TEERTHANKER MAHAVEER UNIVERSITY
MORADABAD, INDIA

CENTRE FOR DISTANCE AND ONLINE EDUCATION

Accredited with NAAC A Grade

12-B Status from UGC

Programme Name- MBA
Semester-II

Course Name-Financial Management

Course Aim/s:

- To give an overview of the problems facing a financial manager in the commercial world.
- It will introduce the concepts and theories of corporate finance that underlie the techniques that are offered as aids for the understanding, evaluation and resolution of financial manager's problems.

Learning Outcome/s:

- Provides support for decision making.
- It enables to monitor their decisions for any potential financial implications and for
- Lessons to be learned from experience and to adapt or react as needed.
- To ensure the availability of timely, relevant and reliable financial and nonfinancial
- Information. FM helps in understanding the use of resources efficiently, effectively and economically.

Unit-I: The Finance Function

Introduction to Finance: Nature and Scope - Finance Function - It's Role in the Contemporary Scenario - Goals of Finance Function - Maximizing vs. Satisfying - Profit vs. Wealth vs. Welfare - The Agency Relationship and Costs - Risk-Return Trade Off.
Time Value of Money: Concept - Future Value and Present Value and the Basic Valuation Model.

Unit-II: The Investment Decision

Investment Decision Process: Project Generation - Project Evaluation - Project Selection and Project Implementation - Developing Cash Flows - Data for New Projects.
Capital Budgeting Techniques: Traditional and DCF methods - The NPV vs. IRR Debate. (Theory & Problems)
Cost of Capital: Concept and Measurement of Cost of Capital - Debt vs. Equity - Cost of Equity - Preference Shares - Equity Capital and Retained Earnings - Weighted Average Cost of Capital and Marginal Cost of Capital (Theory & Problems) - Importance of Cost of Capital in Capital Budgeting Decisions.

Unit-III: Capital Structure Decisions

Capital Structure vs. Financial Structure: Capitalization - Financial Leverage - Operating Leverage and Composite Leverage. (Theory & Problems)
EBIT-EPS Analysis: Indifference Point/Break-Even Analysis of Financial Leverage.
Capital Structure Theories: The Modigliani Miller Theory - Net Income - Net Operating Income Theory and Traditional Theory (Theory & Problems) - A Critical Appraisal.

Unit-IV: Dividend Decisions

Major Forms of Dividends: Cash and Bonus Shares.
Dividends and Value of the Firm: Relevance of Dividends - The MM Hypothesis - Factors Determining Dividend Policy - Dividends and Valuation of the Firm - The Basic Models.
Dividend Theories: Major Theories centred on the works of GORDON, WALTER and LITNER. (Theory & Problems)

Unit-V: Management of Current Assets

Working Capital Management: Components of Working Capital - Gross vs. Net Working Capital - Determinants of Working Capital Needs - The Operating Cycle Approach - Planning of Working

Capital - Financing of Working Capital through Bank Finance and Trade Credit;
Management of Cash: Basic Strategies for Cash Management - Cash Budget (Problems) - Cash Management Techniques/Processes;
Management of Receivables & Inventory.

REFERENCES:

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- Shashi K. Gupta, R. K. Sharma, "Financial Management" Kalyani Publishers.
- Rajiv Srivastava, Anil Mishra, Financial Management" Oxford University Press, New Delhi.
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UNIT 1

MEANING OF FINANCE

Finance may be defined as the art and science of managing money. It includes financial service and financial instruments. Finance also is referred as the provision of money at the time when it is needed. Finance function is the procurement of funds and their effective utilization in business concerns

Definition:

According to GUTHMANN and DOUGALL, business finance may be broadly defined as "the activity concerned with the planning, raising, controlling and administering the funds used in the business."

Financial decisions refer to decisions concerning financial matters of a business firm. There are many kinds of financial management decisions that the firm makers in pursuit of maximizing shareholder"s wealth, viz., kind of assets to be acquired, pattern of capitalization, distribution of firm"s income etc. We can classify these decisions into three major groups:

- Investment decisions
- Financing decision.
- Dividend decisions.
- Working capital decisions.

NATURE OF FINANCE FUNCTION:

I. In most of the organizations, financial operations are centralized. This results in economies.

II. Finance functions are performed in all business firms, irrespective of their sizes /legal form of organization.

III. They contribute to the survival and growth of the firm.

IV. Finance function is primarily involved with the data analysis for use in decision making.

V. Finance functions are concerned with the basic business activities of a firm, in addition to external environmental factors which affect basic business activities, namely,production and marketing.

VI. Finance functions comprise control functions also

VII. The central focus of finance function is valuation of the firm. Finance makes use of economic tools. From Micro economics it uses theories and assumptions. From Macro economics it uses forecasting models. Even though

finance is concerned with individual firm and economics is concerned with forecasting of an industry.

SCOPE OF FINANCIAL MANAGEMENT:

The main objective of financial management is to arrange sufficient finance for meeting short term and long term needs. A financial manager will have to concentrate on the following areas of finance function.

1. **Estimating financial requirements:**
The first task of a financial manager is to estimate short term and long term financial requirements of his business. The amount required for purchasing fixed assets as well as needs for working capital will have to be ascertained.

2. **Deciding capital structure:**
Capital structure refers to kind and proportion of different securities for raising funds. After deciding the quantum of funds required it should be decided which type of securities should be raised. A decision about various sources for funds should be linked to the cost of raising funds.

3. **Selecting a source of finance:** An appropriate source of finance is selected after preparing a capital structure which includes share capital, debentures, financial institutions, public deposits etc. If finance is needed for short term periods then banks, public deposits and financial institutions may be the appropriate. On the other hand, if long term finance is required then share capital and debentures may be the useful.

4. **Selecting a pattern of investment:** When funds have been procured then a decision about investment pattern is to be taken. A decision will have to be taken as to which assets are to be purchased? The funds will have to be spent first on fixed assets and then an appropriate portion will be retained for working capital and for other requirements.

5. **Proper cash management:** Cash management is an important task of finance manager. He has to assess various cash needs at different times and then make arrangements for arranging cash. Cash may be required to purchase of raw materials, make payments to creditors, meet wage bills and meet day to day expenses. The idle cash with the business will mean that it is not properly used.

6. **Implementing financial controls:** An efficient system of financial management necessitates the use of various control devices. They are ROI, break even analysis, cost control, ratio analysis, cost and internal audit. ROI is the best control device in order to evaluate the performance of various financial policies.

7. **Proper use of surpluses:** The utilization of profits or surpluses is also an important factor in financial management. A judicious use of surpluses is essential for expansion and diversification plans and also in protecting the interests of share holders. A balance should be struck in using funds for paying dividend and retaining earnings for financing expansion plans.

EVOLUTION OF FINANCE FUNCTION:

Financial management came into existence as a separate field of study from finance function in the early stages of 20th century. The evolution of financial management can be separated into three stages:

1. **Traditional stage (Finance up to 1940):** The traditional stage of financial management continued till four decades. Some of the important characteristics of this stage are:

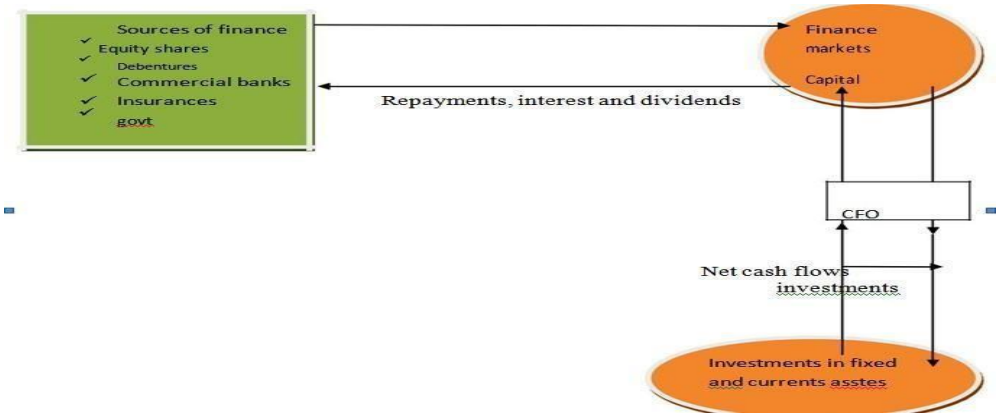
   i) In this stage, financial management mainly focuses on specific events like formation expansion, merger and liquidation of the firm.
   ii) The techniques and methods used in financial management are mainly illustrated and in an organized manner.
   iii) The essence of financial management was based on principles and policies used in capital market, equipments of financing and lawful matters of financial events.
   iv) Financial management was observed mainly from the prospective of investment bankers, lenders and others.

2. **Transactional stage (After 1940):** The transactional stage started in the beginning years of 1940‟s and continued till the beginning of 1950‟s. The features of this stage were similar to the traditional stage. But this stage mainly focused on the routine problems of financial managers in the field of funds analysis, planning and control. In this stage, the essence of financial management was transferred to working capital management.
3. **Modern stage (After 1950):** The modern stage started in the middle of 1950‟s and observed tremendous change in the development of financial management with the ideas from economic theory and implementation of quantitative methods of analysis. Some unique characteristics of modern stage are:

   i) The main focus of financial management was on proper utilization of funds so that wealth of current share holders can be maximized.
   ii) The techniques and methods used in modern stage of financial management were analytical and quantitative.

Since the starting of modern stage of financial management many important developments took place. Some of them are in the fields of capital budgeting, valuation models, dividend policy, option pricing theory, behavioral finance etc.

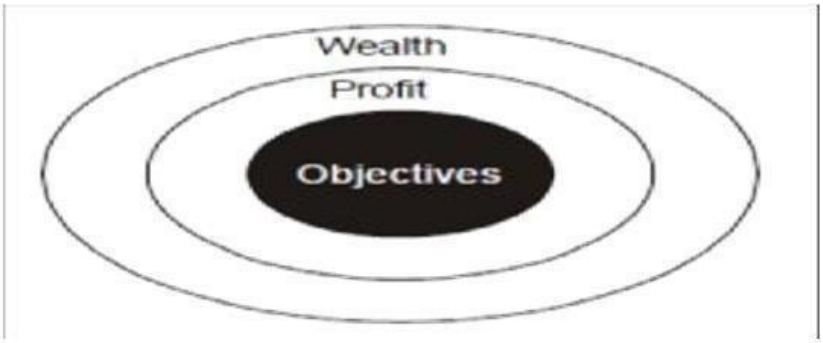
ROLE OF FINANCIAL MANAGEMENT IN CONTEMPORARY SCENARIO:



GOALS OF FINANCE FUNCTION

Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of the financial manager. Hence, the financial manager must determine the basic objectives of the financial management. Objectives of Financial Management may be broadly divided into two parts such as:

1. Profit maximization
2. Wealth maximization.



1 .Profit Maximization

Main aim of any kind of economic activity is earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at, maximizing the profit of the concern. Profit maximization consists of the following important features.

1. Profit maximization is also called as cashing per share maximization. It leads to maximize the business operation for profit maximization.
2. Ultimate aim of the business concern is earning profit, hence, it considers all the possible ways to increase the profitability of the concern.
3. Profit is the parameter of measuring the efficiency of the business concern. So it shows the entire position of the business concern.
4. Profit maximization objectives help to reduce the risk of the business.

Unfavorable Arguments and Drawbacks for Profit Maximization

The following important points are against the objectives of profit maximization:

(i) Profit maximization leads to exploiting workers and consumers.
(ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.
(iii) Profit maximization objectives leads to inequalities among the stake holders such as customers, suppliers, public shareholders, etc.

Profit maximization objective consists of certain drawback also:

(i) **It is vague:** In this objective, profit is not defined precisely or correctly. It creates some unnecessary opinion regarding earning habits of the business concern.
(ii) **It ignores the time value of money:** Profit maximization does not consider the time value of money or the net present value of the cash inflow. It leads certain differences between the actual cash inflow and net present cash flow during a particular period.
(iii) **It ignores risk:** Profit maximization does not consider risk of the business concern. Risks may be internal or external which will affect the overall operation of the business concern.

Wealth Maximization

Wealth maximization is one of the modern approaches. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. Wealth maximization is also known as value maximization or net present worth maximization. This objective is an universally accepted concept in the field of business .

Stockholder‟s current wealth in a firm = (Number of shares owned) x(Current Stock Price share)

Favorable Arguments for Wealth Maximization

(i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.
(ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides extract value of the business concern.
(iii) Wealth maximization considers both time and risk of the business concern.
(iv) Wealth maximization provides efficient allocation of resources.
(v) It ensures the economic interest of the society.

Unfavorable Arguments for Wealth Maximization

(i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.
(ii) Wealth maximization creates ownership-management controversy.
(iii) Management alone enjoy certain benefits.
(iv) The ultimate aim of the wealth maximization objectives is to maximize the profit.
(v) Wealth maximization can be activated only with the help of the profitable position of the business concern.

MAXIMIZING VS SATISFYING

As share holders are the real owners of the organization, they appoint managers to take important decisions with the objective of maximizing share holder‟s wealth. Though organizations have many more objectives, but maximizing stock price is considered to be an important objective of all for many firms.

1) Stock price maximization and social welfare: It is advantageous for society, if firm maximize its stock price. But, firm must not have any intentions of forming monopolistic market, creating pollution and avoiding safety measures. When stock prices are maximized, it benefits society by:

i) To greater extent the owners of stock are society*:* In past, ownership of stock was with wealthy people in society. But now, with the tremendous growth of pension funds, life insurance companies and mutual funds, large group of people in society have ownership of stock either directly or indirectly. Hence, when stock price is increased, it ultimately improves the quality of life for many people in society.

ii) Consumers benefit: It is necessary to have effective low-cost businesses which manufacture good quality of goods and services at the cheapest cost possible to maximize stock price. Companies which are interested in maximizing stock price must satisfy all requirements of customers, provide good services and innovate new products finally; it must increase its sales by creating value for customers. Some people believe that firms increase the prices of goods while maximizing stock price. But it is not true; in order to survive in competitive market firms does not increase prices otherwise they may lose their market share.

iii) Employees benefit: In past years, it was an exception that decreases in level of employees lead to increase in stock price, but now a successful company which can increase stock price can develop and recruit more employees which ultimately benefits the society. Successful companies take advantage of skilled employees and motivated employees are an important source of corporate success.

2) Managerial Actions to Maximize Shareholder's Wealth: In order to identify the steps taken by managers to maximize shareholder‟s wealth, the ability of the organization to generate cash must be known. Cash flows can be determined in three ways, they are:

i) Unit Sales: In first determinant, managers can increase the level of their sales either by satisfying customers or by luck, but which will not continue in long run.

ii) After Tax Operating Margins: In second determinant, managers can generate cash flows by increasing operating profit which is not possible in competitive environment or by decreasing direct expenses.

iii) Capital Requirements: In third determinant, managers can increase cash flows by decreasing assets requirements which ultimately results in increase of stock price.

Investment and financing decisions have an impact on level, timing and risk of the cash flow of firm and finally on stock price. It is necessary for manager to make decisions which can maximize the stock price of the firm.

3) Maximizing Earnings Per Share is Beneficent or Not: In order to maximize stock price, many analyst focus on cash flows by evaluating the performance of the company and also focus of EPS as an accounting measure. Along with cash flow, EPS also plays an important role in identifying stockholder‟s value.

