashflows is considered here, & this serves the purpose. This objective is universally accepted, as it takes care of the interest of all parties, like the institutions, owners, employees & society at large.

This objective results in a strong, consistent dividend policy. Good returns to the equity holders has its impact on the market price of shares. Risk factor is considered under wealth maximisation objective. As the net present value is calculated at a particular discount rate.

1.7 CRITICISMS OF WEALTH MAXIMIZATION OBJECTIVE

The concept of wealth maximisation has been criticized on various grounds. Modern business environment hardly has any clearly defined set of standard for a socially minded conduct of the business. The yardsticks differ from one entity to another business entity. It depends on the interests of the companies.

1.8 SEPERATION OF OWNERSHIP & MANAGEMENT

In larger business corporation, there is a widening gulf between ownership & management. Decision making authority lies in the hands of management. It has to reconcile the objectives of the various interested parties. The management may pursue its own personal goals, instead of acting in the best interest of shareholders. But there is continuous supervision by the company's owners, creditors, customers & the government.

The survival of the management will be at stake if the objective of any of these groups remains unfulfilled.

Management yardsticks for measuring financial performance will be generally anticipated cashflows in the foreseeable future. Management considers the amount, certainty and timing. Stockholders give weightage to anticipated changes in property values as measured by trends in earnings per share & dividends. There may be conflicts in ranking investment alternatives; regarding depreciation policies, stock options & acquisition of subsidiaries. Management compares investment proposals in terms of internal rate of return. The rate which existing management is capable of achieving as indicated by past performance becomes important here. Shareholders are concerned about both external & internal investment opportunity including those of competing business organizations of comparable risk. Regarding the sources of funds, management generally prefers retained earnings first, & then long term debt & new common stock. Shareholders preference will be generally for debt, retained earnings & new common stock in the order. There may be again conflict as to the extent of use of these sources in the capital structure and shareholders assumption of risk will be in terms of portfolio of investments over many companies.

There is a gulf between ownership and management in larger business corporation. The decision taking authority is the management. There are various interested parties; and reconciling the objectives of these parties becomes difficult. Every group assesses the performance of the management in terms of its objectives. If the objective of any of the groups remains unfulfilled, that becomes a threat to the managements survival. The wealth maximization objective is the one that is generally in harmony with the interests of various groups such as owners, employers, creditors & society. Therefore shareholders wealth maximization is said to be an ideal objective of corporates.

1.9 LET US SUM UP

The subject financial management is of recent origin, having scope for further development. In simple terms, it is the application of general managerial principles to a particular financial operation. It is concerned with the acquisition, financing and management of assets with some overall goal in mind. There are different opinions as to what this goal should be. Frequently, profit maximisation is said to be the proper objective of the firm. This objective is criticized on grounds that there is no clarity as to what constituted profit. It could be maximizing earning after tax or can be maximising earning pershare. Earning after tax can be maximized even by investing the proceeds of new issue of shares outside. This would reduce the earning pershare. To maximize earning pershare also is not a wise objective, as it has certain limitations. The latter objective does not specify the timing or durations of expected returns, does not consider risk involved & it ignores the effect of dividend policy on the market price of stock. Therefore the goal of the firm should be to maximize the wealth of the firms present owners or shareholders. Shareholders wealth is

represented by the market price per share of firms common stock. Shareholders wealth maximization objective takes into account the time value of money.

It considers the element of risk also. Practically managers in large publicly owned firms, may have different objectives from those of the shareholders. Infact, these two parties are in the relation of agent principal. Management should be given sufficient incentives & monitored to work for the shareholders wealth maximization objective. In addition, the firm has the responsibility to act in a socially responsible ways. Shareholders wealth maximization objective does not relieve the firm from this responsibility.

1.10 KEY WORDS

1. Profit maximization : Maximizing firms profit
2. Earnings per share (EPS) : Earnings after taxes divided by the number of common shares outstanding.
3. Agents : Individuals authorized by another person, called the principal, to act in the latters behalf.
4. Wealth maximisation : Maximization of the market price pershare of firms common stock.

1.11 TERMINAL QUESTIONS

1. Contrast profit maximization and value maximization as criteria for financial management decisions in practice.
2. Explain the concepts of profit maximization and profitability maximization – which of these do you think is a better operational guide for a finance manager?
3. “The operative objective of financial management is to maximize wealth or net present worth – Ezra Solomon – Explain the statement.
4. Explain the limitations of profit maximization objective.
5. Explain the elements of wealth maximization objective.

1.12 REFERENCE BOOKS

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5. Financial Management - Prasanna chandra
6. Financial Management - Brigham

UNIT 2 : KEY ACTIVITIES OF FINANCIAL MANAGEMENT

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Financial Function
 - 2.2.1 Design function
 - 2.2.2 Supply function
 - 2.2.3 Production function
 - 2.2.4 Distribution function
 - 2.2.5 Personnel function
- 2.3 Functions of financial management modes of classification – based on
 - 2.3.1 Liquidity
 - 2.3.2 Profitability
 - 2.3.3 Management
- 2.4 Functional areas of financial management
 - 2.4.1 Determining financial needs
 - 2.4.2 Determining sources of funds
 - 2.4.3 Financial analysis
 - 2.4.4 Optimal capital structure
 - 2.4.5 Cost-volume – Profit analysis
 - 2.4.6 Profit planning & Control
 - 2.4.7 Fixed assets management
 - 2.4.8 Project planning & evaluation

- 2.4.9 Capital budgeting
- 2.4.10 Working capital management
- 2.4.11 Dividends & Mergers
- 2.4.12 Corporate taxation
- 2.5 Activities of financial management
 - 2.5.1 Financial analysis, planning & control
 - 2.5.2 Management of firms asset structure
 - 2.5.3 Management of firms financial structure
- 2.6 Sub activities of financial analysis, planning & control
 - 2.6.1 Assessing the financial performance & condition
 - 2.6.2 Forecasting & planning the financial future of the firm
 - 2.6.3 Estimating the financing needs of the firm
 - 2.6.4 Instituting corporate systems of control
- 2.7 Let us sum up
- 2.8 Key words
- 2.9 Terminal Questions
- 2.10 Reference Books

2.0 OBJECTIVES

After going through this unit, you should be able to :

- Explain the function of financial management
 - Trace the key activities of financial manager
 - Establish the link between finance and other disciplines
 - Explain the status & duties of Finance executives
 - State the organization of the financial management function
-

2.1 INTRODUCTION

As you have already seen in the 1st unit of this block, Financial Management involves application of general managerial principles to a particular financial operation. The finance function was centred round the management of funds initially. Now the scope of the subject has widened. The dimensions of financial management are much broader than the mere procurement of funds. It includes both the concepts of treasurer ship and controllership. Treasurer keeps track of the money and the controllers duties extend to planning, analysis and the improvement of every phase of the companies operations, which are measured with a financial yardstick.

2.2 FINANCE FUNCTION

Finance represents a broad spectrum of activities. It is not an isolated area. It is an essential segment of the overall managerial function. Finance is the lifeblood of any business activity. To avoid wastage of funds, finance function should be properly blended with production, marketing, personnel, accounting and other business functions. Let us look into certain functions, to which finance is intimately related.

2.2.1 Design function

Many organizations fail because of lack of rapport between the finance function and the design function or research and development. When there is no liaison between the design function and the finance function, R & D personnel may be put in dilemma. Funds may not be available at the time of completion of the project.

Design function would fail, if there is shortage of materials. For the successful execution of the project, detailed technical work becomes necessary. There should be close relation between design function finance function.

2.2.2 Supply function

The supply function ensured the smooth flow of goods through the manufacturing and marketing divisions. This smooth flow should not be expensive. To minimize cost of buying latest inventory control techniques like EOQ, JIT etc are used.

2.2.3 Production function

Gross revenue of an enterprise depends on the production function. Latest production planning and control techniques should be used to enhance the production. Caution should be taken to see that they are within the financial constraints. Production function draws huge capital investment, in the form of plant & machinery. Expenditure cannot be approved unless it gets through capital budgeting tests. To keep the business enterprise on track, there should be good understanding between production personnel and finance personnel.

2.2.4 Distribution function

Efficiency of an organization is also determined by the decisions on the use of physical channels. A number of factors have to be taken into account while making decisions pertaining to distribution function. Sales promotion methods, different credit policies, various modes of advertising are some such factors. Each aspect of distribution function has a direct bearing on finance. Therefore the two functions should be carefully handled, considering them complementary.

2.2.5 Personnel function

No business enterprise can function without the support of its personnel. Every enterprise wants to keep the morale of the personnel high. This demands decisions like overtime payment, incentive scheme new avenues of promotions, introduction of bonus schemes, retirement schemes etc. All these effect finance all the above mentioned functions are inter related and finance is the thread weaving through them towards the fabric of the enterprise. The finance function infact dominates the business activity. The ultimate finance function is the maximization of the value of the firm. The finance function is classified into money management function, record keeping and reporting function, control function & Auditory function.