DIFFERENCE BETWEEN PROFIT AND WEALTH MAXIMIZATION

Goal	Objective	Advantages	Disadvantages
Profit maximization	Large amount of profits	-Easy to calculate profits. -Easy to determine the link between financial decisions and profits.	-Emphasizes the short term. -Ignores risk oruncertainty. -Ignores the timing of Returns. -Requires immediate Resources.
Stockholder wealth maximization	Highest market value of common stock	-Emphasizes the long term. -Recognizes risk or Uncertainty. -Consider stockholders return.	-Offers no clear relationship between financial decisions and stock price. -Can lead to management anxiety and frustration.

PROFIT VS. WEALTH VS. WELFARE

S.NO.	PROFITMAXIMIZATION	WEALTH MAXIMIZATION	WELFARE MAXIMIZATION
1)	Profits are earned maximized, so that firm can over-come future risks which are uncertain.	Wealth is maximized, so that wealth of share-holders can be maximized.	Welfare maximization is done with the help of micro economic techniques to examine a locative distribution.
2)	Profit maximization is a yards stick for calculating efficiency and economic prosperity of the concern.	In wealth maximization stockholders current wealth is evaluated in order to maximize the value of shares in the market.	In welfare maximization, social welfare is evaluated by calculating economic activities of individuals in the society.
3)	Profit is measured in terms of efficiency of the firm.	Wealth is measured in terms of market price of shares.	Welfare can be measured in two ways, either by pare to efficiency or in units or dollars.
4)	Profit maximization Involves problem of uncertainty because profits are uncertain.	Wealth maximization involves problems related to maximizing shareholder"s wealth or wealth of the firm	Wealth maximization involves problem of combining the utilities of different people.

AGENCY RELATIONSHIP AND COST:

The relationship that exists in an organization between share holders and management known as agency relationship. Agency relationship results when a principal hires an agent to perform part of his duties.

Agency Problem: In this type of relationship there is a chance of conflicts to occur between the principal and the agent. This conflict is termed as agency problem.

Agency Costs: The costs incurred by stockholders in order to minimize agency problem and maximize the owner‟s wealth are called agency costs.

The two primary agency relationships exists in a business concern are:

1) Shareholders Vs Bondholders
2) Manager Vs Share holders

1) Agency conflict-I (Shareholders Vs Bondholders): Shareholders are the real owners of the concern, they pay fixed and agreed amount of interest to bondholders till the duration of bond is finished but bondholders have a proceeding claim over the assets of the company. Since equity investors are the owners of the company they possess a residual claim on the cash flows of the company. Bondholders are the only sufferers if decisions of the company are not appropriate.

When a company invest in project by taking amount from bondholders and if the project is successful, fixed amount is paid to bondholders and rest of the profits are for shareholders and suppose if project fails then sufferers will be the bondholders as their money have been invested.

2) Agency conflict-II (Managers Vs Shareholders): Profits generated from investments in projects can be utilized for reinvestment or provided back to shareholders as dividends. If dividends are increased, it may leads to decrease in the resources which are under the manager‟s control and also strict its growth. As managers are evaluated on the basis of growth they might go for unproductive projects which cannot generate appropriate returns, which make the shareholders, feel shocked. This is the main cause of conflicts between managers and shareholders.

RISK RETURN TRADE-OFF

The Risk-Return Trade-Off is an essential concept in finance theory. Risk implies the changes in expected return like sales, profits or cash flow and it also includes probability that problem.

Risk analysis is a procedure of calculating and examining the risk which is related to financial and investment decision of the company. Finance managers must focus on expected rate of return by comparing the level of risks involved in investment decision. When it is expected that rate of return will be high then it involves high level of risk and vice versa.

TIME VALUE OF MONEY AND MATHEMATICS OF FINANCE

Concept

We know that ₹100 in hand today is more valuable than ₹ 100 receivable after a year.

We will not part with ₹ 100 now if the same sum is repaid after a year. But we might part with 100 now if we are assured that ₹ 110 will be paid at the end of the first year. This "additional ₹

Compensation" required for parting ₹ 100 today, is called "interest" or "the time value of

money". It is expressed in terms of percentage per annum.

Money should have time value for the following reasons:

- □ Money can be employed productively to generate real returns;
- □ In an inflationary period, a rupee today has higher purchasing power than a rupee in the future;
- □ Due to uncertainties in the future, current consumption is preferred to future Consumption.

The three determinants combined together can be expressed to determine the rate of interest as follows :

Nominal or market interest rate

= Real rate of interest or return (+) Expected rate of inflation (+) Risk premiums to compensate for uncertainty.

Time Value of Money and mathematics

(1) Compounding: We find the Future Values (FV) of all the cash flows at the end of the time period at a given rate of interest.
(2) Discounting: We determine the Time Value of Money at Time "O" by comparing the initial outflow with the sum of the Present Values (PV) of the future inflows at a given rate of interest.

Time Value of Money

Compounding	**Discounting**
(Future Value)	**(Present Value)**
(a) Single Flow	(a) Single Flow
(b) Multiple Flows	(b) Uneven Multiple Flows
(c) Annuity	(c) Annuity

Future Value of a Single Flow

It is the process to determine the future value of a lump sum amount invested at one point of time.

$FVn = PV (1+i)^n$

Where,FVn = Future value of initial cash outflow after n years

PV = Initial cash outflow,i = Rate of Interest p.a.,n = Life of the Investment and $(1+i)^n$ = Future Value of Interest Factor (FVIF)

Example

The fixed deposit scheme of Punjab National Bank offers the following interest rates :

Period of Deposit Rate Per Annum

46 days to 179 days 5.0

180 days < 1 year 5.5

1 year and above 6.0

An amount of Rs. 15,000 invested today for 3 years will be compounded too :

$FVn = PV (1+i)^n$

$= PV \times FVIF (6, 3)$
$= PV \times (1.06)3$
$= 15,000 (1.191)$
$=$ ₹ 17,865

Present Value of a Single Flow:

$$PV = \frac{FVn}{(1 \square i)^n}$$

Where, PV = Present Value, FVn = Future Value receivable after n years, i = rate of interest, n = time period

Example

Calculate P.V. of ₹50,000 receivable for 3 years @ 10%

P.V. = Cash Flows × Annuity @ 10% for 3 years.

= 50,000 × 2.4868 = ₹ 1,24,340/-

UNIT 2

Investment Definition:

The term "investment" can be used to refer to any mechanism used for the purpose of generating future income. In the financial sense, this includes the purchase of bonds, stocks or real estate property. Additionally, the constructed building or other facility used to produce goods can be seen as an investment.

Capital Definition:

The word Capital refers to be the total investment of a company money in , tangible and intangible assets
Investment decision is the process of making investment decisions in capital expenditure.

A **capital expenditure** may be defined as an expenditure the benefits of which are expected to be received over period of time exceeding one year.

The main characteristic of a capital expenditure is that the expenditure is incurred at one point of time whereas benefits of the expenditure are realized at different points of time in future.

Capital Budgeting

The process through which different projects are evaluated is known as capital budgeting. Capital budgeting is defined “as the firm‟s formal process for the acquisition and investment of capital. It involves firm‟s decisions to invest its current funds for addition, disposition, modification and replacement of fixed assets”.

DEFINITION

Capital budgeting (investment decision) as, “Capital budgeting is long term

Planning for making and financing proposed capital outlays.” Charles T.Horngreen

NEED AND IMPORTANCE OF CAPITAL BUDGETING

1. Huge investments: Capital budgeting requires huge investments of funds, but the available funds are limited, therefore the firm before investing projects, plan are control its capital expenditure.

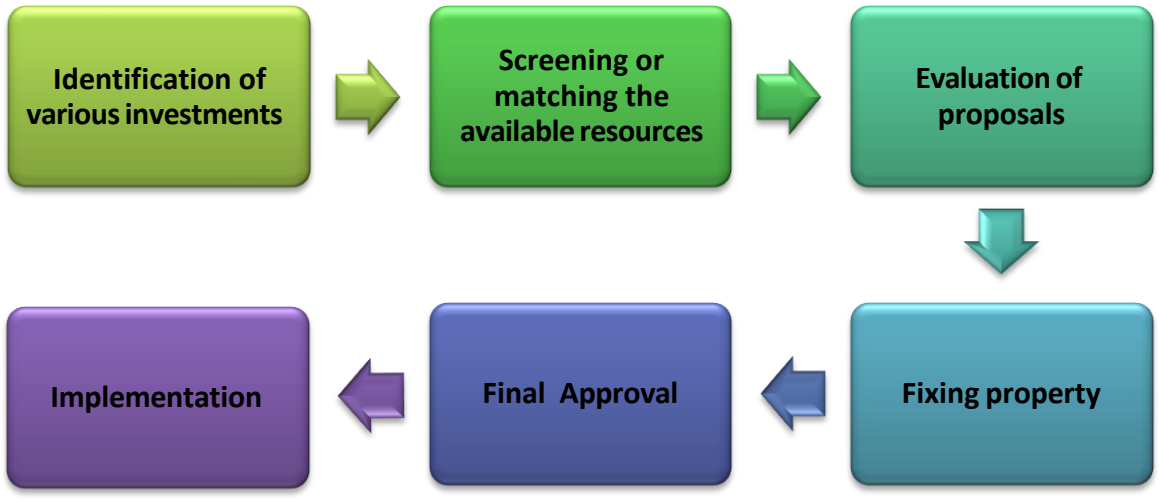
2. Long-term: Capital expenditure is long-term in nature or permanent in nature. Therefore financial risks involved in the investment decision are more. If higher risks are involved, it needs careful planning of capital budgeting.

3. Irreversible: The capital investment decisions are irreversible, are not changed back. Once the decision is taken for purchasing a permanent asset, it is very difficult to dispose of those assets without involving huge losses.

4. Long-term effect: Capital budgeting not only reduces the cost but also increases the revenue in long-term and will bring significant changes in the profit of the company by avoiding over or more investment or under investment. Over investments leads to be unable to utilize assets or over utilization of fixed assets. Therefore before making the investment, it is required carefully planning and analysis of the project thoroughly.

CAPITAL BUDGETING PROCESS

Capital budgeting is a complex process as it involves decisions relating to the investment of current funds for the benefit to the achieved in future and the future is always uncertain. However the following procedure may be adopted in the process of capital budgeting:



PROJECT GENERATION

1. Identification of Investment Proposals:

The proposal or the idea about potential investment opportunities may originate from the top management or may come from the rank and file worker of any department or from any officer of the organization.

2. Screening the Proposals:

The expenditure planning committee screens the various proposals received from different departments. The committee views these proposals from various angels to

ensure that these are in accordance with the corporate strategies or a selection criterion‟s of the firm and also do not lead to departmental imbalances.

PROJECT EVALUATION

3. Evaluation of Various Proposals:

The next step in the capital budgeting process is to evaluate the profitability of various proposals. There are many methods which may be used for this purpose such as payback period method, rate of return method, net present value method, internal rate of return method etc.

PROJECT SELECTION

4. Fixing Priorities:

After evaluating various proposals, the unprofitable or uneconomic proposals may be rejected straight ways. But it may not be possible for the firm to invest immediately in all the acceptable proposals due to limitation of funds. Hence, it is very essential to rank the various proposals and to establish priorities after considering urgency, risk and profitability involved therein.

5. Final Approval and Preparation of Capital Expenditure Budget:

Proposals meeting the evaluation and other criteria are finally approved to be included in the Capital expenditure budget.

PROJECT EXECUTION

6. Implementing Proposal:

Preparation of a capital expenditure budgeting and incorporation of a particular proposal in the budget does not itself authorize to go ahead with the implementation of the project. A request for authority to spend the amount should further be made to the Capital Expenditure Committee.

Further, while implementing the project, it is better to assign responsibilities for completing the project within the given time frame and cost limit so as to avoid unnecessary delays and cost over runs by applying Network techniques PERT and CPM.

7. Performance Review:

The last stage in the process of capital budgeting is the evaluation of the performance of the project. The evaluation is made through post completion audit by way of comparison of actual expenditure of the project with the budgeted one, and also by comparing the actual return from the investment with the anticipated return. The unfavorable variances, if any should be looked into and the causes of the same are identified so that corrective action may be taken in future.

DEVOLOPING CAH FLOW DATA (cash inflow and cash outflow)

The process of cash flow estimation is problematic because it is difficult to accurately forecast the costs and revenues associated with large, complex projects that are expected to affect operations for long periods of time. Forecasting project cash inflows involves numerous variables and many participants in this exercise.

Capital outlays are estimated by engineering and product development departments, revenue projections are provided by marketing group and operational cost are estimated by production people, cost accountants, purchase managers, personal executives, and tax experts and so on.

Calculation of cash inflow

Sales	xxxx
Less: Cash expenses	xxxx
PBDT	xxxx
Less: Depreciation	xxxx
PBT	xxxx
less: Tax	xxxx
PAT	xxxx
Add: Depreciation	xxxx
Cash inflow p.a	xxxx

Calculation of cash outflow

Cost of project/asset	xxxx
Transportation/installation charges	xxxx
Working capital	xxxx
Cash outflow	xxxx

PROJECT EVALUATION TECHNIQUES (OR) CAPITAL BUDGETING TECHNIQUES

There are many methods of evaluating profitability of capital investment proposals. The various commonly used methods are as follows:

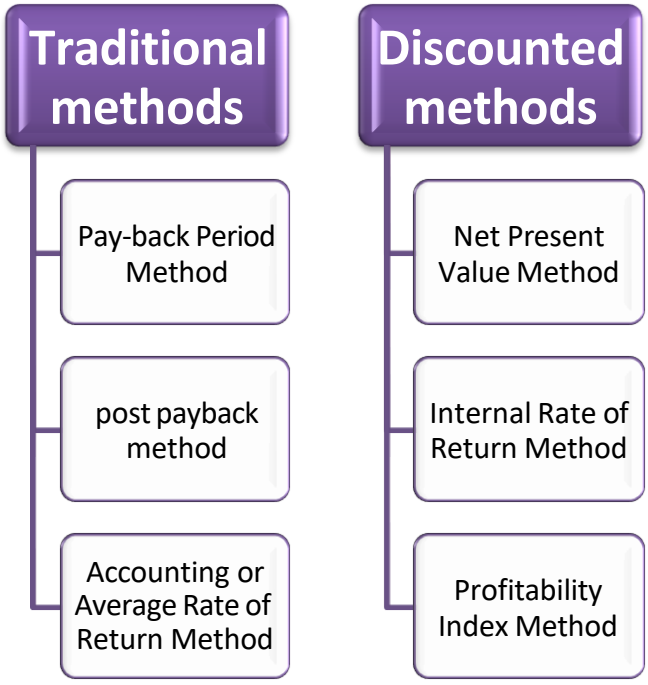
(A) Traditional methods:

(1) Pay-back Period Method or Pay out or Pay off Method.

(2) Improvement of Traditional Approach to pay back Period Method.(post payback method)
(3) Accounting or Average Rate of Return Method.

(B) Time-adjusted method or discounted methods:

(4) Net Present Value Method.
(5) Internal Rate of Return Method.
(6) Profitability Index Method.



(A) TRADITIONAL

METHODS:

1. PAY-BACK PERIOD ETHOD

The „pay back" sometimes called as pay out or pay off period method represents the period in which the total investment in permanent assets pays back itself. This method is based on the principle that every capital expenditure pays itself back within a certain period out of the additional earnings generated from the capital assets.