2.3 FUNCTIONS OF FINANCIAL MANAGEMENT

Ezra Solomon has said that the central issue of financial policy is the wise use of funds. In general Financial Management performs the function of putting funds to work within the business and to control their productivity. It also does the function of identifying the need for funds and selecting the sources of funds from which they may be obtained. Broadly these functions can be classified on the basis of liquidity, profitability and management.

2.3.1 Liquidity

The function related to liquidity is to ensure sufficient funds at the time of maturity of obligations. Therefore, certain considerations gain importance here. Forecasting the cashflows must be done, which involves matching the inflows against cash outflows. Raising funds is another important function. Financial management should ascertain the sources from which funds may be raised and the time when these funds are needed. As far as possible a high degree for liquidity has to be maintained with minimum external borrowing. Flow of internal funds has to be well managed.

2.3.2 Profitability

Cost is a determining factor. Appropriate cost accounting system enables the financial manager to bring costs under control. Pricing is equally significant. Pricing policies should be directed towards profitability, keeping the image of the organization intact. Forecasting of profit levels from time to time has to be done. Expected profits should be determined and evaluated. Cost of capital is linked to the profitability. Different sources of capital have different costs. All these costs are to be ascertained before taking the decision on the source of capital.

2.3.3 Management

Financial Management may be divided into 2 broad areas of responsibilities. Viz. the management of long term funds and management of short term funds. An important function of financial management is to coordinate various decisions taken by various departments of a firm so that they may be consistent and profitable. The task of financial management has been more complicated because of fast moving & technologically complex business environment. Financial management must facilitate decision making in vital areas, like investment, dividend distribution and retention of surplus etc. Future benefits are uncertain & therefore evaluation of investment proposals becomes necessary. The financial decision also involves the determination of the ideal financing mix or capital structure. Dividend decision is another important area, percentage of dividend paid effects the retained earnings & growth. Market price of shares is influenced to a great extent by this policy. A prudent financial management policy calls for optimal mix of different decision in line with the organizational objectives.

Another area of financial management in the present context is international cash management. Exchange factors play a significant role here.

2.4 FUNCTIONAL AREAS OF FINANCIAL MANAGEMENT

Today's Financial manager has to be conversant with a variety of subjects. Traditionally his/her functions were confined to macro-economic areas of finance. The functions mainly related to long term financing, short-term financing, study of financial institutions, capital market, promotion, planning of corporations, underwriting of securities etc. In fact the earlier name for

the subject was corporation finance". With a number of developments in the area, there is a need to concentrate on micro-economic areas. Let us study some of the important functional areas of modern financial management.

2.4.1 Determining financial needs

Financial needs for different purposes have to be assessed. Initial promotional expenses, fixed & working capital needs are to be assessed. In the process of company formation expenditure is incurred. The nature & size of the business enterprise determine the fixed assets needs. Working capital needs depends on the current asset requirement.

2.4.2 Determining sources of funds

After assessing the needs, the financial manager must decide from which sources funds can be raised. Raising funds becomes difficult, when the firm is little known in the financial circles. Even when there is a choice. The choice has to be exercised with great care & caution. Among the various sources like issuing securities bonds or borrowing, the optimum combination must be adopted to ensure the financial health of the firm.

2.4.3 Financial Analysis

Analysing the financial status is vital in financial management. It involves comparison & interpretation of accounting data. The financial manager calculates a large member of ratios for this purpose & analyses the financial status & activities of the firm. Liquidity, profitability, solvency, leverage etc will be measured periodically, and this helps to take decisions.

2.4.4 Optimal capital structure

The proportion of each source of capital must be the right one. It should ensure maximum return on investment operating & financial leverages are to be considered. Operating leverage reflects the efficiency of dealing with operating expenses. Financial leverage implies the use of long term debt in the capital structure. There are different empirical studies on capital structure, which the financial manager must be aware of.

2.4.5 Cost – volume-Profit analysis

This analysis establishes the relationship between cost-volume and profit. Break-Even analyses indicates the point where there is no profit & no loss. That itself is the point from where the business starts earning profit. The entire analysis splits the cost items into fixed expenses & variable expenses. Fixed expenses are those that remain fixed irrespective of the sales volume or production volume. For a period of time these remain fixed. Variable expenses on the other hand vary with the production / sales volume. All these have to be studied in order to maximize the wealth of the share holders. Not just that, to save the business from the possible failure also it is needed.

2.4.6 Profit planning & control

Economists have considered the importance of profit long back. Though profit maximisation does not remain the corporate objective as against wealth maximisation in present day business, one cannot ignore the role of profit in maximizing the wealth of shareholders. Profit planning gives the investors information about the earning strength of the corporation. Profits determine the taxes. Moreover profit planning & control is essential for determining the dividend and retention policies.

2.4.7 Fixed Assets management

The acquisition of fixed assets involves capital expenditure decisions. Because of long-term commitments of funds decisions governing the purchase or replacement of fixed assets like land, building, plant, machinery, furniture etc. should be taken with great care & caution. When financing the fixed assets is not worth while, leasing them becomes the next option. In order to replace the fixed assets, appropriate depreciation on fixed assets should be provided for. Formation of policies regarding fixed assets management is vital. Moreover, fixed assets are maintained over long – period of time, & there may be changes in their value over the period. These changes too have the tendency to adversely affect the position of a firm.

2.4.8 Project planning & Evaluation

Projects are prone to errors. Minimization of errors is a challenge. Decision are taken after a feasibility study, which contains an analysis of economic, commercial, technical, financial and organizational viabilities. The demand position of the product is studied through the economic & commercial analysis. Technical analysis mainly deals with the economy of size, choice of technology and the availability of factors favouring a particular industrial site. Financial analysis involves forecast of cashflows and total outlay, which will keep down the cost of capital & maximize rate of return on investment. To ensure that the firm has requisite manpower to run the project is the work of organizational & manpower analysis.

Business world is the world of uncertainties & risk. Therefore every firm should gauge the sensitivity of the project to these uncertainties.

2.4.9 Capital Budgeting

These decisions relate to the judicious allocation of capital, funds have to be invested in anticipation of benefits spread over a long period of time. Profitability of the investments is compared with their cost. Proposals are ranked on the basis of criteria such as urgency, profitabilities, liquidity, risk, sensitivity etc. There are a number of techniques like pay back, internal rate of returns, discounted cash flow techniques, net present value etc; The financial manager should be well versed with these techniques.

2.4.10 Working capital management

Working capital is like lubricant to the business operations. Cash, inventories, accounts receivables etc are the important components of working capital. There are two main areas to be studied here. The first one is the amount of working capital which is required. What approach should the firm follow depends on the nature of the business & attitude. Some firms follow conservative approach, while others follow aggressive approach. There is a middle way in between these two, known as hedging approach. Another area is to decide about the source of working capital – whether it should be longterm source, or short term or a combination of both. In case of individual items of working capital also, these should be dealt with due care. Consider inventory management. There is risk when inventory is inadequate or in excess of requirements. Inadequate inventory may hold up production. Excess inventory results in unnecessary locking up of funds. Economic order Quantity considerations are also important in this area.

2.4.11 Dividend Policies

As we have seen already there is divorce between management and the owners in the present day companies. Owners are interested in getting highest rate of return on their investment in the form of dividends. Board of directors on the other hand may want to retain the earnings for ploughing back operations. A firm in general, wants to maximize the value of the shares. The decision on dividends has to be carefully taken in order to maximize the value of shares. There are a number of factors affecting the dividend decision. There are different dividend policies at the option of the firm. A careful choice has to be made depending on the circumstances & considering the suitability of the policies to the firm.

2.4.12 Acquisitions and mergers

These are the popular methods through which a firm expands. Acquisition consists of purchase or lease of a smaller firm by a bigger organization. In case of mergers, cash outlay is less, but the problems of valuation & control are greater. Valuation of securities is difficult, complex and prone to errors also.

2.4.13 Corporate taxation

Taxation has an impact on the financial planning of the firm. Companies are separate legal entities & are subject to an income tax structure. The traditional notion that the finance function is just a process of management of cash & capital does not hold good now. It is a full pledged function embracing almost all activities of management & concerning all parties interested in the business.

2.5 KEY ACTIVITIES OF FINANCIAL MANAGEMENT

All the functions of financial management can be grouped under 3 broad activities, which are explained below.

2.5.1 Financial Analysis, Planning & Control

This activity is concerned with assessing the financial performance and condition of the firm. Assessing the present condition is the basic platform to look into future on the basis of the present. Financial future of the firm has to be forecasted & planned. Next step is to estimate the financing needs of the firm and finally appropriate system of control should be instituted to ensure that the actions of the managers are consistent with the goals.

2.5.2 Management of firms asset structure

This involves determining the capital budget, managing the liquid sources, establishing the credit policy & controlling the level of inventories.

2.5.3 Management of firms financial structure

This mainly consists of establishing debt-equity ratio or financial leverage, determining the dividend policy, choosing the specific instruments of financing & negotiating & developing relationships with various suppliers of capital.