ACCEPT /REJECT CRITERIA

Under this method, various investments are ranked according to the length of their payback period in such a manner that the investment within a shorter payback period is preferred to the one which has longer pay back period. (It is one of the non-discounted cash flow methods of capital budgeting).

PAY BACK PERIOD = INITIAL INVESTMENT / ANNUAL CASH INFLOWS

MERITS

The following are the important merits of the pay-back method:

1. It is easy to calculate and simple to understand.
2. Pay-back method provides further improvement over the accounting rate return.
3. Pay-back method reduces the possibility of loss on account of obsolescence.

DEMERITS

1. It ignores the time value of money.
2. It ignores all cash inflows after the pay-back period.
3. It is one of the misleading evaluations of capital budgeting.

AVERAGE RATE OF RETURN:

This method takes into account the earnings expected from the investment over their whole life. It is known as accounting rate of return method for the reason that under this method, the Accounting concept of profit (net profit after tax and depreciation) is used rather than cash inflows.

ACCEPT /REJECT CRITERIA

According to this method, various projects are ranked in order of the rate of earnings or rate of return. The project with the higher rate of return is selected as compared to the one with lower rate of return. This method can also be used to make decision as to accepting or rejecting a proposal. Average rate of return means the average rate of return or profit taken for considering.

2. Average Rate of Return Method (ARR):

Under this method average profit after tax and depreciation is calculated and then it is divided by the total capital outlay or total investment in the project. The project evaluation. This method is one of the traditional methods for evaluating

The project proposals

ARR = (Total profits (after dep & taxes))/ (Net Investment in the project X No. of years of profits) x 100

OR

ARR = (Average Annual profits)/ (Net investment in the project) x 100

(b) Average Return on Average Investment Method:

This is the most appropriate method of rate of return on investment Under this method, average profit after depreciation and taxes is divided by the average amount of investment; thus:

> Average Return on Average Investment = (Average Annual Profit after depreciation and taxes)/ (Average Investment) x 100

Merits

1. It is easy to calculate and simple to understand.
2. It is based on the accounting information rather than cash inflow.
3. It is not based on the time value of money.
4. It considers the total benefits associated with the project.

Demerits

1. It ignores the time value of money.
2. It ignores the reinvestment potential of a project.
3. Different methods are used for accounting profit. So, it leads to some difficulties in the calculation of the project.

(B) TIME – ADJUSTED OR DISCOUNTED CASH FLOW METHODS: or MODERN METHOD

The traditional methods of capital budgeting i.e. pay-back method as well as accounting rate of return method, suffer from the serious limitations that give equal weight to present and future flow of incomes. These methods do not take into consideration the time value of money, the fact that a rupee earned today has more value than a rupee earned after five years.

1. NET PRESENT VALUE

Net present value method is one of the modern methods for evaluating the project proposals. In this method cash inflows are considered with the time value of the money. Net present value describes as the summation of the present value of cash inflow and present value of cash outflow. Net present value is the difference between the total present values of future cash inflows and the total present value of future cash outflows.

> **NPV = Total Present value of cash inflows – Net Investment**

If offered an investment that costs $5,000 today and promises to pay you $7,000 two years from today and if your opportunity cost for projects of similar risk is 10%, would you make this investment? You

Need to compare your $5,000 investment with the $7,000 cash flow you expect in two years. Because you feel that a discount rate of 10% reflects the degree of uncertainty associated with the $7,000 expected in two years, today it is worth:

Present value of $7000to be received in two years
$= \$ 7000/(1+0.10)^2 = \$5785.12$

By investing $5,000 today, you are getting in return a promise of a cash flow in the future that is worth $5,785.12 today. You increase your wealth by $785.12 when you make this investment.

Accept/Reject criteria

If the present value of cash inflows is more than the present value of cash outflows, it would be accepted. If not, it would be rejected.

Merits

1. It recognizes the time value of money.
2. It considers the total benefits arising out of the proposal.
3. It is the best method for the selection of mutually exclusive projects.
4. It helps to achieve the maximization of shareholders‟ wealth.

Demerits

1. It is difficult to understand and calculate.
2. It needs the discount factors for calculation of present values.
3. It is not suitable for the projects having different effective lives.

2. INTERNAL RATE OF RETURN METHOD

This method is popularly known as time adjusted rate of return method/discounted rate of return method also. The internal rate of return is defined as the interest rate that equates the present value of expected future receipts to the cost of the investment outlay. This internal rate of return is found by trial and error.

First we compute the present value of the cash-flows from an investment, using an arbitrarily elected interest rate. Then we compare the present value so obtained with the investment cost. If the present value is higher than the cost figure, we try a higher rate of interest and go through the procedure again. Conversely, if the present value is lower than the cost, lower the interest rate and repeat the process.

The interest rate that brings about this equality is defined as the internal rate of return. In other words it is a rate at which discount cash flows to zero.

This rate of return is compared to the cost of capital and the project having higher difference, if they are mutually exclusive, is adopted and other one is rejected. As the determination of internal rate of return involves a number of attempts to make the present value of earnings equal to the investment, this approach is also called the Trial and Error Method. Internal rate of return is time adjusted technique and covers the disadvantages of the Traditional techniques.

Accept/Reject criteria

If the present value of the sum total of the compounded reinvested cash flows is greater than the present value of the outflows, the proposed project is accepted. If not it would be rejected.

It is expected by the following ratio

Cash inflow / Initial Investment

S**teps to be followed:**

Step1. Find out factor. Factor is calculated as follows:

F = Cash outlay or Initial Investment / Cash Inflow

Step 2. Find out positive net present value

Step 3. Find out negative net present value

Step 4. Find out IRR

IRR= Base Factor + (Positive NPV/ Difference in Positive and Negative NPV) x DP

Base factor = Positive Discount Rate

DP= Difference in Percentage

Merits

1. It considers the time value of money.
2. It takes into account the total cash inflow and outflow.
3. It does not use the concept of the required rate of return.
4. It gives the approximate/nearest rate of return.

Demerits

1. It involves complicated computational method.
2. It produces multiple rates which may be confusing for taking decisions.
3. It is assume that all intermediate cash flows are reinvested at the internal rate of return.

NPV vs. IRR Methods¶

Key differences between the most popular methods, the NPV (Net Present Value)

Method and IRR (Internal Rate of Return) Method, include:

• **NPV** is calculated in terms of currency while **IRR** is expressed in terms of the percentage return a firm expects the capital project to return;

• Academic evidence suggests that the **NPV Method is preferred** over other methods since it calculates additional wealth and the IRR Method does not;

• The IRR Method cannot be used to evaluate projects where there are **changing cash flows** (e.g., an initial outflow followed by in-flows and a later out-flow, such as may be required in the case of land reclamation by a mining firm);

• However, the **IRR Method does have one significant advantage** -- managers tend to better understand the concept of returns stated in percentages and find it easy to compare to the required cost of capital; and, finally,

• While both the NPV Method and the IRR Method are both DCF models and can even reach similar conclusions about a single project, the use of the IRR Method can lead to the belief that a smaller project with a shorter life and earlier cash inflows, is preferable to a larger project that will generate more cash.

• Applying NPV using **different discount rates** will result in different recommendations. The IRR method always gives the same recommendation.

COST OF CAPITAL

The cost of capital of a firm is the minimum rate of return expected by its investors. It is the weighted average cost of various sources of finance used by a firm. The capital used by a firm may be in the form of debt, preference capital, retained earnings and equity shares. The concept of cost of capital is very important in the financial management. A decision to invest in a particular project depends upon the cost of capital of the firm or the cut off rate which is the minimum rate of return expected by the investors.

DEFINITIONS

According to Solomon Ezra, “Cost of capital is the minimum required rate of earning or the cut-off rate of capital expenditures”.

MEASUREMENT OF COST OF CAPITAL

The term cost of capital is an overall cost. This is the combination cost of the specific cost associated with specific source of financing. The computation of cost capital therefore, involves two steps: The computation of the different elements of the cost in term of the cost of the different source of finance.

The calculation of the overall cost by combining the specific cost into a composite cost. From the view point of capital budgeting decisions the long-term sources of fund are relevant as the constitute the major source of financing of fixed cost. In calculating the cost of capital, therefore, the focus is to be on the long-term funds.

In other words the specific cost has to be calculated for: 1) Long term debt 2) Preference Shares 3) Equity Shares 4) Retained earnings

COST OF DEBT

$$Kdb = I/P$$

Where Kdb = before tax cost of debt, I = Interest, P = Principal

Cost of Redeemable Debentures (using approximation method)

The cost of redeemable debentures will be calculated as below:

$$\text{Cost of Redeemable Debenture } (K_d) = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

Where,

I	=	Interest payment
NP	=	Net proceeds from debentures in case of new issue of deb or Current market price in case of existing debt.
RV	=	Redemption value of debentures
t	=	Tax rate applicable to the company
n	=	Life of debentures.

The above formula to calculate cost of debt is used where only interest on debt is tax deductable. Sometime, debts are issued at discount and/ or redeemed at a premium. If discount on issue and/ or premium on redemption are tax deductible, the following formula can be used to calculate the cost of debt.

$$\text{Cost of Redeemable Debenture } (K_d) = \frac{I + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}(1 - t)$$

In absence of any specific information, students may use any of the above formulae to calculate the Cost of Debt (K_d) with logical assumption.

ILLUSTRATION

A company issued 10,000, 10% debentures of ₹ 100 each at a premium of 10% on 1.4.2017 to be matured on 1.4.2022. The debentures will be redeemed on maturity. Compute the cost of debentures assuming 35% as tax rate.

SOLUTION

The cost of debenture (K_d) will be calculated as below:

$$\text{Cost of debenture } (K_d) = \frac{I(1 - t) + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

I	= Interest on debenture = 10% of ₹100	= ₹10
NP	= Net Proceeds = 110% of ₹100	= ₹110
RV	= Redemption value	= ₹100
n	= Period of debenture	= 5 years
t	= Tax rate	= 35% or 0.35

$$K_d = \frac{₹10(1 - 0.35) + \frac{(₹100 - ₹110)}{5 \text{ years}}}{\frac{(₹100 + ₹110)}{2}}$$

$$\text{Or} \quad K_d = \frac{₹10 \times 0.65 - ₹2}{₹105} = \frac{₹4.5}{₹105} = 0.0428 \text{ or } 4.28\%$$

ILLUSTRATION

A company issued 10,000, 10% debentures of ₹ 100 each on 1.4.2017 to be matured on 1.4.2022. The company wants to know the current cost of its existing debt and the market price of the debentures is ₹ 80. Compute the cost of existing debentures assuming 35% tax rate.

SOLUTION

$$\text{Cost of debenture } (K_d) = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

I	=	Interest on debenture = 10% of ₹100	= ₹10
NP	=	Current market price	= ₹80
RV	=	Redemption value	= ₹100
n	=	Period of debenture	= 5 years
t	=	Tax rate	= 35% or 0.35

$$K_d = \frac{₹10(1-0.35)+\frac{(₹100-₹110)}{5\text{ years}}}{\frac{(₹100+₹110)}{2}}$$

$$\text{Or} \quad K_d = \frac{₹10\times0.65-₹2}{₹105} = \frac{₹4.5}{₹105} = 0.0428 \text{ or } 4.28\%$$

ILLUSTRATION

A company issued 10,000, 10% debentures of ₹ 100 each on 1.4.2017 to be matured on 1.4.2022. The company wants to know the current cost of its existing debt and the market price of the debentures is ₹ 80. Compute the cost of existing debentures assuming 35% tax rate.

SOLUTION

$$\text{Cost of debenture } (K_d) = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

I	=	Interest on debenture = 10% of ₹100	= ₹10
NP	=	Current market price	= ₹80
RV	=	Redemption value	= ₹100
n	=	Period of debenture	= 5 years
t	=	Tax rate	= 35% or 0.35

$$K_d = \frac{₹10(1-0.35)+\frac{(₹100-₹80)}{5\text{ years}}}{\frac{(₹100+₹80)}{2}}$$

$$\text{Or,} \quad = \frac{₹10\times0.65+₹4}{₹90} = \frac{₹10.5}{₹90} = 0.1166 \text{ or } 11.67\%$$

Cost of Debt using Present value method [Yield to maturity (YTM) approach)]

The cost of redeemable debt (K_d) is also calculated by discounting the relevant cash flows using Internal rate of return (IRR). (The concept of IRR is discussed in the Chapter- Investment Decisions). Here YTM is the annual return of an investment from the current date till maturity date. So, YTM is the internal rate of return at which current price of a debt equals to the present value of all cashflows.

The relevant cash flows are as follows:

Year	Cash flows
0	Net proceeds in case of new issue/ Current market price in case of existing debt (NP or P_0)
1 to n	Interest net of tax [I(1-t)]
n	Redemption value (RV)

Steps to calculate relevant cash flows:

Step-1: Identify the cash flows

Step-2: Calculate NPVs of cash flows as identified above using two discount rates (guessing).

Step-3: Calculate IRR

Example: A company issued 10,000, 10% debentures of ₹ 100 each on 1.4.2013 to be matured on 1.4.2018. The company wants to know the current cost of its existing debt and the market price of the debentures is ₹ 80. Compute the cost of existing debentures assuming 35% tax rate.

Step-1: Identification of relevant cash flows

Year	Cash flows
0	Current market price (P_0) = ₹80
1 to 5	Interest net of tax [I(1-t)] = 10% of ₹100 (1-0.35) = ₹6.5
5	Redemption value (RV) = Face value i.e. ₹100

Step- 2: Calculation of NPVs at two discount rates

Year	Cash flows	Discount factor @ 10%	Present Value	Discount factor @ 15%	Present Value
0	80	1.000	(80.00)	1.000	(80.00)
1 to 5	6.5	3.791	24.64	3.352	21.79
5	100	0.621	62.10	0.497	49.70
NPV			+6.74		-8.51

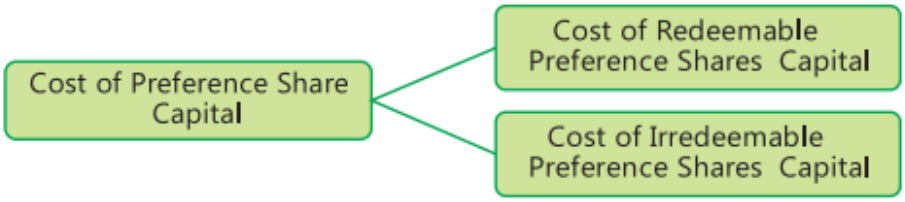
Step- 3: Calculation of IRR

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H-L) = 10\% + \frac{6.74}{6.74-(-8.51)}(15\%-10\%) = 12.21\%$$

YTM or present value method is a superior method of determining cost of debt company to approximation method and it is also preferred in the field of finance.

COST OF PREFERENCE SHARE CAPITAL

The preference share capital is paid dividend at a specified rate on face value of preference shares. Payment of dividend to the preference shareholders are not mandatory but are given priority over the equity shareholder. The payment of dividend to the preference shareholders are not charged as expenses but treated as appropriation of after tax profit. Hence, dividend paid to preference shareholders does not reduce the tax liability to the company. Like the debentures, Preference share capital can be categorised as redeemable and irredeemable. Accordingly cost of capital for each type will be discussed here.



Cost of Redeemable Preference Shares

Preference shares issued by a company which are redeemed on its maturity is called redeemable preference shares. Cost of redeemable preference share is similar to the cost of redeemable debentures with the exception that the dividends paid to the preference shareholders are not tax deductible. Cost of preference capital is calculated as follows:

$$\text{Cost of Reedemable Preference Share } (K_p) = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

Where,

PD = Annual preference dividend

RV = Redemption value of preference shares

NP = Net proceeds on issue of preference shares

n = Life of preference shares.

The cost of redeemable preference share could also be calculated as the discount rate that equates the net proceeds of the sale of preference shares with the present value of the future dividends and principal payments.

ILLUSTRATION

XYZ Ltd. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. The company proposes to redeem the preference shares at the end of 10th year from the date of issue. Calculate the cost of preference share?

SOLUTION

$$K_p = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

$$K_p = \frac{10 + \left(\frac{100 - 95}{10}\right)}{\left(\frac{100 + 95}{2}\right)} = 0.1077 \text{ (approx.)} = 10.77\%$$

Cost of Irredeemable Preference Shares

The cost of irredeemable preference shares is similar to calculation of perpetuity. The cost is calculated by dividing the preference dividend with the current market price or net proceeds from the issue. The cost of irredeemable preference share is as below:

$$\text{Cost of Irredeemable Preference Share } (K_p) = \frac{PD}{P_0}$$

Where,

PD = Annual preference dividend

P_0 = Net proceeds in issue of preference shares

ILLUSTRATION

XYZ & Co. issues 2,000 10% preference shares of ₹ 100 each at ₹ 95 each. Calculate the cost of preference shares.

SOLUTION

$$K_p = \frac{PD}{P_0}$$

$$K_p = \frac{(10 \times 2{,}000)}{(95 \times 2{,}000)} = \frac{10}{95} = 0.1053 = 10.53\%$$

ILLUSTRATION

If R Energy is issuing preferred stock at ₹100 per share, with a stated dividend of ₹12, and a floatation cost of 3% then, what is the cost of preference share?

SOLUTION

$$K_p = \frac{\text{Preferred stock dividend}}{\text{Market price of preferred stock (1 - floatation cost)}}$$

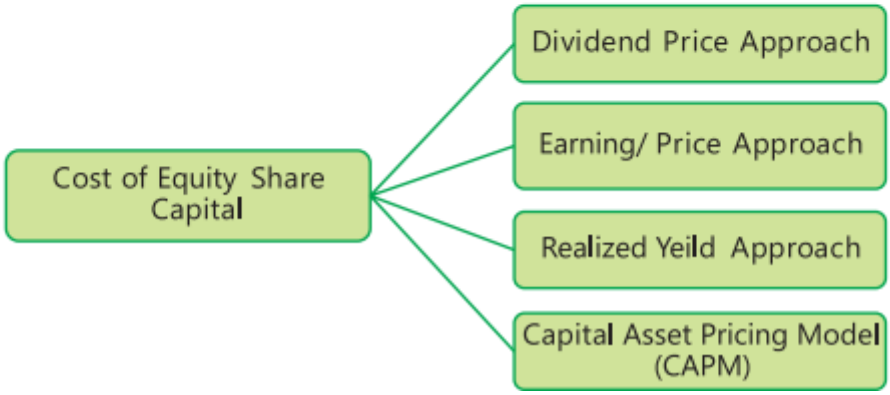
$$= \frac{₹\,12}{₹\,100(1-0.03)} = \frac{₹\,12}{₹\,97} = 0.1237 \text{ or } 12.37$$

COST OF EQUITY SHARE CAPITAL

It may prima facie appear that equity capital does not carry any cost. But this is not true. The market share price is a function of return that equity shareholders expect and get. If the company does not meet their requirements, it will have an adverse effect on the market share price. Also, it is relatively the highest cost of capital. Due to relative higher risk, equity shareholders expect higher return hence, the cost of capital is also high.

In simple words, cost of equity capital is the rate of return which equates the present value of expected dividends with the market share price. In theory, the management strives to maximize the position of equity holders and the effort involves many decisions.

Different methods are employed to compute the cost of equity share capital.



Dividend Price Approach:

This is also known as dividend valuation model. This model makes an assumption that the market price of share is the present value of its future dividends stream.

As per this approach the cost of equity is the rate which equates the future dividends to the current market price.

The cost of equity capital is calculated by dividing the expected dividend by market price per share.

In this approach dividend is constant, which means there is no- growth or zero growth in dividend.

$$\text{Cost of Equity } (K_e) = \frac{D}{P_0}$$

Where,

K_e = Cost of equity

D = Expected dividend

P_0 = Market price of equity (ex- dividend)

This model assumes that dividends are paid at a constant rate to perpetuity. It ignores taxation.

Dividend Price Approach with Constant Growth: As per this approach the rate of dividend growth remains constant. Where earnings, dividends and equity share price all grow at the same rate, the cost of equity capital may be computed as follows:

$$\text{Cost of Equity } (K_e) = \frac{D_1}{P_0} + g$$

Where,

D_1 = $[D_0 (1+ g)]$ i.e. next expected dividend

P_0 = Current Market price per share

g = Constant Growth Rate of Dividend.

In case of newly issued equity shares where floatation cost is incurred, the cost of equity share with an estimation of constant dividend growth is calculated as below:

$$\text{Cost of Equity } (K_e) = \frac{D_1}{P_1 - F} + g$$

Where, F = Flotation cost per share.

ILLUSTRATION

A company has paid dividend of ₹ 1 per share (of face value of ₹ 10 each) last year and it is expected to grow @ 10% next year. Calculate the cost of equity if the market price of share is ₹ 55.

SOLUTION

$$K_e = \frac{D_1}{P_0} + g = \frac{₹\,1(1+0.1)}{₹\,55} + 0.1 = 0.12 = 12\%$$

Dividend Discount Model with variable growth rate is explained in chapter 10 i.e. Dividend Decision

Earning/ Price Approach

The advocates of this approach co-relate the earnings of the company with the market price of its share. Accordingly, the cost of equity share capital would be based upon the expected rate of earnings of a company. The argument is that each investor expects a certain amount of earnings, whether distributed or not from the company in whose shares he invests. Thus, if an investor expects that the company in which he is going to subscribe for shares should have at least a 20% rate of earning, the cost of equity share capital can be construed on this basis. Suppose the company is expected to earn 30% the investor will be prepared to pay ₹ 150 $\left(\frac{30}{20}\times 100\right)$ for each share of ₹ 100.

Earnings/ Price Approach with Constant Earnings:

$$\text{Cost of Equity } (K_e) = \frac{E}{P}$$

Where,

E = Current earnings per share

P = Market share price

Since practically earnings do not remain constant and the price of equity shares is also directly influenced by the growth rate in earnings. The above formula need to be modified to reflect the growth element.

Earnings/ Price Approach with Growth in Earnings:

$$\text{Cost of Equity } (K_e) = \frac{E}{P} + g$$

Where,

E = Current earnings per share

P = Market price per share

g = Annual growth rate of earnings.

The Earning Price Approach is similar to the dividend price approach; only it seeks to nullify the effect of changes in the dividend policy.

Estimation of Growth Rate

The calculation of 'g' (the growth rate) is an important factor in calculating cost of equity share capital. Generally two methods are used to determine the growth rate, which are discussed below:

(i) Average Method

It calculated as below:

$$\text{Current Divident } (D_0) = D_n(1+g)^n$$

or

$$\text{Growth rate } (g) = \sqrt[n]{\frac{D_0}{D_n}} - 1$$

Where,

D_0 = Current dividend,

D_n = Dividend in n years ago

Trick: Growth rate can also be found as follows:

Step-I: Divide D_0 by D_n, find out the result, then refer the FVIF table,

Step-II: Find out the result found at Step-I in corresponding year's row

Step-III: See the interest rate for the corresponding column. This is the growth rate.

Example: The current dividend (D_0) is ₹16.10 and the dividend 5 year ago was ₹10. The growth rate in the dividend can found out as follows:

Step-I: Divide D_0 by D_n i.e. ₹16.10 ÷ ₹10 = 1.61

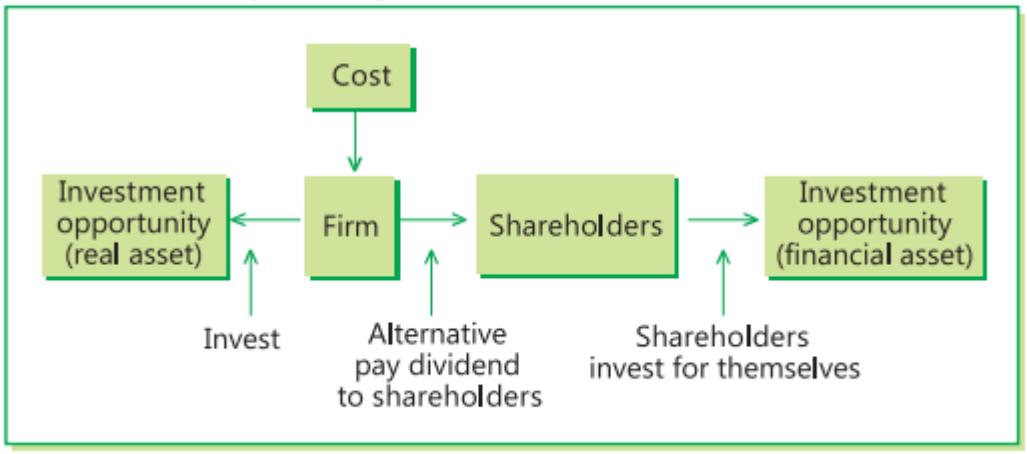
Step-II: Find out the result found at Step-I i.e. 1.61 in corresponding year's row i.e. 5th year

Step-III: See the interest rate for the corresponding column which is 10%. Therefore, growth rate (g) is 10%.

COST OF RETAINED EARNINGS

Like another source of fund, retained earnings involve cost. It is the opportunity cost of dividends foregone by shareholders.

The given figure depicts how a company can either keep or reinvest cash or return it to the shareholders as dividends. (Arrows represent possible cash flows or transfers.) If the cash is reinvested, the opportunity cost is the expected rate of return that shareholders could have obtained by investing in financial assets.



Cost of Retained Earnings

The cost of retained earnings is often used interchangeably with the cost of equity, as cost of retained earnings is nothing but the expected return of the shareholders from the investment in shares of the company. However, sometime cost of retained earnings remains below the cost of equity due to saving in floatation cost and existence of personal tax.

The Cost of Retained Earnings (K_s) is calculated as below:

In absence of any information on personal tax (t_p):

Cost of Retained Earnings (K_s) = Cost of Equity Shares (K_e)

If there is any information on personal tax (t_p):

$$K_s = K_e - t_p$$

Floatation Cost: The new issue of a security (debt or equity) involves some expenditure in the form of underwriting or brokerage fees, legal and administrative charges, registration fees, printing expenses etc. The sum of all these cost is known as floatation cost. This expenditure is incurred to make the securities available to the investors. Floatation cost is adjusted to arrive at net proceeds for the calculation of cost of capital.

ILLUSTRATION

ABC Company provides the following details:

D_0 = ₹ 4.19 P_0 = ₹ 50 g = 5%

Calculate the cost of retained earnings.

SOLUTION

$$K_s = \frac{D_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

$$= \frac{₹4.19(1+0.05)}{₹50} + 0.05$$

$$= 0.088 + 0.05 = 13.8\%$$

ILLUSTRATION

ABC Company provides the following details:

R_f = 7% ß = 1.20 $R_m - R_f$ = 6%

Calculate the cost of retained earnings based on CAPM method.

SOLUTION

$$K_s = R_f + ß\,(R_m - R_f)$$

$$= 7\% + 1.20\,(6\%) = 7\% + 7.20$$

$$K_s = 14.2\%$$

WEIGHTED AVERAGE COST OF CAPITAL (WACC)

WACC is also known as the overall cost of capital of having capitals from the different sources as explained above. WACC of a company depends on the capital structure of a company. It weighs the cost of capital of a particular source of capital with its proportion to the total capital. The weighted average cost of capital for a firm is of use in two major areas:-

1. In consideration of the firm's position;
2. Evaluation of proposed changes necessitating a change in the firm's capital. Thus, a weighted average technique may be used in a quasi-marginal way to evaluate a proposed investment project, such as the construction of a new building.

Thus, weighted average cost of capital is the weighted average after tax costs of the individual components of firm's capital structure. That is, the after tax cost of each debt and equity is calculated separately and added together to a single overall cost of capital.

The steps to calculate WACC is as follows:

Step 1: Calculate the total capital from all the sources.

(i.e. Long term debt capital + Pref. Share Capital + Equity Share Capital + Retained Earnings)

Step 2: Calculate the proportion (or %) of each source of capital to the total capital.

$$\left(\text{i.e. } \frac{\text{Equity Share Capital (for example)}}{\text{Total Capital (as calculated in Step 1 above)}}\right)$$

Step 3: Multiply the proportion as calculated in Step 2 above with the respective cost of capital.

(i.e. K_e × Proportion (%) of equity share capital (for example) calculated in Step 2 above)

Step 4: Aggregate the cost of capital as calculated in Step 3 above. This is the WACC. (i.e. $K_e + K_d + K_p + K_s$ as calculated in Step 3 above)

Example:

Calculation of WACC

Capital Component	Cost of capital	% of total capital structure	Total
Retained Earnings	10% (K_r)	25% (W_r)	2.50% ($K_r \times W_r$)
Equity Share Capital	11% (K_e)	10% (W_e)	1.10%($K_e \times W_e$)
Preference Share Capital	9% (K_p)	15% (W_p)	1.35%($K_p \times W_p$)
Long term debts	6% (K_d)	50% (W_d)	3.00%($K_d \times W_d$)
Total (WACC)			7.95%

The cost of weighted average method is preferred because the proportions of various sources of funds in the capital structure are different. To be representative, therefore, cost of capital should take into account the relative proportions of different sources of finance.

The WACC represents the minimum rate of return at which a company produces value for its investors.

Let's say company produces a return of 20% and has WACC of 11%. By contrast, if the company return is less than WACC, the company is shedding value, which indicates that investors should put their money elsewhere.

But there are problems in determination of weighted average cost of capital. These mainly relate to:-

1. Computation of equity capital and;
2. Assignment of weights to the cost of specific source of financing. Assignment of weights can be possible either on the basis of historical weighting or marginal weighting.

Choice of weights

There is a choice weights between the book value (BV) and market value(MV).

Book Value(BV): Book value weights is operationally easy and convenient. While using BV, reserves such as share premium and retained profits are included in the BV of equity, in addition to the nominal value of share capital. Here the value of equity will generally not reflect historic asset values, as well as the future prospects of an organisation.

Market Value(MV): Market value weight is more correct and represent a firm's capital structure. It is preferable to use MV weights for the equity. While using MV, reserves such as share premium and retained profits are ignored as they are in effect incorporated into the value of equity. It represents existing conditions and also take into consideration the impacts of changing market conditions and the current prices of various security. Similarly, in case of debt MV is better to be used rather than the BV of the debt, though the difference may not be very significant.