Let us study these activities in detail. Let us consider the 1st activity in this unit.

2.6 FINANCIAL ANALYSIS PLANNING & CONTROL

This involves 4 sub activities as discussed already. Each activity is quite important for the firms over all performance. These are the basic activities, the financial manager cannot afford to ignore. Let us look into such activities.

2.6.1 Assessing the financial performance & condition

The financial information of an enterprise is contained in the financial statements or accounting reports. Financial statements contain summarized systematically organized information of the firms financial affairs. Two basic financial statements generally used for financial analysis are balance sheet profit & loss account. Balance sheet indicates the financial condition or state of affairs of a business at a particular moment of time. It can be presented in the account form or report form.

Profit & Loss Account presents the summary of revenues expenses & net income or net loss of a firm. It serves as a measure of firms profitability like the balance sheet, Profit and loss account may be prepared in several forms. Two popular forms are step form & account form.

These two statements are static, as they fail to explain the changes in assets, liabilities & owners equity. Therefore, for the purpose of analysis, an additional statement namely statement of changes in financial position is required. Two common forms of such statements are the funds flow statement & cash flow statement.

The term fund can be defined at least in three ways. It may mean cash, working capital and financial resources. The funds flow statement provides an analysis of changes in the firms working capital position. The cashflow statement is prepared to analyze changes in the firms cash position.

The main source of funds is the firms operations. Funds/Cash from operations are calculated by adjusting the figure of net profit for nonfund or noncash items such as depreciation. Depreciation is added back to profits to arrive at funds from operation. To determine cash from operations, changes in current assets & current liabilities are also adjusted in net profits. Other sources of working capital or cash include sale of fixed asset, issue of share capital & borrowing. Uses of funds are acquisition of fixed assets repayment of debt and payment of cash dividend. Funds flow and cash flow statements are important managerial tools for financial analysis. They indicate firms liquidity position, capital expenditure incurred dividend paid and external financing.

Financial ratio analysis is another analysis. Ratio is a relationship between two financial variables. It is a process of identifying the financial strength and weakness of a firm. Trend analysis, Inter firm comparison, Industry analysis and proforma analysis can be done with the help of ratios. Important dimensions which a firm would like to analyse are liquidity, leverage, activity & profitability. Liquidity ratios measure the firms ability to meet current obligations. Leverage ratios measure the proportion of outsiders capital in financing the firms assets. Activity ratios refer to the firms efficiency in utilizing its assets in generating sales. Profitability ratios measure the overall performance of the firm by determining the effectiveness of the firm in generating profit.

2.6.2 Forecasting and planning the financial future of the firm

Financial planning is a process of identifying a firms investments and financing needs, given its growth objectives. A financial plan may be prepared for a period of three to five years. Profit planning or budgeting is an important short term tool of management planning and control. A profit plan or budget is a comprehensive statement of intentions, expressed in financial terms, for the operation of the firm for a short period. It is a plan of the firms expectations and is used as a basis for measuring and controlling the actual performance of managers and their units. A budgeting system will be successful, if goals to be achieved are clearly stated with proper assignment of authority & responsibility, with top managements support. Full participation of management should be sought while developing budgets. People at lower levels should be educated about the importance of budgeting. Depending on its unique circumstances, each company develops an appropriate administration for carrying out the tasks of budgeting.

A profit plan or budget can be divided into three parts. Operating budget, financial budget and capital budget. Operating budget provides details about the firms operations, i.e production, sales or purchases. Financial budget includes profit and loss statement, balance sheet, statement of changes in financial position and cash budget. Capital budget provides details of investment projects with the amount of capital expenditures planned by the firm.

2.6.3 Estimating the financing needs of the firm

Future financial requirements should be estimated with the help of past data. This involves relating the items of Profit and Loss Account and Balance Sheet to sales. This is called percentage to sales method. Ratio analysis also provides for trend comparison – which helps in estimating. Requirement of funds can be estimated in the same way.

2.6.4 Instituting appropriate systems of control

Financial planning & analysis also concentrates on control. Without proper control devices, the earlier operation goes a futile exercise. Therefore no financial manager can dare to perform away with control.

2.7 LET US SUM UP

Design function, supply function & Distribution function, personnel function & production function are the main functions of any organization. These together constitute financial function. Functions of financial management can be classified on the basis of liquidity, profitability & management. Functional areas of financial management are widened in scope now. Determining financial needs, determining sources of funds, financial analysis, cost volume analysis, profit planning & control, fixed assets management, project planning & evaluation, capital budgeting, working capital management, dividend policies, acquisitions & mergers, & corporate taxation, are these areas. These functional areas can be grouped under 3 key activities of financial management; they are financial analysis, planning & control, management of firms assets structure & management of firms financial structure. Financial analysis, planning & control embraces four sub activities. They are

1. Assessing the firms financial performance & condition
2. Forecasting & planning the financial future of the firm
3. Estimating the financing needs of the firm and
4. Instituting appropriate systems of control

2.8 KEY WORDS

Dividend, financing decision, liquidity decisions , profit planning

2.9 TERMINAL QUESTIONS

1. How is the finance function organized in a large company ?
2. Describe the key activities of financial management.
3. What are the basic financial decisions ? How do they involve risk – return trade off ?
4. How should the finance function of an enterprise be organized? What functions are performed by the financial officers?

2.10 REFERENCE BOOKS

1. Fundamentals of financial management - James.C.Vanhorne & John M.Wachowicz.Jr.
2. Financial Management - I.M. Pandey
3. Financial Management Text & Problems - M.Y.Khan & P.K. Jain
4. Financial Management - P.V.Kulkarni & B.G.Sathya Prasad
5. Financial Management - Prasanna chandra
6. Financial Management - Brigham

UNIT 3 : MANAGEMENT OF FIRMS ASSET STRUCTURE AND FINANCIAL STRUCTURE

Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Management of firms asset structure
 - 3.2.1 Determining capital budget
 - 3.2.2 Managing the liquid resources
 - 3.2.3 Establishing the credit policy
 - 3.2.4 Controlling the level of inventories
- 3.3 Management of firms financial structure
 - 3.3.1 Establishing debt-equity ratio or financial leverage
 - 3.3.2 Determining the dividend policy
 - 3.3.3 Choosing the specific instrument of financing
 - 3.3.4 Negotiating & developing relationships with various suppliers of capital
- 3.4 Let us sum up
- 3.5 Terminal Questions
- 3.6 Reference Books

3.0 OBJECTIVES

After studying this unit, you will be able to

- Identify the key activities of financial management
- Identify the sub activities of management of firms asset structure
- Appreciate the activity of asset structure management
- Give a general idea of the activity
- Explain management of firms financial structure
- Discuss its importance as a key activity

3.1 INTRODUCTION

The three broad activities of financial management are already mentioned in the previous unit. You are also aware of the details of first key activity namely financial analysis, planning & control. In this unit, let us study the other activities namely management of firms asset structure & management of firms financial structure.

Key activities of financial management can be explained with the help of following chart.

	Financial Analysis, Planning & Control		
Management of the Firms financial structure	Balance Sheet		Management of the Firms Asset structure
	Long term financing	Fixed Assets	
	Short term financing	Current Assets	

Source : Financial Management, Theory & Practice: By Prasanna Chandra

3.2 MANAGEMENT OF FIRMS ASSET STRUCTURE

As an important activity of financial management, it encompasses 4 subactivities, They are

- i) Determining the capital budget
- ii) Managing the liquid resources
- iii) Establishing the credit policy and
- iv) Controlling the level of inventories. Let us study these activities in detail

3.2.1 Determining the capital budget

Investments involve cash flows. Profitability of an investment project is determined by evaluating its cash flows. For appraising the worth of an investment project, there are different methods used. NPV, IRR & PI are the discounted cash flow techniques used. NPV or net present value method is a process of calculating the present value of the project's cash flows, using the opportunity cost of capital as the discount rate, and finding out the net present value by subtracting the initial investment from the present value of cash flows. Under the NPV method, the project is accepted if its net present value is positive. The market value of the firm's share is expected to increase by the project's positive NPV. Between the mutually exclusive projects the one with the highest NPV will be chosen.

The internal rate of return (IRR) is that discount ratio at which the project's net present value is zero. Under the IRR rule, the project will be accepted when its internal rate of return is higher than the opportunity cost of capital. Both IRR & NPV methods account for the time value of money. Therefore these methods are consistent with the wealth maximisation objective. In some situations, IRR rule can give a misleading signal for mutually exclusive projects. IRR rule also yields multiple rates of return for nonconventional projects. Profitability Index is the ratio of the present value of cash inflows to initial cash outlay. It is a variation of the NPV rule. The project should be accepted when it has a profitability index greater than one. This implies a positive NPV. A conflict of ranking can arise between the NPV & PI rules in case of mutually exclusive projects. Under such situation, NPV rule is preferred.

There are two other popular methods, namely Pay back and ARR methods. Pay back period is the number of years required to recoup the initial cash outlay of an investment project. The greatest limitation of this method is that it does not consider time value of money. Also it ignores the cashflow after payback. There are other versions of the same method namely discounted payback & reciprocal payback.