ILLUSTRATION

Calculate the WACC using the following data by using:

(a) Book value weights

(b) Market value weights

The capital structure of the company is as under:

	(₹)
Debentures (₹ 100 per debenture)	*5,00,000*
Preference shares (₹ 100 per share)	*5,00,000*
Equity shares (₹ 10 per share)	*10,00,000*
	20,00,000

The market prices of these securities are:

Debentures ₹ *105 per debenture*

Preference shares ₹ *110 per preference share*

Equity shares ₹ *24 each.*

Additional information:

(1) ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10 year maturity.

(2) ₹ 100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and 10 year maturity.

(3) Equity shares has ₹ 4 floatation cost and market price ₹ 24 per share.

The next year expected dividend is ₹ 1 with annual growth of 5%. The firm has practice of paying all earnings in the form of dividend.

Corporate tax rate is 50%.

SOLUTION

Cost of Equity (K_e) = $\frac{D_1}{P_0 - F} + g = \frac{₹1}{₹24 - ₹4} + 0.05 = 0.1$ or 10%

Cost of Debt (K_e) = $\frac{I(1-t) + \left(\frac{RV - NP}{n}\right)}{\left(\frac{RV + NP}{2}\right)} = \frac{10(1-0.5) + \left(\frac{100 - NP}{n}\right)}{\left(\frac{RV + NP}{2}\right)}$

Cost of debt = (K_d) = $\frac{10(1 - 0.5) + \frac{(100 - 96)}{10}}{\frac{(100 + 96)}{2}}$ = = $\left(\frac{5 + 0.4}{98}\right) = 0.055$ (approx.)

Cost of preference shares = K_p = $\left(\frac{5 + \frac{2}{10}}{\frac{198}{2}}\right) = \left(\frac{5.2}{99}\right)$ = 0.053 (approx.)

(a) Calculation of WACC using book value weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC (K_o)
		(a)	(b)	(c) = (a)×(b)
10% Debentures	5,00,000	0.25	0.055	0.0137
5% Preference shares	5,00,000	0.25	0.053	0.0132
Equity shares	10,00,000	0.50	0.10	0.0500
	20,00,000	1.00		0.0769

WACC (K_o) = 0.0769 or 7.69%

(b) Calculation of WACC using market value weights

Source of capital	Market Value	Weights	After tax cost of capital	WACC (K_o)
		(a)	(b)	(c) = (a)×(b)
10% Debentures (₹105× 5,000)	5,25,000	0.151	0.055	0.008
5% Preference shares (₹110× 5,000)	5,50,000	0.158	0.053	0.008
Equity shares (₹24× 1,00,000)	24,00,000	0.691	0.10	0.069
	34,75,000	1.000		0.085

WACC (K_o) = 0.085 or 8.5%

MARGINAL COST OF CAPITAL

The marginal cost of capital may be defined as the cost of raising an additional rupee of capital. Since the capital is raised in substantial amount in practice, marginal cost is referred to as the cost incurred in raising new funds. Marginal cost of capital is derived, when the average cost of capital is calculated using the marginal weights. The marginal weights represent the proportion of funds the firm intends to employ. Thus, the problem of choosing between the book value weights and the market value weights does not arise in the case of marginal cost of capital computation.

For example, the cost of debt may remain 7% (after tax) till ₹10 lakhs of debt is raised, between ₹10 lakhs and ₹15 lakhs, the cost may be 8% and so on. Similarly, if the firm has to use the external equity when the retained profits are not sufficient, the cost of equity will be higher because of the floatation costs. When the components cost start rising, the average cost of capital will rise and the marginal cost of capital will however, rise at a faster rate.

ILLUSTRATION

ABC Ltd. has the following capital structure which is considered to be optimum as on 31st March, 2017.

	(₹)
14% Debentures	*30,000*
11% Preference shares	*10,000*
Equity Shares (10,000 shares)	*1,60,000*
	2,00,000

The company share has a market price of ₹ 23.60. Next year dividend per share is 50% of year 2017 EPS. The following is the trend of EPS for the preceding 10 years which is expected to continue in future.

Year	EPS (₹)	Year	EPS (₹)
2008	1.00	2013	1.61
2009	1.10	2014	1.77
2010	1.21	2015	1.95
2011	1.33	2016	2.15
2012	1.46	2017	2.36

The company issued new debentures carrying 16% rate of interest and the current market price of debenture is ₹ 96.

Preference share ₹ 9.20 (with annual dividend of ₹ 1.1 per share) were also issued. The company is in 50% tax bracket.

(A) *Calculate after tax:*

(i) Cost of new debt

(ii) Cost of new preference shares

(iii) New equity share (consuming new equity from retained earnings)

(B) *Calculate marginal cost of capital when no new shares are issued.*

(C) *How much can be spent for capital investment before new ordinary shares must be sold. Assuming that retained earnings for next year's investment are 50 percent of 2017.*

(D) *What will the marginal cost of capital when the funds exceeds the amount calculated in (C), assuming new equity is issued at ₹ 20 per share?*

SOLUTION

(A) (i) Cost of new debt

$$K_d = \frac{I(1-t)}{P_0}$$

$$= \frac{16\,(1-0.5)}{96} = 0.0833$$

(ii) Cost of new preference shares

$$K_p = \frac{PD}{P_0} = \frac{1.1}{9.2} = 0.12$$

(iii) Cost of new equity shares

$$K_e = \frac{D_1}{P_0} + g$$

$$= = \frac{1.18}{23.60} + 0.10 = 0.05 + 0.10 = 0.15$$

Calculation of D_1

D_1 = 50% of 2013 EPS = 50% of 2.36 = ₹ 1.18

(B) Calculation of marginal cost of capital

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debenture	0.15	0.0833	0.0125
Preference Share	0.05	0.12	0.0060
Equity Share	0.80	0.15	0.1200
Marginal cost of capital			0.1385

(C) The company can spend the following amount without increasing marginal cost of capital and without selling the new shares:

Retained earnings = (0.50) (2.36 × 10,000) = ₹ 11,800

The ordinary equity (Retained earnings in this case) is 80% of total capital

11,800 = 80% of Total Capital

$$\therefore \text{ Capital investment before issuing equity} = \frac{₹\,11,800}{0.80} = ₹\,14,750$$

(D) If the company spends in excess of ₹ 14,750 it will have to issue new shares.

$$\therefore \text{ Capital investment before issuing equity} = \frac{₹\,1.18}{20} + 0.10 = 0.159$$

The marginal cost of capital will be:

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debentures	0.15	0.0833	0.0125
Preference Shares	0.05	0.1200	0.0060
Equity Shares (New)	0.80	0.1590	0.1272
			0.1457

SIGNIFICANCE OF THE COST OF CAPITAL

The cost of capital is important to arrive at correct amount and helps the management or an investor to take an appropriate decision. The correct cost of capital helps in the following decision making:

(i) **Evaluation of investment options:** The estimated benefits (future cashflows) from available investment opportunities (business or project) are converted into the present value of benefits by discounting them with the relevant cost of capital. Here it is pertinent to mention that every investment option may have different cost of capital hence it is very important to use the cost of capital which is relevant to the options available. Here Internal Rate of Return (IRR) is treated as cost of capital for evaluation of two options (projects).

(ii) **Performance Appraisal:** Cost of capital is used to appraise the performance of a particulars project or business. The performance of a project or business in compared against the cost of capital which is known here as cut-off rate or hurdle rate.

(iii) **Designing of optimum credit policy:** While appraising the credit period to be allowed to the customers, the cost of allowing credit period is compared against the benefit/ profit earned by providing credit to customer of segment of customers. Here cost of capital is used to arrive at the present value of cost and benefits received.

UNIT-III

Funds are the basic need of every firm to fulfill long term and working capital requirement. Enterprise raises these funds from long term and short term sources. In this context, capital structure and financial structure are often used. **Capital Structure** covers only the long term sources of funds, whereas **financial structure** implies the way assets of the company are financed, i.e. it represents the whole liabilities side of the Position statement, i.e. Balance Sheet, which includes both long term and long term debt and current liabilities.

Definition of Capital Structure

The combination of long-term sources of funds, i.e. equity capital, preference capital, retained earnings and debentures in the firm‟s capital is known as Capital Structure. It focuses on choosing such a proposal which will minimize the cost of capital and maximize the earnings per share. For this purpose a company can opt for the following capital structure mix:

- Equity capital only
- Preference capital only
- Debt only
- A mix of equity and debt capital.
- A mix of debt and preference capital.
- A mix of equity and preference capital.
- A mix of equity, preference and debt capital in different proportions.

There are certain factors which are referred while choosing the capital structure like, the pattern opted for capital structure should reduce the cost of capital and increase the returns, the capital structure mix should contain more of equity capital and less of debt to avoid the financial risk, it should provide liberty to the business and management to adapt itself according to the changes and so on.

Definition of Financial Structure

The mix of long term and short term funds employed by the company to procure the assets which are required for day to day business activities is known as Financial Structure. Trend Analysis and Ratio Analysis are the two tools used to analyze the financial structure of the company.

The composition of the financial structure represents the whole equity and liabilities side of the Balance Sheet, i.e. it includes equity capital, preference capital, retained earnings, debentures, short-term borrowings, account payable, deposits provisions, etc. The following factors are considered at the time of designing the financial structure:

- **Leverage**: Leverage can be both positive or negative, i.e. a modest rise in the EBIT will give a high rise to the EPS but simultaneously it increases the financial risk.

- **Cost of Capital**: The financial structure should focus on decreasing the cost of capital. Debt and preference share capital are cheaper sources of finance as compared to equity share capital.
- **Control**: The risk of loss and dilution of control of the company should be low.
- **Flexibility**: Any firm cannot survive if it has a rigid financial composition. So the financial structure should be such that when the business environment changes structure should also be adjusted to cope up with the expected or unexpected changes.
- **Solvency**: The financial structure should be such that there should be no risk of getting insolvent.

Basisfor Comparison	**Capital Structure**	**Financial Structure**
Meaning	The combination of long term sources of funds, which are raised by the business is known as Capital Structure.	The combination of long term and s ort term financing represents the financial str cture of the company..
Appearson Balance Sheet	Under the head Shareholders fund and Non-current liabilities.	The whole equities and liabilities side
Includes	Equity capital, preference capital, retained earnings, debentures, long term borrowings etc.	Equity capital, preference capital, retained earnings, debentures, long term bor r owings, account payable, short term borrowin gs etc.
One in another	The capital structure is a section of financial structure.	Financial structure includes capital str cture.

Capitalization

Capitalization is an important constituent of financial plan. ln common parlance, the phrase „Capitalization‟ refers to total amount of capital employed in a business. However, scholars are not unanimous in so far as capitalization is concerned. The term capitalization connotes the process of determining the quantum of funds that a firm would require to run its business. Capitalization is distinct from share capital which refer only to the paid-up value of shares issued and definitely excludes bonds and other forms of borrowings. Similarly, it should be distinguished form „capital‟. The term capital refers to the total investment of a company in money, tangible assets like goodwill. It is in a way the total wealth of a company. When used in the sense of net capital, it indicates the excess of total assets over liabilities. Here, then, it includes “the gains or profits from the use and investment of the capital that has not been distributed to the stockholders” and excludes losses that have resulted from the use of capital. Capitalization, on the other hand, refers only to the par value (i.e., face value indicated on the security itself) of the long-term securities (shares and debentures) plus by any reserves which are meant to be used for meting long-term and permanent needs of a company. Thus capital includes

all the loans and reserves of the concern but Capitalization includes only long-term loans and retained profits besides the capital.

Capitalization comprises of share capital, debentures, loans, free reserves,etc. Capitalization represents permanent investment in companies excluding long-term loans. Capitalization can be distinguished from capital structure. Capital structure is a broad term and it deals with qualitative aspect of finance. While capitalization is a narrow term and it deals with the quantitative aspect.

Capitalization is generally found to be of following types-

- Normal
- Over
- Under

Overcapitalization

Overcapitalization is a situation in which actual profits of a company are not sufficient enough to pay interest on debentures, on loans and pay dividends on shares over a period of time. This situation arises when the company raises more capital than required. A part of capital always remains idle. With a result, the rate of return shows a declining trend. The causes can be-

1. **High promotion cost-** When a company goes for high promotional expenditure, i.e., making contracts, canvassing, underwriting commission, drafting of documents, etc. and the actual returns are not adequate in proportion to high expenses, the company is over-capitalized in such cases.
2. **Purchase of assets at higher prices-** When a company purchases assets at an inflated rate, the result is that the book value of assets is more than the actual returns. This situation gives rise to over-capitalization of company.
3. **A company's floatation n boom period-** At times company has to secure it‟s solvency and thereby float in boom periods. That is the time when rate of returns are less as compared to capital employed. This results in actual earnings lowering down and earnings per share declining.
4. **Inadequate provision for depreciation-** If the finance manager is unable to provide an adequate rate of depreciation, the result is that inadequate funds are available when the assets have to be replaced or when they become obsolete. New assets have to be purchased at high prices which prove to be expensive.
5. **Liberal dividend policy-** When the directors of a company liberally divide the dividends into the shareholders, the result is inadequate retained profits which are very essential for high earnings of the company. The result is deficiency in company. To fill up the deficiency, fresh capital is raised which proves to be a costlier affair and leaves the company to be over- capitalized.
6. **Over-estimation of earnings-** When the promoters of the company overestimate the earnings due to inadequate financial planning, the result is that company goes for borrowings which cannot be easily met and capital is not profitably invested. This results in consequent decrease in earnings per share.

Effects of Overcapitalization

1. **On Shareholders-** The over capitalized companies have following disadvantages to shareholders:
    a. Since the profitability decreases, the rate of earning of shareholders also decreases.
    b. The market price of shares goes down because of low profitability.
    c. The profitability going down has an effect on the shareholders. Their earnings become uncertain.
    d. With the decline in goodwill of the company, share prices decline. As a result shares cannot be marketed in capital market.
2. **On Company-**
    a. Because of low profitability, reputation of company is lowered.
    b. The company‟s shares cannot be easily marketed.
    c. With the decline of earnings of company, goodwill of the company declines and the result is fresh borrowings are difficult to be made because of loss of credibility.
    d. In order to retain the company‟s image, the company indulges in malpractices like manipulation of accounts to show high earnings.
    e. The company cuts down it‟s expenditure on maintainance, replacement of assets, adequate depreciation, etc.
3. **On Public-** An overcapitalized company has got many adverse effects on the public:
    a. In order to cover up their earning capacity, the management indulges in tactics like increase in prices or decrease in quality.
    b. Return on capital employed is low. This gives an impression to the public that their financial resources are not utilized properly.
    c. Low earnings of the company affects the credibility of the company as the company is not able to pay it‟s creditors on time.
    d. It also has an effect on working conditions and payment of wages and salaries also lessen.

Undercapitalization

An undercapitalized company is one which incurs exceptionally high profits as compared to industry. An undercapitalized company situation arises when the estimated earnings are very low as compared to actual profits. This gives rise to additional funds, additional profits, high goodwill, high earnings and thus the return on capital shows an increasing trend. The causes can be-

1. **Low promotion costs**
2. **Purchase of assets at deflated rates**
3. **Conservative dividend policy**
4. **Floatation of company in depression stage**
5. **High efficiency of directors**
6. **Adequate provision of depreciation**
7. **Large secret reserves are maintained.**

Effects of Under Capitalization

1. **On Shareholders**
    a. Company‟s profitability increases. As a result, rate of earnings go up.
    b. Market value of share rises.
    c. Financial reputation also increases.
    d. Shareholders can expect a high dividend.
2. **On company**
    a. With greater earnings, reputation becomes strong.
    b. Higher rate of earnings attract competition in market.
    c. Demand of workers may rise because of high profits.
    d. The high profitability situation affects consumer interest as they think that the company is overcharging on products.
3. **On Society**
    a. With high earnings, high profitability, high market price of shares, there can be unhealthy speculation in stock market.
    b. „Restlessness in general public is developed as they link high profits with high prices of product.
    c. Secret reserves are maintained by the company which can result in paying lower taxes to government.
    d. The general public inculcates high expectations of these companies as these companies can import innovations, high technology and thereby best quality of product.