ARR is average rate of return. It is obtained by dividing the average profit after tax by the average amount of investment. The cutoff rate is arbitrarily selected. The project is accepted if ARR is greater than cut off rate.

Among all these methods discounted cashflow techniques are said to be effective measures. NPV, once again is supposed to be the better method, considering the objective of shareholders wealth maximization.

3.2.2 Managing the liquid resources

This is in relation to managing current assets. A firm has to invest in current assets for a smooth uninterrupted production and sales. What should be the amount of investment in current assets, is decided by its operating cycle in the time duration, which the firm requires to manufacture and sell the product and collect cash. It refers to the acquisition of resources, conversion of raw materials into work in process; into finished goods conversion of finished goods into sales &

collection of sales. Larger the operating cycle, larger is the investment in current assets. Firms also acquire resources on credit. The term net operating cycle is used for the difference between operating cycle and the payment deferral period. The manufacturing cycle is a component of operating cycle. Manufacturing cycle refers to the process of conversion of raw material into work in process into finished goods. The firms credit policy is another factor which influences the working capital requirements. It depends on the nature and norms of business, competition and the firms desire to use it as a marketing tool. Depending on the possible availability of working capital finance and its own profitability a firm may carry more or less investment in current assets than warranted by technical factors.

The level of investment in current assets should be optimum. It involves a trade off between risk & return. Larger investment in current assets ensures liquidity but affects profitability. This is because the opportunity of earning from the excess investment in current assets is lost. The financing of current assets also involves a trade off between risk & return. If the firm uses short term funds for financing both current assets & fixed assets, the financing policy is said to be aggressive and risky. On the other hand if long term sources are used for financing current assets, the policy is said to be conservative. There is a balanced approach in between. That is to finance permanent current assets by long term sources and temporary current assets by short term sources of finance.

3.2.3 Establishing the credit policy

Trade credit creates book debts and accounts receivables. It has a great role in expanding sales. A firms investment in accounts receivable depends on volume of credit sales and collection period. The financial manager can influence volume of credit sales & collection period through credit policy. Credit policy includes credit standards, credit terms & collection efforts. Credit standards are criteria to decide to whom credit sales can be made and how much. If the firm has soft credit standards, its sales may increase, but its costs also increase costs are in the form of bad debt losses & credit administration. The incremental return which a firm gains by changing its credit policy should be compared with the cost of funds invested in receivables. The firms credit policy will be considered optimum at the point where incremental rate of return equals the cost of funds. The cost of funds increases with the risk. But the goal of credit policy is neither maximization of sales nor minimization of losses, but maximization of shareholders wealth.

Credit terms are the conditions for extending credit sales. They include credit period & cash discount. Cash discount will be given if the payments are made before the normal credit period. A firm has to make efforts to collect the payments from customers. Accelerating collection from debt and reducing bad debt losses is the aim of the collection efforts of the firm. A thorough investigation of each account is required before extending credit depending on the financial condition and past experience with a customer, the firm should decide about its collection tactics & procedures.

3.2.4 Controlling the level of inventories

Inventories constitute about 60 percent of current assets of public limited companies in India. The manufacturing companies hold inventories in the form of raw materials work in process and finished goods. The motives for holding inventories are transaction motive, precautionary motive & speculative motive.

Transaction motive is to facilitate smooth production and sales operation. Precautionary motive implies guarding against the risk of unpredictable changes in usage rate & delivery time. Speculative motive is to take advantage of price fluctuations.

Inventories represent investment of a firm's funds. The objective of the inventory management should be the maximisation of the value of the firm. The firm should therefore consider costs, return and risk factors in establishing its inventory policy. The costs involved in inventory maintenance are ordering costs & carrying costs.

Ordering costs are the costs of requisition, placing of order, transportation, receiving, inspecting & storing & clerical & staff services. These are fixed per order. Therefore they decline with the increase in the order size. Carrying costs are the costs of warehousing, handling clerical staff services, insurance and taxes. Carrying costs vary with inventory holding. With the increase in order size, average inventory holding increases and consequently carrying cost increases.

The firm should minimize the total cost. Total cost will be minimum at the economic order quantity level. EOQ is determined by the following formula.

$$EOQ = Q = \sqrt{\frac{2AO}{C}}$$

Where A is the annual requirement, O is the per order cost & C is the per unit carrying cost.

Reorder point is the inventory level at which the firm places order to replenish inventory. It depends on lead time and the usage rate. The reorder point will be equal to leadtime usage rate, if there is certain usage rate & instantaneous delivery. But practically there is no certainty of usage rate. Therefore firms maintain safety stock which serves as a buffer to meet contingencies. Then, reorder point will be equal to leadtime X usage rate + safety stock. The firm should strike a trade off between the marginal rate of return and marginal cost of funds to determine the level of safety stock. Some firms follow a selective control system. ABC analysis classifies inventories into 3 categories according to the value of items. A category consists of highest value items, B category consists of high value items & C category consists of lowest value items. Tight control is applied for high value items & relatively loose control for low value items.

3.3 MANAGEMENT OF FIRMS FINANCIAL STRUCTURE

Liability side of the Balance sheet shows various sources of finance. Major activities of financial management are centred round these sources. Broadly these activities may be grouped under management of firms financial structure. There are 4 sub activities under the title. They are

- Establishing the debt equity ratio or financial leverage
- Determining the dividend policy
- Choosing the specific instruments of financing , and
- Negotiating and developing relationships with various suppliers of capital.

Let us have a look into these activities in detail.

3.3.1 Establishing the debt equity ratio or financial leverage

The debt-equity mix of a firm is called its capital structure. The capital structure decision is a significant financial decision since it affects the shareholders return & risk and consequently the market value of shares. The use of debt in the capital structure is called financial leverage or trading on equity. Since debt is a fixed charge source of finance, its use has the effect of giving more than proportionate benefits to the shareholders, during the favourable situations. i.e., when the rate of return is more than the cost of capital.

A firm determines the advantage of financial leverage by calculating its impact on earnings pershare or return on equity. For an all equity company – EPS is given by

$$\text{EPS} = \frac{\text{EBIT} (1 - t)}{N}$$

Where EBIT is earning before interest & tax & t is tax rate, n is the number of shares outstanding.

For a company which employs both debt and equity.

EPS is given by the following formula

$$\text{EPS} = \frac{(\text{EBIT} - \text{INT}) (1 - t)}{N}$$

Where INT is the interest charge which is obtained by multiplying interest rate with the amount of debt. If the firms overall profitability is more than interest rates, EPS increases with debt. With increasing EBIT, EPS increase faster with more debt.

Degree of financial leverage can be calculated using the following formula.

$$\text{DFL} = \frac{\% \text{ increase in EPS}}{\% \text{ increase in EBIT}} = \frac{\Delta \text{EPS} / \text{EPS}}{\Delta \text{EBIT} / \text{EBIT}}$$

Financial leverage, on the one hand increases shareholders return & on the other, it also increases their risk. For a given level of EBIT, EPS varies more with more debt. In the extreme situation, if the firm is unable to pay interest & principal, its solvency is threatened. It will result in greater harm to the share holders. That's why financial leverage is rightly termed as double edged sword.

3.3.2 Determining the dividend policy

Earnings distributed to shareholders are called dividends. Payout ratio is the percentage of earnings paid as dividends. A high payout ratio indicates more dividends and less funds for expansion and growth. A low payout, results in higher growth. There are different theories as to whether dividend payout affects the shareholders values.

Dividends may take two forms: Cash dividends & stock dividends. Stock dividends are nothing but bonus shares. In India bonus shares cannot be issued in lieu of cash dividends. They are paid with cash dividends. Companies generally prefer to pay cash dividends. They finance their expansion & growth by issuing newshares or borrowing. This behaviour is because of the belief that shareholders are entitled to some return on their investments. Most companies have long term payment ratio targets. But they do not pay dividends at that ratio each year. They try to stabilize dividend payments by moving slowly towards the target payout each year. They consider past dividends and current as well as future earnings in determining dividend payment. Any extreme changes are read as signals of management expectations about the company's performance in future. Thus dividends have information contents. Companies like to follow a stable dividend policy because investors generally prefer such policy. Stable dividend does not mean constant dividend in share. It means reasonably predictable dividend policy. Companies determine dividend per share keeping in mind their long term payout ratio. The firms ability to pay dividend depends on its funds requirements for growth, shareholders desire & liquidity. A growth firm needs to set its dividend rate at a low level because it needs large amount of funds.

3.3.3 Choosing the specific instrument of financing

Firms obtain their supply of capital for financing their investments in the form of equity or debt or both in practice, they maintain a target debt-equity mix. The concept of weighted average cost of capital should be considered here. The capital structure should be optimum, so that weighted average cost of capital is less. Effect of tax is also considered in calculating the cost of debt.

Equity includes paid up capital and retained earnings. Equity has no explicit cost as payment of dividend is not obligatory. However, it involves an opportunity cost. The opportunity cost of equity is the rate of return required by shareholders on securities of comparable risk. It is the price which the company must pay to attract capital from shareholders. Shareholders expect dividend as well as capital gain. When a company issues new share capital it has to offer shares at a price which is much less than the prevailing market price. Therefore the cost of retained earnings will be less than the cost of new issue of equity.

The firms weighted average cost of capital reflects the average risk of all projects. Therefore it can be used for investment evaluation only when the risk of the projects is equal to the firms average risk. Since that is not so in practice, the firms weighted average cost of capital should be adjusted for the risk characteristics of the project. Sources for finance has to be decided considering the optimum capital structure as well as cost of capital. Availability of the sources is also important, for which the financial manager has to negotiate with various suppliers, and that is the fourth sub activity.

3.3.4 Negotiating & developing relationships with various suppliers of capital

Financial managers raise funds from the capital markets; Issue of shares requires registration in the stock market. Ordinary share, preference share and debentures are three important securities used by the firms to raise funds to finance their activities. Debenture or bond is a long term promissary note. Preference shares is a hybrid security of a share and a debenture. Term loans are loans for more than a year maturity. With all the suppliers of these sources of capital, financial manager has to negotiate & maintain good relationship.

3.4 LET US SUM UP

The key activities of financial management are

- Financial analysis planning & control
- Management of firms asset structure &
- Managements of firms financial structure

Management of firms asset structure mainly consists of determining the capital budget, maintaining liquid resource, establishing the credit policy & controlling the level of inventories. In total, all activities related to the management of asset side are included here. Management of firms financial structure includes establishing the debt-equity ratio, determining the dividend policy, choosing the specific instruments of financing & negotiating and developing relationships with various suppliers of capital. In total it is the activity related to the management of liability side of items in a balance sheet.

3.5 TERMINAL QUESTIONS

1. Discuss the key activities of financial management?
2. What do you mean by managing the asset structure ?
3. What is the financial managers role in managing the financial structure of a firm? Explain.

3.6 REFERENCE BOOKS

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2. Financial Management - I.M. Pandey
3. Financial Management - Text & Problems M.Y.Khan & P.K. Jain
4. Financial Management - P.V.Kulkarni & B.G.Sathya Prasad
5. Financial Management - Prasanna Chandra
6. Financial Management - Brigham

BLOCK - II :

UNIT 4 : BASICS OF CAPITAL BUDGETING

Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Definitions of Capital budgeting
- 4.3 Need and Importance of Capital budgeting
 - 4.3.1 Heavy Investment
 - 4.3.2 Permanent Commitment of funds
 - 4.3.3 Long term impact on profitability
 - 4.3.4 Complication of investment decisions
 - 4.3.5 Wealth maximization to share holders
- 4.4 Generating ideas for capital projects
- 4.5 Types of capital budgeting projects
- 4.6 Project classifications
- 4.7 Types of capital budgeting decisions
- 4.8 Steps in capital budgeting
- 4.9 Limitations of accounting profit criteria
- 4.10 Estimating cash flows
- 4.11 Determination of relevant cash flows.
- 4.12 Let us sum up
- 4.13 Technical questions
- 4.14 Reference books

4.0 OBJECTIVES

After studying this unit, you will be able to

- Define capital budgeting
- Highlight the need and importance of capital budgeting
- Enumerate major steps in capital budgeting
- Calculate incremental cash flows for a given project
- Explain the economics of capital budgeting

4.1 INTRODUCTION

Capital budgeting in simple terms is a process of deciding whether or not to commit financial resources to projects, whose cost and benefits will be spread over several number of years. To simplify it further, it means the process of making investment decisions in fixed assets. The terms investment is used as a verb as well as a noun. It means the capital invested when it is used as a noun. It means the process of investment or decision to invest, when it is used in the other sense. It implies sacrificing the present worth in exchange of a future return. There is a risk involved in such decisions. There is a need to plan properly balanced group of investments. At the same time; there is a need to have a properly balanced capital structure. It involves matching of funds uses and sources in line with the overall objective of the firm.

4.2 DEFINITION OF CAPITAL BUDGETING

The term capital budgeting has been defined by various authors. Let us have a look into some representative definitions.

Charles T. Horngren: defines capital budgeting as the long term planning for making and financing proposed capital outlay.

According to **Brighams and Hourston;** Capital budgeting means the process of planning expenditures on assets whose cash flows are expected to extend beyond one year.

Gitman Lawrence.J: Says that capital budgeting refers to the total process of generating selecting and following up on capital expenditure alternatives.

According to Harold **Bierman Jr. and Thomas R.Dyckmen** capital budgeting is the process of deciding whether or not to commit resources to projects whose costs and benefits are spread over several time periods.

To put it in simple terms, capital budgeting means planning for capital assets or fixed assets. Fixed assets management includes not only additions to fixed assets but also replacements and betterments or improvements.

4.3 NEED AND IMPORTANCE OF CAPITAL BUDGETING

Management of asset structure is a key activity of financial management. Capital budgeting is the precursor of asset structure management. It is an important area of decision making for the financial manager. The decision taken in this area will affect the operations of the firm for many years to come. Below given are a few causes which render capital budgeting an inevitable area in any firm.

4.3.1 Heavy investment: All capital expenditure projects involve heavy investment of fund. No financial manager wants to squander such a great amount of money. The source for this amount may be internal or external. Proper planning becomes inevitable. Careful consideration of all factors affecting the investment is essential

4.3.2 Permanent Commitment of Funds: The amount invested in fixed assets is permanently locked. There is no question of taking it back. These remain for longer period. The longer the time, greater is the risk involved. This risk calls for proper planning.

4.3.3 Long term impact on profitability: Investment in any fixed assets has the impact of profitability. If it is a machine it leads to higher levels of production, higher sales corresponding to the prevailing demand and greater profits, Land and Buildings, further fixtures, replacement of these, etc- effect profitability. This impact is for a longer time. If properly planned, there will be increase in size, scale volumes and even growth potentiality.

4.3.4 Complication of investment decisions: Long term investment decisions are complex. There is more risk and uncertainty in it. Moreover the acquisition of capital assets is a continuous process. The financial manager should have a thorough insight of all activities and prophetic skill to think about further. Ignorance at the stage of taking decision can cost heavily for the firm.

4.3.5 Wealth maximization to shareholders: The main aim of the process is to avoid over investment or under investment in fixed assets. Selection of the most profitable capital project will help maximizing shareholders wealth.

4.4 GENERATING IDEAS FOR CAPITAL PROJECTS

A Firm's growth and its ability to remain competitive depends on a constant flow of ideas for new products, for ways to make existing products better and for ways to operate at a lower cost. There are some inevitability in it. The firm must replace worn and obsolete plants and machinery, acquire fixed assets for current and new products and make strategic investment decisions. If there are able, creative

executives and employees, and if they are motivated, there won't be any dearth for ideas. All ideas may not be practical. There should be a tool to screen the projects.

4.5 TYPES OF CAPITAL BUDGETING PROJECTS

There are 2 broad types. They are investment decisions effecting revenues and investment decisions reducing costs.

4.5.1 Investment decisions affecting revenues

These decisions are expected to bring in additional revenue. They raise the size of the firms total revenue. These may be resulting out of expansion of the present operation, higher capacity utilization; development of new product lines. These decisions involve acquisition of new fixed assets.

4.5.2 Investment decisions reducing cost

There are projects which reduce costs and there by contribute to the total earnings. Replacement proposals are good examples for such investment when an asset becomes outdated, the firm must decide whether to continue with the existing assets or replace them. Replacement may result in lower operating costs. These benefits in the form of lower costs will be compared with the initial outlay needed to replace the machine. The expenditure on new machine may be justifiable in the light of the total cost savings.

There is a fundamental difference between the 2 above mentioned categories of investments. That is related to uncertainty. Cost reduction investment decisions are subject to less uncertainty in comparison with the other one. This is because the firm has a better feel for the potential cost savings as it has the duties of past production and cost. In case of a new product line, the firm knows relatively little about the costs and revenues and it is not possible to make a precise estimation.

4.6 PROJECT CLASSIFICATIONS

All projects need not be subjected to the same type of analysis. For certain types of projects, a relatively detailed analysis may be warranted. For some, simpler procedures are sufficient. There fore, firms have practice of categorizing the projects.

Following are the categories

4.6.1 Replacement : Maintenance of business

This category consists of expenditures to replace workout or damaged equipment used in the production of profitable products. The issues here are weather to continue the operation, and whether to continue using the some production process. Since this is in relation to profitable products, the answers

generally are in positive. Therefore elaborate decision process is not followed here. Maintenance decisions are simple ones.

4.6.2 Replacement ; cost reduction

Serviceable but absolute equipments come under the preview of these decisions. The purpose here is to lower the costs of labour, materials and other inputs such as electricity. There is discretion in such decisions. Therefore a fairly detailed analysis is required in such cases.