Bases of Capitalization:

The major problem faced by the financial manager is determination of value at which a firm should be capitalized because it have to raise funds accordingly there are two theories that contain guidelines with which the amount of capitalization can be summarized;

1. Cost Theory of Capitalization

According to this theory capitalization of a firm is regarded as the sun of cost actually incurred in setting of the business. A film needs funds to acquire fixed assets, to defray promotional and organizational expenses and to meet current asset requirements of the enterprise sum of the costs of the above asset gives the amount of capitalization of the firm, acquiring fixed assets and to provide with necessary working capital and to cover possible initial losses, it will capitalized under this method more emphasis is laid on current investments. They are static in nature and do not have any direct relationship with the future earning capacity. This approach is given as the value of capital only at a particular point of time which would not reflect the future changes.

2. Earning Theory of Capitalization

According to this theory, firm should be capitalized on the basis of its expected earning A firm is profit is seeking entity and hence its value is determiner according to What it earns. The probable earning are forecast and them they are capitalized at a normal representative rate of return.

Capitalization of a company as per the earning theory can thus be determined with help following formula.

Capitalization = Annual Net Earnings X Capitalization Rate

Thus for the purpose of determining amount of Capitalization in an enterprise the financial manager has to fist estimate of annual net earnings of the enterprise where after he will have to determine the capitalization rate. The future earning cannot be forecast exactly and depend to a large extent on such external factors which are beyond the control of management.

LEVERAGES

Financial and Operating Leverage

Leverage is common term in financial management which entails the ability to amplify results at a comparatively low cost. In business, company's managers make decisions about leverage that affect profitability. According to James Horne, leverage is, "the employment of an asset or fund for which the firm pays a fixed cost or fixed return". When they evaluate whether they can increase production profitably, they address operating leverage. If they are expecting taking on additional debt, they have entered the field of financial leverage. Operating leverage and financial leverage both heighten the changes that occur to earnings due to fixed costs in a company's capital structures. Fundamentally, leverage refers to debt or to the borrowing of funds to finance the purchase of a company's assets. Business proprietors can use either debt or equity to finance or buy the company's assets. Use of debt, or leverage, increases the company's risk of bankruptcy. It also upsurges the company's returns, specifically its return on equity. It is a fact because, if debt financing is used rather than equity financing, then the owner's equity is not diluted by issuing more shares of stock. Investors in a business like for the business to use debt financing but only up to a point. Investors get nervous about too much debt financing as it drives up the company's default risk.

Types of leverage

There are many types of leverage. The company may use finance leverage or operating leverage, to increase the EBIT and EPS.

Financial Leverage

The ability of a firm to use fixed financial charges to magnify the effect of changes in EBIT/Operating profits, on the levels of EPS is knows as Financial Leverage.

Financial leverage measures the extent to which the fixed financing costs arise out of the use of debt capital

A firm with high financial leverage will have relatively high fixed financing costs.

Formula for Degree of Financial Leverage

Financial Leverage Formula example is given below:

Degree of financial leverage= % Change in EPS/ % Change in EBIT

(OR)

EBIT/ EBT

Why financial leverage important?

- It provides a framework for financial decisions.
- It helps in choosing the best mixture of source of funds and helps to maintain a desirable capital structure for the firm. The structure of the funds influences the shareholder‟s in terms of return and risk.
- In order to quantify the risk-return relationship of various alternative capital structures, firms use financial leverages.
- Financial Leverages help in making prudent investment decisions by providing an upper limit of risk and by balancing the return on investment against charges of debt.

Limitations of Financial Leverages

In view of the limitations given below, financial decisions should not be solely based on financial leverages. It should rather be used to support or supplement those decisions. Given below are financial leverage limitations examples:

- **Financial leverages do not take into account implicit costs of debt.** It implies that as long as the future earnings of the firm are greater than the interest payable on debt i.e. explicit cost, the firm should rely on debt to raise additional funds. However, that may not always help maximize the wealth of shareholders because it results in a decline in the market price of the common stock as a result of increased financial risk.
- **Financial Leverages are based on certain unrealistic assumptions**. Financial leverages assume that costs of debt remain constant irrespective of the degree of leverage of the firm. That is an unrealistic assumption because as the amount of debt increases, the firm is exposed to greater risk and therefore, the interest rate charged to the firm also increases simultaneously.

Operating Leverage
Definition of Operating Leverage

- It measures the extent of the fixed operating costs of a firm. If the operating leverage of a firm is high, it implies that it has high fixed costs in comparison to a firm with a low operating leverage. It measures the effect of change in sales on the level of EBIT.
- Degree of operating leverage refers to a firm‟s ability to use fixed operating costs to magnify effects of changes in sales on its earnings before interest and taxes.
- **Formula for Degree of Operating Leverage**

Sales- variable Cost/EBIT

An operating Leverage of 1.5 means that an increase in sales by 1% would cause the operating profit to increase by 1.5%

Combined Leverage

The Combined Leverage measures the effect of percentage change in sales on the percentage change in EPS. It indicates the effect that change in sales has on EPS. It helps to maintain a proper balance between operating profit and sales without exposing the firm to too much risk.

Formula for Combined Leverage

Combined Leverage= Operating Leverage X Financial Leverage

Illustration 1: Calculate the Degree of Operating Leverage (DOL), Degree of Financial leverage (DFL) and the Degree of Combined Leverage (DCL) for the following firms and interpret the results.

	Firm A	Firm B	Firm C
Output (units)	60,000	15,000	1,00,000
Fixed Costs (Rs)	7,000	14,000	1,500
Variable cost per unit (Rs.)	0.20	1.50	0.02
Interest on borrowed funds	4,000	8,000	-----
Selling price per unit (Rs)	0.60	5.00	0.10

Solution:

	Firm A	Firm B	Firm C
Output (units)	60,000	15,000	1,00,000
Selling price per unit (Rs)	0.60	5.00	0.10
Variable cost per unit (Rs.)	0.20	1.50	0.02
Contribution per unit	**0.40**	**3.50**	**0.08**
Total Contribution	**Rs.24,000**	**Rs.52,500**	**RS.8,000**
Less fixed costs	7,000	14,000	1,500
EBIT	17,000	38,500	6,500
Less Interest	4,000	8,000	---
Profit before Tax	13,000	30,500	6,500

Degree of Operating Leverage

Contribution/EBIT	24,000/17,000	52,500/38,000	8,000/6,500
	= 1.41	=1.36	= 1.23

Degree of Financial Leverage

EBIT/PBT	17,000/13,000	38,500/30,500	6,500/6,500
	= 1.31	= 1.26	= 1.00

Degree of Combined Leverage

Contribution/ EBIT	24,000/13,000	52,500/30,500	8,000/6,500
	= 1.85	= 1.72	= 1.23

Illustration 2: A firm has sales of Rs. 10,00,000, variable cost of Rs. 7,00,000 and fixed costs of Rs. 2,00,000 and debt of Rs. 5,00,000 at 10% rate of interest. What are the operating, financial and combined leverages. If the firm wants to double its earnings before interest and tax (EBIT), how much of a rise in sales would be needed on a percentage basis?

Solution:

Statement of Existing Profit

Sales		Rs.10,00,000
Less Variable cost		7,00,000
Contribution		3,00,000
Less fixed cost		2,00,000
EBIT		1,00,000
Less Interest @ 10% on 5,00,000		50,000
Profit after Tax		50,000
Operating leverage	Contribution/ EBIT = 3,00,000/1,00,000 = 3	
Financial Leverage	EBIT/PBT = 1,00,000/50,000 = 2	
Combined Leverage	= 3x 2= 6	

Statement of sales needed to double EBIT

Operating Leverage is 3 times i.e. 33 – 1/3% increase in sales volume causes a 100% increase in operating profit or EBIT. Thus, at the sales of Rs. 13,33,333, operating profit or EBIT will become Rs. 2,00,000 i.e. double existing one.

Verification:

Sales	Rs.13,33,333
Variable cost (70%)	9,33,333
Contribution	4,00,000
Fixed Costs	2,00,000
EBIT	2,00,000

Illustration 3: The balance sheet of Well Established Company is as follows:

Liabilities	Amount	Assets	Amount
Equity share capital	60,000	Fixed Assets	1,50,000
Retained Earnings	20,000	Current Assets	50,000
10% long term debt	80,000		
Current Liabilities	40,000		----------
	2,00,000		2,00,000

The company"s total assets turnover ratio is 3, its fixed operating costs are Rs.1,00,000 and its variable operating cost ratio is 40%. The income tax rate is 50%. Calculate the different types of leverages given that the face value of share is Rs.10.

Solution: Total Assets Turnover Ratio = Sales / Total Assets

3 = Sales/2,00,000

Sales	6,00,000
Variable Operating Cost (40%)	2,40,000
Contribution	3,60,000
Less Fixed Operating Cost	1,00,000
EBIT	2,60,000
Less interest (10% of 80,000)	8,000
PBT	2,52,000
Tax at 50%	1,26,000
PAT	1,26,000
Number of shares	6,000
EPS	Rs.21

Degree of Operating Leverage = Contribution/EBIT

= 3,60,000/2,60,000 = 1.38

Degree of Financial leverage = EBIT / PBT

= 2,60,000/2,52,000 = 1.03

Degree of Combined Leverage =1.38 x 1.03 = 1.42

Illustration 4: The following information is available for ABC & Co.

EBIT Rs. 11,20,000

Profit before Tax 3,20,000

Fixed Costs 7,00,000

Calculate % change in EPS if the sales are expected to increase by 5%.

Solution: In order to find out the % change in EPS as a result of % change in sales, the combined leverage should be calculated as follows:

Operating Leverage = Contribution/ EBIT

= Rs.11,20,000 + Rs. 7,00,000/11,20,000

= 1.625

Financial Leverage = EBIT / Profit before Tax

= Rs. 11,20,000/3,20,000

= 3.5

Combined Leverage = Contribution/ Profit before Tax = OL x FL

= 1.625 x 3.5 = 5.69

The combined leverage of 5.69 implies that for 1% change in sales level, the % change in EPS would be 5.69% So, if the sales are expected to increase by 5%, then the % increase in EPS would be 5 x 5.69 = 28.45%.

Illustration 5: The data relating to two companies are as given below**:**

	Company A	Company B
Capital	Rs.6,00,000	Rs.3,50,000
Debentures	Rs. 4,00,000	6,50,000
Output (units) per annum	60,000	15,000
Selling price/unit	Rs.30	250
Fixed costs per annum	7,00,000	14,00,000
Variable cost per unit	10	75

You are required to calculate the Operating leverage, Financial leverage and Combined Leverage of two companies.

***Solution*: Computation of Operating leverage, Financial Leverage and Combined leverage**

	Company A	***Company B***
Output (units) per annum	60,000	15,000
Selling price/unit	Rs.30	250
Sales Revenue	18,00,000	37,50,000
Less variable costs		
@ Rs.10 and Rs.75	6,00,000	11,25,000
Contribution	12,00,000	26,25,000
Less fixed costs	7,00,000	14,00,000
EBIT	5,00,000	12,25,000
Less Interest @ 12%		
on debentures	48,000	78,000
PBT	4,52,000	11,47,000
DOL = Contribution/EBIT	12,00,000/5,00,000 = 2.4	26,25,000/12,25,000 = 2.14
DFL = EBIT/ PBT	5,00,000/4,52,000 1.11	12,25,000/11,47,000 =1.07
DCL = DOL x DFL	2.14 x 1.11 = 2.66	2.14 x 1.07 = 2.2

Illustration 6: X Corporation has estimated that for a new product its break-even point is 2,000 units if the item is sold for Rs. 14 per unit, the cost accounting department has currently identified variable cost of Rs. 9 per unit. Calculate the degree of operating leverage for sales volume of 2,500 units and 3,000 units. What do you infer from the degree of operating leverage at the sales volume of 2,500 units and 3,000 units and their difference if any?

Solution:

Particulars	**2500 units**	**3000 units**
Sales @ Rs.14 per unit	35,000	42,000
Variable cost	22,500	27,000
Contribution	12,500	15,000
Fixed Cost (2,000 x (Rs.14 – 9)	10,000	10,000
EBIT	2,500	5,000
Operating Leverage		
= Contribution/ EBIT	12,500/2,500	15,000/5,000

	= 5	= 3

Illustration 7: The following data is available for XYZ Ltd.

Sales	Rs. 2,00,000
Less: Variable cost	60,000
Contribution	1,40,000
Fixed Cost	1,00,000
EBIT	40,000
Less Interest	5,000
Profit before tax	35,000

Find out:

(a) Using concept of financial leverage, by what percentage will the taxable income increase, if EBIT increases by 6 %.

(b) Using the concept of operating leverage, by what percentage will EBIT increase if there is 10% increase in sales and,

(c) Using the concept of leverage, by what percentage will the taxable income increase if the sales increase by 6%. Also verify the results in view of the above figures.

Solution:

(i) Degree of Financial Leverage:

FL = EBIT/Profit before Tax = 40,000/35,000 = 1.15

If EBIT increases by 6%, the taxable income will increase by 1.15 x 6 = 6.9% and it may be verified as follows:

EBIT (after 6% increase)	Rs. 42,400
Less Interest	5,000
Profit before Tax	37,400

Increase in taxable income is Rs. 2,400 i.e 6.9% of Rs. 35,000

(ii) Degree of Operating Leverage:

OL = Contribution / EBIT = 1,40,000/40,000 = 3.50

If sale increases by 10%, the EBIT will increase by 3.50 x 10 = 35% and it may be verified as follows:

Sales (after 10% increase)	Rs. 2,20,000
Less variable expenses @ 30%	66,000

Contribution	1,54,000
Less Fixed cost	1,00,000
EBIT	54,000

Increase in EBIT is Rs. 14,000 i.e 35% of Rs. 40,000

(iii) Degree of Combined leverage

CL = Contribution/ Profit before tax = 1,40,000/35,000 = 4

If sales increases by 6%, the profit before tax will increase by 4x6= 24% and it maybe verified as follows:

Sales (after 6% increase)	Rs. 2,12,000
Less Variable expenses@ 30%	63,600
Contribution	1,48,400
Less Fixed cost	1,00,000
EBIT	48,400
Less Interest	5,000
Profit before tax	43,400

Increase in Profit before tax is Rs. 8,400 i.e 24% of Rs. 35,000

EBIT and EPS Analysis

One of the primary valuation metrics used by investors to assess a business' worth and financial stability is earnings per share (EPS). EPS reflects a company's net income divided by the number of common shares outstanding. EPS, of course, largely depends on a company's earnings. For the purposes of EPS calculation, earnings before interest and taxes (EBIT) is used because it reflects the amount of profit that remains after accounting those expenses necessary to keep the business going. EBIT is also often referred to as operating income.