4.6.3 Expansion of existing products or markets

The expansion may be in relation to output of existing products, or the number of retailed out lets or distribution facilities in the markets now being served. These are more complex decisions. An explicit forecast of growth in demand is required here. More detailed analysis is required. The final decision has to be taken at the higher level within the firm.

4.6.4 Expansion into new products markets

These are investments to produce a new product or to enter a new market. These are infact strategic decisions. The sums to be invested in such cases are invariably large and pay backs are delayed ones. A very detailed analysis is required and final decisions are made at top generally by Board Directors.

4.6.5 Safety and/ or environmental projects

These investments are mandatory. They often involve non-revenue producing projects. These projects involve expenditures necessary to comply with government orders, labour agreements or insurance policy terms. The way of handling these projects depends upon their size. Smaller the size, simpler will be the process.

4.6.6 Other

These are the projects which do not fit in the above mentioned categories. Office buildings, parking places, executive aircraft etc., are the examples for it. Companies handle them differently according to their views.

4.7 TYPES OF CAPITAL BUDGETING DICISIONS

A firm may be confronted with three types of capital budgeting decisions. They are I) Accept reject decision ii) mutually exclusive choice decision iii) the capital rationing decision, Let us study these types of decisions one by one.

4.7.1 Accept reject decision

This is a fundamental decision in capital budgeting. This is applicable in case of independent projects. Independent projects are projects that do not compete with one another. The acceptance of one, does not preclude the possibility of acceptance of the other. If the project satisfies the minimum investment criterion, it will be implemented. If the project is accepted, the firm would invest in it. If the proposal is rejected, the firm does not. In general, all those proposals which yield a rate of return greater than a certain required rate of return or cost of capital, are accepted. The remaining will be rejected.

4.7.2 Mutually exclusive project decisions

These are projects which compete with others. If one is accepted; it means the other is rejected. The alternatives are mutually exclusive; only one can be chosen. This is the case of "either" or choice. Say a company is in need of a folding machine and there are 3 competing brands with different initial investment and operating costs. Among these alternatives only one can be selected. Similar is the case of make or buy decisions. For mutually exclusive project decisions, the projects should get through the 1st type of decision, that is accept/reject decisions. In our example, if all the machines are rejected under the accept/reject criterion, there is no question of buying the machine. These decisions are significant only when more than one proposal is acceptable under the accept/reject decision. In such case 'the best one' will be selected. When this is accepted, the other alternatives are automatically eliminated.

4.7.3 Capital rationing decision

This is the case of independent projects. Where the firm has unlimited funds, all proposals yielding return greater than some predetermined level can be accepted. In actual practice, this situation does not prevail. The firms have a fixed capital budget. There will be a number of investment proposals competing for this final capital budget. Therefore, there arises the need for capital rationing. Funds are allocated to the projects in a manner, that will maximize the long run returns. This situation arises when the firm has more acceptable investments than it can finance. The Accept/reject criteria gives a number of acceptable projects. Capital rationing is concerned with the selection of a group of investment proposals out of many. This involves ranking of the projects. Then they are arranged in the descending order of rate of return.

4.8 STEPS IN CAPITAL BUDGETING

The process of Capital budgeting involves a number of steps. The foremost requirement is to estimate the future benefits accruing from the investment proposal. For purpose of capital budgeting, future benefits are assessed in terms of cash flows. Though the criteria of accounting profit is available to quantify the future benefits, it is not used in capital budgeting because of certain limitations. Once, the cash flows are estimated, the relevant evaluation technique is applied to finally select/reject a proposal.

4.9 LIMITATIONS OF ACCOUNTING PROFIT CRITERIA

In case of investment proposals, a firm has to estimate its economic value. What is relevant here is the actual cash transactions associated with the project. Accounting profit does not reflect the original need for cash at the time of inflows and out flows in later years, Accounting profit includes some non cash items also.

The use of cash flows avoids accounting ambiguities. There are different accounting procedures. There are different ways to value inventory, allocate costs, calculate depreciation and amortise various other expenses. These methods may give different accounting incomes. But there can be only one set of cash flows for a project. Therefore cash flow approach is Better than the accounting approach.

There is one more advantage associated with cash flow approach. It considers time value of money, revenue should be recognized as being generated when the cash is collected, and not when the product is sold. Expenditure also should be recognized as being made when the actual payment is made, and not when incurred, under accounting practices depreciation is deducted from the gross revenues to determine the before tax earnings. Depreciation in fact, does not result in a outflow of funds. Accounting profits are useful as performance measures, and not as decision criteria. Therefore cash flow approach is the best basis for estimating future benefits from investment proposals.

With the help of the following example you can compare cash flow approach with accounting profit approach.

Accounting approach towards benefits		Cash flow approach towards benefits	
Revenues	Rs. 1000	Revenues	Rs. 1000
Less expenses		Less expenses	
Cash	Rs. 500	Cash expenses	500
Depreciation	Rs. 300	Taxes	70
	800		570
Earning before tax	200	Cash flow after tax	430
Tax(0.35)	70		
Net earnings after tax	130		

In the above example, earning after tax is just 130, where as cashflow after tax is Rs. 430 the additional amount can be utilized for further investment. Accounting profit gives only practical picture of tangible benefits available.

4.10 ESTIMATING CASH FLOWS

An incremental analysis is adopted while estimating the cash flows. According to this analysis only differences due to the decision need be considered. These cash flows are adjusted for tax liability. The benefits to be considered are incremental after tax cash flows. The cash flows can be conventional or non conventional. Conventional cash flows consists of an initial cash outlay followed by a series of cash outlay followed by a series of cash flows for example an initial investment of Rs. 10,000 in time period zero, may expect to receive a Rs. 2000 at the end of each year for the next 7 years.

Non conventional cash flow on the other hand, refers to the cash flow pattern in which an initial cash outlay is not followed by a series of inflows. There may be alternating inflows and outflows or an inflow followed by outflows.

The ingredients of cash flow streams have to be considered while estimating the cash flows for capital budgeting. Let us study these ingredients.

4.10.1 Tax effect

Cash flows that are considered for the purpose of capital budgeting are net of taxes. The firm may be incurring losses, and therefore not paying taxes. There are provisions for carrying losses forward to be setup against future incomes. In such cases the benefit of tax savings would accrue in future years. Tax effects always need special consideration in estimating cash flows for the purpose of capital budgeting.

4.10.2 Effect on other projects

This can be explained with the help of an example. A company is considering the production of a new product, which competes with the existing products in the product line. Because of the new product, the cash flows related to the old products may be effected. Assume there is a decline of Rs. 10,000 in the existing flow. This negative effect has to be considered while estimating the cash streams from the new proposal. If the projects are not economically independent, cash flow effects of the project should not be evaluated in isolation.

4.10.3 Effect of indirect expenses

Overheads are the indirect expenses, that are allocated to different products on the basis of wages paid, materials used, floor space occupied or some other appropriate factor. If the amount of overheads will change as a result of the investment decision it should be taken into account while estimating the cash flows.

4.10.4 Effect of depreciation

Depreciation is non cash item. Indian companies should provide depreciation in their books of accounts in accordance, with schedule XIV of the Companies Act. With a view to simplify computation, depreciation is charged not on an individual asset, but on a block of assets. Assets which fall within the same class of assets and in respect of which the same rate of depreciation prescribed comprise a block. Depreciation is computed at block wise rate on the basis of written down value method only. This depreciation is to be excluded back to the net profit, in order to arrive at the cash flow.

4.10.5 Working Capital effect

If an investment increases the sales, there will be increase in the current assets in the form of accounts receivables, inventory and cash. At the same time there will be increase in the current liabilities in the form of increased accounts and notes payable. Obviously the difference between these two is the working capital needed to carry out the investment proposal.

4.11 DETERMINATION OF RELEVANT CASHFLOWS

Capital projects can be categorized into single proposal projects, replacement situations and mutually exclusive projects. Let us see with the help of examples, how to determine cashflow in case of these categories.

Below given is the general format of cashflow determination in case of single investment proposal.

Format I

Cash outflows of new project (Beginning of the period at zero time ($t = 0$))

1. Cost of new project
2. \pm Installation cost of plant and equipments
3. \pm working capital requirements

Format II

Determination of cash inflows:

Single investment proposal ($t = 1 - n$)

Years	1	2	3	4	...N
Cash sales revenue					
Less cash operating cost					
Cash inflows before taxes (CFBT)					
Less Depreciation					
Taxable income					
Less Tax					
Earning after taxes					
Plus Depreciation					
Cash inflows after tax (CFAT)					
Plus salvage value (in nth year)					
Plus Recovery of working capital (in nth year)					

Consider the following example.