The relationship between EBIT and EPS is as follows:

EPS = (EBIT - Debt Interest) * (1 - Tax Rate) - Preferred Share Dividends / Number of Common Shares Outstanding

When assessing the relative effectiveness leverage versus equity financing, companies look for the level of EBIT where EPS remains unaffected, called the EBIT-EPS break-even point. This calculation determines how much additional revenue would need to be generated in order to maintain a constant EPS under different financing plans.

To calculate the EBIT-EPS break-even point, rearrange the EPS formula:

EBIT = (EPS * Number of Common Shares Outstanding) + Preferred Share Dividends / (1 - Tax Rate) + Debt Interest

For example, assume a company generates $150,000 in earnings and is financed entirely by equity capital in the form of 10,000 common shares. The corporate tax rate is 30%. The company's EPS is ($150,0000 - 0) * (1 - 0.3) + 0 / 10,000, or $10.50. Now assume the company takes out a loan of $10,000 with a 5% interest rate and sells an additional 10,000 shares. To calculate the level of EBIT where EPS remains stable, simply input the debt interest, current EPS and updated shares outstanding values and solve for EBIT: ($10.50 * 20,000) + 0 / (1 - 0.3) + $500 = $300,500. Under this financing plan, the company must more than double its earnings to maintain a stable EPS.

Effective business management requires careful planning and decision-making about the balance of debt and equity used in financing the business. The EBIT-EPS approach is one method available to managers to guide them in making decisions about capital structure. It refers to the relationship between two numbers: earnings before interest and taxes, or EBIT, and earnings per share, or EPS. To benefit from the EBIT-EPS approach, it helps to understand the basics of how it works, as well as its advantages and drawbacks.

Business Capital Structure

Capital structure refers to a business's balance of debt and equity financing. Businesses have two options for financing the purchases of equipment, expenses and materials necessary for their operations. They can raise money from investors, which is equity financing, or they can borrow from banks and creditors – leverage or debt financing. Most businesses engage in a degree of both, paying careful attention to the costs associated with either source. Relying too heavily on equity increases the cost to investors and cuts into return. But relying too much on debt puts the business in a more precarious position and comes with the substantial costs of interest.

Understanding the EBIT-EPS Approach

The EBIT-EPS approach is one tool managers use to decide on the right mix of debt and equity financing in a business's capital structure. In the EBIT-EPS approach, the business plots graphs of its performance at different possible debt-to-equity ratios, such as 40 percent debt to 60 percent equity. In a basic graph, the earnings per share as a data point is plotted for each level of earnings before interest and taxes at different debt-to-equity ratios. The graph is then analyzed to determine the ideal level of debt-to-equity for the business.

Analysis for Risk and Return

Once the relationship between EBIT and EPS is plotted for different capital structures, the investor can analyze the graph, focusing on two key challenges. The level of EBIT where EPS is zero, called the break-even point, and the graph's slope, which visually represents the company's risk. A steeper slope conveys a higher risk – greater loss per share at at lower EBIT level. A steeper slope also means a higher return, and that the company needs to earn less EBIT to

produce greater EPS. The breakeven point is also important because it tells the business how much EBIT there must be to avoid losses, and varies at different proportions of debt to equity.

Drawbacks to the Approach

The EBIT-EPS approach is not always the best tool for making decisions about capital structuring. The EBIT-EPS approach places heavy emphasis on maximizing earnings per share rather than controlling costs and limiting risk. It's important to keep in mind that as debt financing increases, investors should expect a higher return to account for the greater risk; this is known as a risk premium. The EBIT-EPS approach does not factor this risk premium into the cost of financing, which can have the effect of making a higher level of debt seem more advantageous for investors than it actually is.

ABC Ltd. which is expecting the EBIT of Rs.1,50,000 per annum on an investment Rs.5,00,000, is considering the finalization of the capital structure or the financial plan. The company has access to raise funds of varying amounts by issuing equity share capital, 12% preference share and 10% debenture or any combination thereof. Suppose, it analyzes the following four options to raise the required funds of Rs.5,00,000.

1. By issuing equity share capital at par.
2. 50% funds by equity share capital and 50% funds by preference shares.
3. 5% funds by equity share capital, 25% by preference shares and 25% by issue of 10% debentures.
4. 25% funds by equity share capital, 25% as preference share and 50% by the issue of 10% debentures.

Assuming that ABC Ltd. belongs to 50% tax bracket, the EPS under the above four options can be calculated as follows:

	Option 1	***Option 2***	***Option 3***	**Option 4**
Equity share capital	Rs.5,00,000	Rs.2,50,000	Rs.2,50,000	Rs.1,25,000
Preference share capital	---	2,50,000	1,25,00	1,25,000
10% Debentures	---	---	1,25,000	2,50,000
Total Funds	5,00,000	5,00,000	5,00,000	5,00,000
EBIT	1,50,000	1,50,000	1,50,000	1,50,000
- Interest	---	---	12,500	25,000
Profit before Tax	1,50,000	1,50,000	1,37,500	1,25,000
- Tax @ 50%	75,000	75,000	68,750	62,500

Profit after Tax	75,000	75,000	68,750	62,500
- Preference Dividend	---	30,000	15,000	15,000
Profit for Equity shares	75,000	45,000	53,750	47,500
No. of Equity shares (of Rs.100 each)	5000	2500	2500	1250
EPS (Rs.)	15	18	21.5	38

In this case, the financial plan under option 4 seems to be the best as it is giving the highest EPS of Rs.38. In this plan, the firm has applied maximum financial leverage. The firm is expecting to earn an EBIT of Rs.1,50,000 on the total investment of Rs.5,00,000 resulting in 30% return. On an after-tax basis, this return comes to 15% *i.e.*, 30% x (1-.5). However, the after tax cost of 10% debentures is 5% i.e., 10% (1- .5) and the after tax cost of preference shares is 12% only. In the option 4, the firm has employed 50% debt, 25% preference shares and 25% equity share capital, and the benefits of employing 50% debt (which has after tax cost of 5% only) and 25% preference shares (having cost of 12% only) are extended to the equity shareholders. Therefore the firm is expecting an EPS of Rs.38.

In case, the company opts for all-equity financing only, the EPS is Rs.15 which is just equal to the after tax return on investment. However, in option 2, where 5% funds are obtained by the issue of 12% preference shares, the 3% extra is available to the equity shareholders resulting in increase in of EPS from Rs.15 to Rs.18. In plan 3, where 10% debt is also introduced, the extra benefit accruing to the equity shareholders increases further (from preference shares as well a from debt) and the EPS further increases to Rs.21.50. The company is expecting this increase in EPS when more and more preference share and debt financing is availed because the after tax cost of preference shares and debentures are less than the after tax return on total investment.

Hence, the financial leverage has a favourable impact on the EPS-only if the ROI is more than the cost of debt. It will rather have an unfavourable effect if the ROI is less than the cost of debt. That is why financial leverage is also called the twin-edged sword.

Break Even Analysis of Financial Leverage

Financial BEP is the amount EBIT at which net profit becomes zero and is calculated by the following formula.

Financial BEP = EBIT= I+ PD/1-t

Capital Structure Theories

A corporate can finance its business mainly by 2 means i.e. debts and equity. However, the proportion of each of these could vary from business to business. A company can choose to have

a structure which has 50% each of debt and equity or more of one and less of another. Capital structure is also referred to as financial leverage, which strictly means the proportion of debt or borrowed funds in the financing mix of a company.

Debt structuring can be a handy option because the interest payable on debts is tax deductible (deductible from net profit before tax). Hence, debt is a cheaper source of finance. But increasing debt has its own share of drawbacks like increased risk of bankruptcy, increased fixed interest obligations etc.

For finding the optimum capital structure in order to maximize shareholder‟s wealth or value of the firm, different theories (approaches) have evolved. Let us now look at the first approach

Modigliani and Miller (MM) Approach

Modigliani and Miller approach to capital theory, revised in the 1950s advocates capital structure irrelevancy theory. This suggests that the valuation of a firm is irrelevant to the capital structure of a company. Whether a firm is highly leveraged or has lower debt component, it has no bearing on its market value. Rather, the market value of a firm is dependent on the operating profits of the company.

The capital structure of a company is the way a company finances its assets. A company can finance its operations by either debt or equity or different combinations of these two sources. The capital structure of a company can have a majority of debt component or a majority of equity, only one of the 2 components or an equal mix of both debt and equity. Each approach has its own set of advantages and disadvantages. There are various capital structure theories, trying to establish a relationship between the financial leverage of a company (the proportion of debt in the company‟s capital structure) with its market value. One such approach is the Modigliani and Miller Approach.

Modigliani and Miller Approach

This approach was devised by Modigliani and Miller during 1950s. The fundamentals of Modigliani and Miller Approach resemble that of Net Operating Income Approach. Modigliani and Miller advocate capital structure irrelevancy theory. This suggests that the valuation of a firm is irrelevant to the capital structure of a company. Whether a firm is highly leveraged or has lower debt component in the financing mix, it has no bearing on the value of a firm.

Modigliani and Miller Approach further states that the market value of a firm is affected by its future growth prospect apart from the risk involved in the investment. The theory stated that value of the firm is not dependent on the choice of capital structure or financing decision of the firm. If a company has high growth prospect, its market value is higher and hence its stock prices would be high. If investors do not see attractive growth prospects in a firm, the market value of that firm would not be that great.

Assumptions of Modigliani and Miller Approach

- There are no taxes.
- Transaction cost for buying and selling securities as well as bankruptcy cost is nil.
- There is a symmetry of information. This means that an investor will have access to same information that a corporation would and investors would behave rationally.
- The cost of borrowing is the same for investors as well as companies.
- Debt financing does not affect companies EBIT.

Modigliani and Miller Approach indicates that value of a leveraged firm (a firm which has a mix of debt and equity) is the same as the value of an unleveraged firm (a firm which is wholly financed by equity) if the operating profits and future prospects are same. That is, if an investor purchases shares of a leveraged firm, it would cost him the same as buying the shares of an unleveraged firm.

Modigliani and Miller Approach: Two Propositions without Taxes

Proposition 1

With the above assumptions of "no taxes", the capital structure does not influence the valuation of a firm. In other words, leveraging the company does not increase the market value of the company. It also suggests that debt holders in the company and equity shareholders have the same priority i.e. earnings are split equally amongst them.

Proposition 2

It says that financial leverage is in direct proportion to the cost of equity. With an increase in debt component, the equity shareholders perceive a higher risk to for the company. Hence, in return, the shareholders expect a higher return, thereby increasing the cost of equity. A key distinction here is that proposition 2 assumes that debt-shareholders have upper-hand as far as the claim on earnings is concerned. Thus, the cost of debt reduces.

Modigliani and Miller Approach: Propositions with Taxes (The Trade-Off Theory of Leverage)

The Modigliani and Miller Approach assumes that there are no taxes. But in the real world, this is far from the truth. Most countries, if not all, tax a company. This theory recognizes the tax benefits accrued by interest payments. The interest paid on borrowed funds is tax deductible. However, the same is not the case with dividends paid on equity. To put it in other words, the actual cost of debt is less than the nominal cost of debt because of tax benefits. The trade-off theory advocates that a company can capitalize its requirements with debts as long as the cost of distress i.e. the cost of bankruptcy exceeds the value of tax benefits. Thus, the increased debts, until a given threshold value will add value to a company.

This approach with corporate taxes does acknowledge tax savings and thus infers that a change in debt-equity ratio has an effect on WACC (Weighted Average Cost of Capital). This means

higher the debt, lower is the WACC. This Modigliani and Miller approach is one of the modern approaches of Capital Structure Theory.

Net Income Approach

Net Income Approach suggests that value of the firm can be increased by decreasing the overall cost of capital (WACC) through higher debt proportion. There are various theories which propagate the „ideal" capital mix / capital structure for a firm. Capital structure is the proportion of debt and equity in which a corporate finances its business. The capital structure of a company/firm plays a very important role in determining the value of a firm.

Net Income Approach was presented by Durand. The theory suggests increasing value of the firm by decreasing the overall cost of capital which is measured in terms of Weighted Average Cost of Capital. This can be done by having a higher proportion of debt, which is a cheaper source of finance compared to equity finance.

Weighted Average Cost of Capital (WACC) is the weighted average costs of equity and debts where the weights are the amount of capital raised from each source.

$$WACC = \frac{\text{Required Rate of Return x Amount of Equity + Rate of Interest x Amount of Debt}}{\text{Total Amount of Capital (Debt + Equity)}}$$

According to Net Income Approach, change in the financial leverage of a firm will lead to a corresponding change in the Weighted Average Cost of Capital (WACC) and also the value of the company. The Net Income Approach suggests that with the increase in leverage (proportion of debt), the WACC decreases and the value of firm increases. On the other hand, if there is a decrease in the leverage, the WACC increases and thereby the value of the firm decreases.

For example, vis-à-vis equity-debt mix of 50:50, if the equity-debt mix changes to 20: 80, it would have a positive impact on the value of the business and thereby increase the value per share.

Assumptions of Net Income Approach

Net Income Approach makes certain assumptions which are as follows.

- The increase in debt will not affect the confidence levels of the investors.
- The cost of debt is less than the cost of equity.
- There are no taxes levied.

Net Operating Income Approach

Net Operating Income Approach was also suggested by Durand. This approach is of the opposite view of Net Income approach. This approach suggests that the capital structure decision of a firm is irrelevant and that any change in the leverage or debt will not result in a change in the total

value of the firm as well as the market price of its shares. This approach also says that the overall cost of capital is independent of the degree of leverage.

Features of NOI approach:

1. At all degrees of leverage (debt), the overall capitalization rate would remain constant. For a given level of Earnings before Interest and Taxes (EBIT), the value of a firm would be equal to EBIT/overall capitalization rate.
2. The value of equity of a firm can be determined by subtracting the value of debt from the total value of the firm. This can be denoted as follows: Value of Equity = Total value of the firm - Value of debt
3. Cost of equity increases with every increase in debt and the weighted average cost of capital (WACC) remains constant. When the debt content in the capital structure increases, it increases the risk of the firm as well as its shareholders. To compensate for the higher risk involved in investing in highly levered company, equity holders naturally expect higher returns which in turn increases the cost of equity capital.

UNIT IV

INTRODUCTION

Once a company makes a profit, it must decide on what to do with those profits. They could continue to retain the profits within the company, or they could pay out the profits to the owners of the firm in the form of dividends. The dividend policy decision involves two questions: 1) What fraction of earnings should be paid out, on average, over time? And, 2) What type of dividend policy should the firm follow? I.e. issues such as whether it should maintain steady dividend policy or a policy increasing dividend growth rate etc. On the other hand Management has to satisfy various stakeholders from the profit. Out of the Stakeholders priority is to be given to equity share - holders as they are being the highest risk.

DIVIDEND - DEFINED DEFINITION: DIVIDEND

According to the Institute of Chartered Accountants of India, dividend is "a distribution to shareholders out of profits or reserves available for this purpose."7 "The term dividend refers to that portion of profit (after tax) which is distributed among the owners / shareholders of the firm."

"Dividend may be defined as the return that a shareholder gets from the company, out of its profits, on his shareholdings."

In other words, dividend is that part of the net earnings of a corporation that is distributed to its stockholders. It is a payment made to the equity shareholders for their investment in the company.

As per the section 2(22) of the Income Tax Act, 1961, dividend defined as:-

"Any distribution of accumulated profits whether capitalized or not, if such distribution entails a release of assets or part thereof".