Example 2.1.1

A toy manufacturing company is thinking of purchasing a new machine which would cost Rs. 20,000 and would last for four years. Its expected salvage value is zero. The company expects to sell 10,000 toys every year at a price of Rs. 4 / per toy and cash expenses will be Rs. 1 per toy. An increase of Rs. 4000 in working capital at the beginning of the project will be required. The company pays 55% income tax on its income. Determine the cash inflow after tax assuming:

- (a) Straight line depreciation
- (b) Double declining balance depreciation
- (c) Sum of the years digit depreciation

Solution

The formula for straight line depreciation rate is $1/n$ and for double declining balance depreciation rate is $2(1/n)$. In this question the rates are $1/4$ 25% and $2(1/4)$ 50% respectively. Under sum of year's digit depreciation, it is a fraction, the numerator of which is the remaining life of the asset at the beginning of each year and the denominator of which is the sum of the digits representing the years of estimated life. Thus, in the present case, sum-of-the digits will be $1+2+3+4=10$ and factor will be $4/10$, $3/10$, $2/10$ and $1/10$ for each year respectively.

(a) Computation of After-tax Cash Inflow
(Straight Line Depreciation)

Year	Gross Proceeds	Cash Expenses	Depreciation	Accg. Profit 2-3-4	Tax	Accg. Profit After tax 5-6	After-tax cash inflows 7+4
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1	40,000	10,000	5,000	25,000	13,750	11,250	16,250
2	40,000	10,000	5,000	25,000	13,750	11,250	16,250
3	40,000	10,000	5,000	25,000	13,750	11,250	16,250
4	40,000	10,000	5,000	25,000	13,750	11,250	16,250

(b) Computation of After-tax Cash Inflows
(Double Declining Balance)

Year	Gross Proceeds	Cash Expenses	Depreciation	Accg. Profit 2-3-4	Tax	Accg. Profit After tax 5-6	After-tax cash inflows 7+4
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1	40,000	10,000	10,000	20,000	11,000	9,000	19,000
2	40,000	10,000	5,000	25,000	13,750	11,250	16,250
3	40,000	10,000	2,500	27,500	15,125	12,375	14,875
4	40,000	10,000	2,500	25,500	15,125	12,375	14,875

(c) Computation of After-tax Cash Inflows
(Sum of the Year's Digit)

Year	Gross Proceeds	Cash Expenses	Depreciation	Accg. Profit 2-3-4	Tax	Accg. Profit After tax 5-6	After-tax cash inflows 7+4
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1	40,000	10,000	8,000	22,000	12,100	9,900	17,900
2	40,000	10,000	6,000	24,000	13,200	10,800	16,800
3	40,000	10,000	4,000	26,000	14,300	11,700	15,700
4	40,000	10,000	2,000	28,000	15,400	12,600	14,600

Cash flow – in replacement situations.

If a new machine is intended to replace an existing machine, the proceeds so obtained from its sale reduce cash outflows required to purchase its new machine. The format for calculation of after tax incremental cash outflows is given below.

Format III

Cash outflow in a Replacement situation

1. Cost of the new machine
2. + Installation cost
3. ± working capital
4. – sale proceeds of existing machine

Format – IV

Depreciation base of a new machine in a replacement situation

1. WDV of the existing machine
2. +cost of the acquisition of new machine (including installation costs)
3. – sale proceeds of existing machine

The format applied in the following example is adopted from Khan and Jain

While evaluating the project, present values of the cashflows are found out. When the assets have salvage value, that value also will be considered as an inflow at the end of the life of the project. Let us go through the following example and try to learn the procedure.

4.1.2 Example

Royal Industries Ltd. is considering the replacement of one of its moulding machines. The existing machine is in good operating condition, but is smaller than required if the firm is to expand its operations. It is 4 years old, has a current salvage value of Rs. 2,00,000 and a remaining life of 6 years. The machine was initially purchased for Rs. 10 lakh and is being depreciated at 25 per cent on the basis of written down value method.

The new machine will cost Rs. 15 lakh and will be subject to the same method as well as the same rate of depreciation. It is expected to have a useful life of 6 years, salvage value of Rs. 1,50,000 at the sixth year end. The management anticipates that with the expanded operations, there will be a need of an additional net working capital of Rs. 1Lakh.

The new machine will allow the firm to expand current operations and thereby increase annual revenues by Rs. 5,00,000; variable cost to volume ratio is 30 per cent. Fixed costs (excluding depreciation) are likely to remain unchanged.

The corporate tax rate is 35 per cent. Its cost of capital is 10 per cent. The company has several machines in the block of 25 percent depreciation.

Should the company replace its existing machine? What course of action would you suggest, if there is no salvage value?

Solution

Financial Evaluation Whether to Replace Existing Machine

(a) Cash outflows (incremental):

Cost of the new machine	Rs. 15,00,000
Add additional working capital	1,00,000
Less sale value of existing machine	2,00,000
	<hr/>
	14,00,000
	<hr/>

(b) Determination of Incremental CFAT (Operating)

Year	Incremental contribution ^a	Incremental depreciation ^b	Taxable Income	Taxes (0.35)	EAT (col.46+col.3)	CFAT (col.6+col.3)
1	2	3	4	5	6	7
1	Rs 3,50,000	Rs 3,25,000	Rs25,000	Rs8,750	Rs 16,250	Rs 3,41,250
2	3,50,000	2,43,750	1,06,250	37,188	69,062	3,12,812
3	3,50,000	1,82,813	1,67,187	58,515	1,08,672	2,91,485
4	3,50,000	1,37,109	2,12,891	74,512	1,38,379	2,75,488
5	3,50,000	1,02,832	2,47,168	86,509	1,60,659	2,63,491
6	3,50,000	39,624	3,10,376	1,08,632	2,01,744	2,41,368

Rs 5,00,00 – (Rs.5,00,000X0.30, variable cost to value (V/V) ratio= Rs 3,50,000

^b(working note)

Working note:

I. Incremental depreciation (t=1-6)

Year	Incremental asset cost base	Depreciation (25% on WDV)
1	Rs 13,00,000	Rs 3,25,000
2	9,75,000	2,43,750
3	7,31,250	1,82,813
4	5,48,437	1,37,109
5	4,11,328	1,02,832
6	3,08,496	39,624 ^c

^c0.25 X (3,08,496 – 1,50,000, salvage value) = Rs 39,624

(2) (i) **Written down value (WDV) of existing machine at the beginning of the year 5**

Initial cost of machine	Rs	10,00,000
Less depreciation @ 25% in year 1		<u>2,50,000</u>
WDV at beginning of year 2		<u>7,50,000</u>

Less depreciation @ 25% on WDV	1,87,500
WDV at beginning of year 3	<u>5,62,500</u>
Less depreciation @ 25% on WDV	1,40,625
WDV at beginning of year 4	4,21,875
Less depreciation @ 25% on WDV	1,05,469
WDV at beginning of year 5	<u>3,16,406</u>

(ii) Depreciation base of new machine

WDV of existing machine	3,16,406
Add cost of the new machine	15,00,000
Less sale proceeds of existing machine	2,00,000
	<u>16,16,406</u>

(iii) Base for incremental depreciation

Depreciation base of a new machine	16,16,406
Less depreciation base of an existing machine	3,16,406
	<u>13,00,000</u>

(c) Determination of NPV (Salvage Value = Rs 1.50 lakh)

Year	CFAT	PV factor (0.10)	Total PV
1	Rs 3,41,250	0.909	Rs 3,10,196
2	3,12,812	0.826	2,58,383
3	2,91,485	0.751	2,18,905
4	2,75,488	0.683	1,88,158
5	2,63,491	0.621	1,63,628
6	2,41,368	0.564	1,36,132
6 Salvage value	1,50,000	0.564	84,600
6 Recovery of working capital	1,00,000	0.564	56,400
Gross present value			14,16,402
Less cash outflows			14,00,000
Net present value			<u>16,402</u>

Recommendation: Since the NPV is positive, the company is advised to replace the existing machine. The NPV is likely to be higher as tax advantage will accrue on the eligible depreciation of Rs. 1,18,872 (Rs. 3,08,496 – Rs. 150,000 – 39,624) in the future years

Determination of NPV (Salvage Value = zero)

(i) For the first 5 years, depreciation will remain unchanged,. In the sixth year, it will be = Rs 3,08,496X0.25=Rs 77,124

ii) operating CFAT for years 1 to 5 will remain unchanged.

CFAT for year 6 would be:

Incremental contribution	Rs.3,50,000
Less incremental depreciation	<u>77,124</u>
Taxable income	2,72,876
Less taxes (0.35)	<u>95,507</u>
EAT	1,77,369
Add depreciation	<u>77,124</u>
CFAT	<u>2,54,493</u>
iii) PV of operating CFAT (1-5years)	11,39,270
Add PV of operating CFAT (6 th year)	1,43,534
(Rs. 254793X0.564)	<u>56,400</u>
Total present value	13,39,204
Less cash out flows	<u>14,00,000</u>
NPV	<u>66,796</u>

Recommendation: Since the NPV is negative, the existing machine should not be replaced

Example 2.1.3

X Ltd. Bought a machine three years ago for Rs. 1,00,000. Its economic life was five years with no salvage value it is depreciated on straight line basis. The annual depreciation therefore turns out to be Rs. 20,000. The present book value of the machine is RS. 40,000. What would be the cash inflow from the sale of machine if the firm wants to replace it, if sale proceeds are (i) Rs. 1,20,000, (ii) RS. 60,000, and (iii) Rs. 20,000. Assume income tax rate as 55% and capital gains tax as 30%.

Solution

(i) When sale proceeds are Rs. 1,20,000

$$\text{Total gains} = 1,20,000 - 40,000 = \text{Rs. } 80,000$$

Of this capital gains will be Rs. 1,20,000 - Rs. 1,00,000 - Rs. 20,000 and balancing charge (deemed profit) will be Rs. 80,000 - Rs. 20,000 = Rs. 60,000 (i.e., total amount of depreciation written off)

	Rs.
(i) on Capital Gains 30% of Rs. 20,000	6,000
(ii) On Balancing Charge 55% of Rs. 60,000	33,000
	<hr/>
	Rs. 39,000

$$\text{Cash Inflow} = 1,20,000 - 39,000 = \text{Rs. } 81,000$$

(ii) When sale proceeds are Rs. 60,000

$$\text{Total Gains} = 60,000 - 40,000 = \text{Rs. } 20,000$$

Since it is less than total depreciation written-off, the whole amount will be treated as balancing charge

Tax on Balancing charge. 55% of Rs. 20,000 = 11,000

$$\text{Cash Inflow} = 60,000 - 11,000 = \text{Rs. } 49,000$$

(iii) When sale proceeds are Rs. 20,000:

Since sale proceeds are less than written down value, there will be terminal depreciation of Rs. 20,000 (i.e., 40,000 - 20,000). This is allowed expenditure and hence tax liability will be reduced by 55% of Rs. 20,000 = Rs. 11,000 This tax saving will be added to sale proceeds

$$\text{Cash Inflow} = 20,000 + 11,000 = \text{Rs. } 31,000$$

In case of mutually exclusive proposals the selection of one proposal precludes the choice other(s) the calculation of the cash outflows and inflows are on lines similiar to the replacement situations.

4.12 LET US SUM UP

For successful operation of any business, the investment of funds should be made in such a way as to bring in benefits. Therefore there is a need for appraising the different investment proposals. There can be different type of capital expenditures. Project generation, project evaluation, project selection and project execution are the important steps involved in a capital budgeting process. It may involve a

number of steps depending upon the size of the concern, nature of projects, their number, complexities and diversities etc. In the decisions on capital budgeting the criteria will be the incremental cash flows and not accounting profits. This is because accounting profits include certain non cash items cashflows of a proposals get effected by Income tax, other projects, indirect expenses and depreciation and working capital. The computation of cashflows depends on the nature of the proposals, the capital projects can be single proposals, replacement situations or mutually exclusive proposals Accordingly cash inflows vary while considering the various components when the cashflows are found out, proper evaluation techniques should be used to make the decision.

4.13 TERMINAL QUESTIONS

1. what is capital budgeting? Discuss the need for capital budgeting.
2. Explain the steps involved in capital budgeting
3. Discuss the superiority of cashflow criteria over Accounting profit criteria in making capital budgeting decisions.
4. Explain with a suitable example the process of arriving at the incremental cashflows in case of capital budgeting decisions.

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UNIT 5 : METHODS OF CAPITAL BUDGETING

Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Techniques of capital budgeting
- 5.3 Pay back method
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- 5.14 Steps involved in NPV method
- 5.15 Comparison of NPV and IRR methods
- 5.16 Multiple internal rate of returns
- 5.17 Profitability, index
- 5.18 Project selection under capital rationing
- 5.19 Reinvestment rate assumptions
- 5.20 Summary
- 5.21 Terminal Questions
- 5.22 Reference books

5.0 OBJECTIVES

After studying this unit, you will be able to

- Explain the methods of capital budgeting
- Differentiate between 2 main methods-namely discounting techniques and traditional techniques.
- Apply the criteria to a set of cash inflows,
- Outline the limitations of relevant techniques
- Solve problems under different methods of capital budgeting

5.1 INTRODUCTION

There are various techniques used for evaluating the profitability of a project. You have seen in the previous unit, how to arrive at the stream of incremental cashflows in respect of a capital project. After this, an appropriate technique has to be followed.

5.2 TECHNIQUES OF CAPITAL BUDGETING

The methods of appraising capital expenditure proposals can be classified into 2 broad categories i.e., traditional and time adjusted. The more common and widely used methods of capital budgeting are.

Pay back method, Accounting rate of return method, net present value method and internal rate of return method. Let us study these methods one by one

5.3 PAY BACK PERIOD METHOD

This is the simplest and the most commonly used technique of evaluating capital investment proposal. It attempts to calculate the period required to recover the initial investment out of net cash inflow. The number of years required for the savings in cost or net cashflow (after tax but before depreciation to recoup the original cost of the project known as payback period. In other words payback period represents the number of years in which the investment is expected to pay for itself.

5.4 COMPUTATION OF PAYBACK PERIOD

There are two ways of calculating the PB period. The first method is applied, when the cashflow is even i.e., when cashflow after tax is uniform, payback is obtained by dividing the initial cost of investment by the constant annual cash flow

$$P = \frac{I}{S} \quad \text{or} \quad \frac{I}{C} \quad \text{or} \quad \frac{I}{E}$$

where P is payback period

I = Initial Investment

S = Savings per year

C = Annual Cash inflow

E = Earnings per years

$$\text{Payback period} = \frac{\text{Original cost of investment}}{\text{Annual net cash inflows or savings}}$$

For example, an investment of Rs. 100,000 on a machine is expected to produce Rs. 20,000 for 10 years, payback will be

$$\frac{\text{Rs. 100,000}}{\text{Rs 20,000}} = 5 \text{ years}$$

If the annual cash flows are uneven, then the calculation of payback period takes a calculative form. The annual cash flows are accumulated till they equal the original investment. As soon as the amount is recovered, it gives the expected number of payback years.

Consider the following example

Example - 1

Cost of investment - Rs. 300,000

Depreciation - at the rate of 20%

Life of the asset - 5 years

Period	Income before depreciation But after taxation	Cumulative income
1	80,000	80,000
2	100,000	180,000
3	100,000	280,000
4	120,000	400,000
5	120,000	520,000

The cumulative income column reveals that the original investment Rs.300,000 is recovered during the 4th year. The payback period therefore lies somewhere between the third and fourth year. Assuming that the flow of income is even throughout the year, the fraction of the year corresponding to the payback period can also be calculated.

In this example, payback period is some where above there years. So, A fraction has to be added to 3. This fraction is obtained by applying values in the following formula.

Original investment - Cumulative income for the 3rd year

Cumulative income of 4th year - cumulative income of 3rd year

$$= 3 + \frac{300,000 - 280,000}{400,000 - 300,000} = 3 + \frac{20,000}{100,000}$$

$$= 3 + \frac{1}{5} \text{ 3.2 years}$$

$$\frac{1 \text{th or } 0.2 \text{th of a year}}{5} = \frac{12 \times 1 \text{ months}}{5}$$

or 2.4 months

3 years and 2 months

or in terms of days $\frac{1}{5} \times 365 = 73 \text{ days}$

3 year 2 months and 13 days

5.5 SUITABILITY OF THE METHOD

This method is suitable, when the cost of the project is relatively small, and the project is expected to be completed in a short period. It is a simple method and accurate results cannot be obtained here. It carries high risk and only the immediate future can be forecast. The method concentrates on quick return when the business concern is likely to suffer from a shortage of cash, and when dear money conditions are prevailing in a country, a quick return is very much looked for.

5.6 MERITS OF PAYBACK METHOD

The payback is easy to calculate and apply. In the pre computer, pre calculator days, this was an important consideration. This method takes into account liquidity concept. According to this projects with short pay off periods are better than the longer pay off ones. Profitability is not considered here. Longer pay off period projects are secondary however profitable they are. This is in a way conservative approach towards capital projects.

5.7 LIMITATIONS OF PAY BACK METHOD

Payback method ignores returns beyond payback period. This is a serious criticism on this method. Secondly this method ignores the time value of money. The income received in this year is always better than that, is going to be received in future years. This method treats the cashflows equally irrespective of their timings. The present value of future incomes are not found out. As this method ignores profitability concept, it also ignores the possibility of long term growth. This method, by virtue of assigning importance to liquidity favors short term projects. This will kill the growth prospects. Profit comes only after the costs are recovered. Pay back is bothered about just the recovery of costs. This criterion therefore is criticised as the 'fish-bait' criterion. The approach worries more about the bait, than about the fish to be caught.

Pay back method mostly has remained as a crude initial screening device in capital budgeting. It ignores a number of vital concepts like cost of capital, interest factor, capital wastage, serviceable economic life of the asset, return on capital invested, the scrap value of the asset at the end of its economic value etc.

5.8 MODIFICATIONS OF PAYBACK METHOD

There are 3 modifications of this method. They are post payback profitability, payback reciprocal and discounted payback

Post pay back profitability considers total net cashflow remaining after recovering cost of investment. Say there are 2 projects A & B with the following incomes.