Dividend is a reward to equity shareholders for their investment in the company. It is a basic right of equity shareholders to get dividend from the earnings of a company. Their share should be distributed among the members within the limit of an act and with rational behavior of directors.

The word dividend has not been defined in The Indian Companies Act, 1956. It may be described as a periodical cannot be declared from capital gains under following conditions: i) Provision in Articles of Association. ii) Capital gain must be realized. All assets & liabilities must be revalued before distributing this capital gain.

DEFINITION: DIVIDEND POLICY

"Dividend policy determines the ultimate distribution of the firm's earnings between retention (that is reinvestment) and cash dividend payments of shareholders."

"Dividend policy means the practice that management follows in making dividend payout decisions, or in other words, the size and pattern of cash distributions over the time to shareholders."

In other words, dividend policy is the firm's plan of action to be followed when dividend decisions are made. It is the decision about how much of earnings to pay out as dividends versus retaining and reinvesting earnings in the firm.

Dividend policy means policy or guideline followed by the management in declaring of dividend. A dividend policy decides proportion of dividend and retains earnings. Retained earnings are an important source of internal finance for long term growth of the company while dividend reduces the available cash funds of company.

"As long as the firm has investment project whose returns exceed its cost of capital, it will use retained earnings to finance these projects".

There is a reciprocal relationship between retained earnings and dividend i.e. larger the retained earnings, lesser the dividend and smaller the retained earnings, larger the dividend. James E. Walter (1963) says "Choice of dividend policy almost effects the value of the enterprise"

The dividend policy of a company reflects how prudent its financial management is. The future prospects, expansion, diversification mergers are effected by dividing policies and for a healthy and buoyant capital market, both dividends and retained earnings are important factors. Most of the company follows some kind of dividend policy. The usual policy of a company is to retain a position of net earnings and distribute the remaining amount to the shareholders. Many factors have to be evaluated before forming a long term dividend policy.

TYPES OF DIVIDENDS:

Classifications of dividends are based on the form in which they are paid. Following given below are the different types of dividends:

1. Cash dividend
2. Bonus Shares
3. Property dividend interim dividend, annual dividend
4. Special- dividend, extra dividend etc.
5. Regular Cash dividend
6. Scrip dividend
7. Liquidating dividend
8. Property dividend

Cash dividend:

Companies mostly pay dividends in cash. A Company should have enough cash in its bank account when cash dividends are declared. If it does not have enough bank balance, arrangement should be made to borrow funds. When the Company follows a stable dividend policy, it should prepare a cash budget for the coming period to indicate the necessary funds, which would be needed to meet the regular dividend payments of the company. It is relatively difficult to make cash planning in anticipation of dividend needs when an unstable policy is followed.

The cash account and the reserve account of a company will be reduced when the cash dividend is paid. Thus, both the total assets and net worth of the company are reduced when the cash dividend is distributed. The market price of the share drops in most cases by the amount of the cash dividend distributed.

Bonus Shares:

An issue of bonus share is the distribution of shares free of cost to the existing shareholders, In India, bonus shares are issued in addition to the cash dividend and not in lieu of cash dividend. Hence, Companies in India may supplement cash dividend by bonus issues. Issuing bonus shares increases the number of outstanding shares of the company. The bonus shares are distributed proportionately to the existing shareholder. Hence there is no dilution of ownership.

The declaration of the bonus shares will increase the paid-up Share Capital and reduce the reserves and surplus retained earnings) of the company. The total net-worth (paid up capital plus reserves and surplus) is not affected by the bonus issue. Infect, a bonus issue represents a recapitalization of reserves and surplus. It is merely an accounting transfer from reserves and surplus to paid up capital.

The following are advantages of the bonus shares to shareholders:

1) Tax benefit: One of the advantages to shareholders in the receipt of bonus shares is the beneficial treatment of such dividends with regard to income taxes.

2) Indication of higher future profits: The issue of bonus shares is normally interpreted by shareholders as an indication of higher profitability.

3) Future dividends may increase: if a Company has been following a policy of paying a fixed amount of dividend per share and continues it after the declaration of the bonus issue, the total cash dividend of the shareholders will increase in the future.

4) Psychological Value: The declaration of the bonus issue may have a favorable psychological effect on shareholders. The receipt of bonus shares gives them a chance sell the shares to make capital gains without impairing their principal investment. They also associate it with the prosperity of the company.

Special dividend : In special circumstances Company declares Special dividends. Generally company declares special dividend in case of abnormal profits.

Extra- dividend: An extra dividend is an additional non-recurring dividend paid over and above the regular dividends by the company. Companies with fluctuating earnings payout additional dividends when their earnings warrant it, rather than fighting to keep a higher quantity of regular dividends.

Annual dividend: When annually company declares and pay dividend is defined as annual dividend.

Interim dividend: During the year any time company declares a dividend, it is defined as Interim dividend.

Regular cash dividends: Regular cash dividends are those the company exacts to maintain every year. They may be paid quarterly, monthly, semiannually or annually.

Scrip dividends: These are promises to make the payment of dividend at a future date: Instead of paying the dividend now, the firm elects to pay it at some later date. The „scrip" issued to stockholders is merely a special form of promissory note or notes payable

Liquidating dividends: These dividends are those which reduce paid-in capital: It is a pro-rata distribution of cash or property to stockholders as part of the dissolution of a business

Property dividends: These dividends are payable in assets of the corporation other than cash. For example, a firm may distribute samples of its own product or shares in another company it owns to its stockholders.

DIVIDENDS AND VALUE OF THE FIRM

The company's Board of Directors makes dividend decisions. They are faced with the decision to pay out dividends or to reinvest the cash into new projects.

The tradeoff between paying dividends and retaining profits within the company The dividend policy decision is a trade-off between retaining earnings v/s paying out cash dividends.

Dividend policies must always consider two basic objectives:

- Maximizing owners' wealth
- Providing sufficient financing

FACTORS DETERMINING DIVIDEND POLICY

While determining a firm's dividend policy, management must find a balance between current income for stockholders (dividends) and future growth of the company (retained earnings).

In applying a rational framework for dividend policy, a firm must consider the following two issues:

- How much cash is available for paying dividends to equity investors, after meeting all needs-debt payments, capital expenditures and working capital (i.e. Free Cash Flow to Equity - FCFE)
- To what extent are good projects available to the firm (i.e. Return on equity - ROE > Required Return) The potential combinations of FCFE and Project Quality and the generalizations of the dividend policy to be adapted in each situation are presented below:

Dividend Decision Matrix

Factors	**FCFE> Dividends**	**FCFE<Dividends**
ROE> Cost of Equity	Good Projects Cash flow surplus No Change	Good Projects Decrease Dividends Invest in Projects
ROE< Cost of Equity	Poor Projects Cash flow surplus Increase Dividends Reduce Investment	Poor Projects Cash flow Deficit Decrease Dividends Reduce Investment

DIVIDEND POLICY THEORIES

1. **The Residual Theory of Dividend Policy**
   The residual theory of dividend policy holds that the firm will only pay dividend from residual earnings, that is dividends should be paid only if funds remain after the optimum level of capital expenditures is incurred i.e. all suitable investment opportunities have been financed.

   With a residual dividend policy, the primary focus of the firm is on investments and hence dividend policy is a passive decision variable. The value of a firm is a direct function of its investment decisions thus making dividend policy irrelevant.

2. **Dividend Irrelevancy Theory, (Miller & Modigliani, 1961)**
   The dividend irrelevancy theory asserts that dividend policy has no effect on either the price of the firm or its cost of capital.

   This theory argues that dividend policy does not affect share price because the value of the firm is a function of its earning power and the risk of its assets. If dividends do affect value, it is only due to:

- **Information effect :** The informational content of dividends relative to management's earnings expectations
- **Clientele effect:** A clientele effect exists which allows firms to attract shareholders whose dividend preferences match the firm's historical dividend payout patterns.
- **Signaling effect:** Rise in dividend payment is viewed as a positive signal whereas a reduction in dividend payment is viewed as a negative signal about the future earnings prospects of the company, thus leading to an increase or decreases in share prices of the firm. Managers use dividends as signals to transmit information to the capital market. Theoretical models by Bhattacharya (1979)19, Miller and Rock (1985)20 and John and Williams (1985)21 and Williams (1988)22 tell us that dividend increases convey good news and dividend decreases convey bad news.

However, this theory is based on the following assumptions:

- There is an existence of perfect capital markets i.e. No personal or corporate taxes and no transaction costs.
- The firm's investment policy is independent of its dividend policy.
- Investors behave rationally and information is freely available to them
- Risk or uncertainty does not exist.

The above-mentioned assumptions exclude personal and corporate taxes as well as any linkage to capital investment policy as well as other factors that limit its application to real world situations.

3. The Bird in the Hand Theory, (John Lintner 1962 and Myron Gordon, 1963)

The essence of this theory is not stockholders are risk averse and prefer current dividends due to their lower level of risk as compared to future dividends. Dividend payments reduce investor uncertainty and thereby increase stock value. This theory is based on the logic that ' what is available at present is preferable to what may be available in the future'. Investors would prefer to have a sure dividend now rather than a promised dividend in the future (even if the promised dividend is larger). Hence dividend policy is relevant and does affect the share price of a firm.

A Summary View of Dividend Policy Theories

The dividend policy theories focus on the issue of the relevancy of dividend policy to the value of a firm.

Dividend Irrelevance

Dividends do not make any difference (M• & M theory)

If there are no taxes disadvantages associated with dividends.

Dividend Relevance

Dividends are relevant and have positive impact on firm value

If stockholders like dividends, or dividends operate as a signal of• future prospects. (Lintner & Gordon) Dividends help to resolve agency problem and thus enhancing• shareholder value. (Jenson) Dividends are not good (Graham and Dodd)• If dividends have a tax disadvantage and increasing dividends• reduce value. There are therefore, conflicting viewpoints regarding the impact of dividend decision on value of a firm.

DIVIDEND MODELS

The various models that support the above-mentioned theories of dividend relevance and irrelevance are as follows:

Modigliani Miller approach (MM Hypothesis)

According to them the price of a share of a firm is determined by its earning potentiality and investment policy and not by the pattern of income distribution. The model given by them is as follows:

Po = D1 + P1/ (1/Ke)

Where, Po = Prevailing market price of a share
Ke = Cost of equity capital
D1 = Dividend to be received at the end of period one
P1 = Market price of a share at the end of period one

According to the MM hypothesis, market value of a share before dividend is declared is equal to the present value of dividends paid plus the market value of the share after dividend is declared.

Walter's approach

According to Prof. James E. Walter, in the long run, share prices reflect the present value of future+ dividends. According to him investment policy and dividend policy are inter related and the choice of a appropriate dividend policy affects the value of an enterprise. His formula for determination of expected market price of a share is as follows:

$$P = \frac{D + r/k(E-D)}{K}$$

Where, P = Market price of equity share
D = Dividend per share
E = Earnings per share
(E-D) = Retained earnings per share
r = Internal rate of return on investment

k = cost of capital

Gordon's approach: Dividend Yield Basis

The value of a share, like any other financial asset, is the present value of the future cash flows associated with ownership. On this view, the value of the share is calculated as the present value of an infinite stream of dividends.

Myron Gordon's Dividend Growth Model explains how dividend policy of a firm is a basis of establishing share value. Gordon's model uses the dividend capitalization approach for stock valuation. The formula used is as follows: $$Po = \frac{E1\ (1-b)}{K-br}$$

Where, Po = price per share at the end of year 0
E1 = earnings per share at the end of year 1
(1-b) = fraction of earnings the firm distributes by way of dividends
b = fraction of earnings the firm ploughs back
k = rate of return required by shareholders
r = rate of return earned on investments made by the firm
br = growth rate of dividend and earnings

The models, provided by Walter and Gordon lead to the following implications:

- If r > k Price per share increases as dividend payout ratio decreases
- If r = k Price per share remains unchanged with changes in dividend payout ratio
- If r < k Price per share increases as dividend payout ratio increases.

WORKING CAPITAL MANAGEMENT

Working Capital
The capital of a business which is used in its day-by-day trading operations, calculated as the current assets minus the current liabilities. Working capital is also called operating assets or net current assets.
WC= CA-CL
Working Capital Management
Working capital management refers to a company‟s managerial accounting strategy designed to monitor and utilize the two components of working capital, current assets and current liabilities, to ensure the most financially efficient operation of the company.

Need of Working Capital Management
1. Inventory management
2. Receivable management
3. Cash management

Factors affecting working capital management

- Nature of business

- Production policy
- Credit policy
- Inventory policy
- Abnormal factor
- Market conditions
- Conditions of supply
- Business cycle
- Taxation policy
- Dividend policy
- Operating efficiency
- Price level changes
- Depreciation policy
- Availability of raw material

Determining the Working Capital Needs
It depends on the following factors-

- Size of the firm
- Activities of the firm
- Availability of credits
- Attitudes towards profit
- Attitude toward risks
- Others

Importance of Adequate Working Capital

1. Smooth running of business
2. Profitability with manage risk
3. Growth and development possibility
4. Smooth payment
5. Increase in goodwill
6. Trade relationship better
7. Others

In managing WC two processes are there-

- Forecasting requirement of fund
- Arrangement of fund

The Operating Cycle Approach

The determination of WC helps in forecast, control& management of WC. The duration of WC may vary depending upon the nature of business. The duration of operating cycle (WC cycle)

for the purpose of estimating WC is equal to the sum of duration of each of above events less the credit period allowed by the supplier

For ex.- A co. holds raw material on an average for 60 days, it gets credit firm supplier for 15 days, production process needs15 days, finished products are held 30 days & 30 days is the total WC cycle. So, 60+15+30+30-15=120 days.

Various Components of Operating Cycle

A) Raw material shortage period = $\frac{\text{Average stock of raw material}}{\text{Average cost of raw material consumed per day}}$

B) WIP holding period = $\frac{\text{Average WIP inventory}}{\text{Average cost of production per day}}$

C) Finished goods storage period = $\frac{\text{Estimated production (in units)} * \text{direct lab permit}}{\text{12 months / 360 days}}$

OR

$\frac{\text{Average stock of finished goods}}{\text{Average cost of goods sold per day}}$

D) Debtors collection period = $\frac{\text{Average goods debtors}}{\text{Average credit sale per day}}$

E) Credit period available to suppliers = $\frac{\text{Average rate credit}}{\text{Average credit purchase per day}}$

Operating Cycle = R+W+F+D-C

Financing of Working Capital

Financing of working capital can be done in two ways:

A. Long term sources
B. Short term sources

A. Long term sources

1. Share capital
    a. Equity share capital
    b. Preference share capital
2. Debentures
    a. Convertible debentures
    b. Non-convertible debentures
    c. Redeemable debentures

d. Non-Redeemable debentures

3. Bonds
4. Loans from banks & financial institutions
5. Retained earnings
6. Venture capital fund for innovative projects

B. Short term sources

1. Bank credit
2. Transaction credit
3. Advances from customers
4. Bank advances
5. Loans
6. Overdraft
7. Bills purchase and discounted
8. Advance against documents of title of goods
9. Term loans by bank
10. Commercial paper
11. Bank deposits

Financing of Working Capital through Bank Finance and Trade Credit
Traditionally bank credit:

- Source of meeting of working capital needs of business firms.
- In other words, they have been extending credit to industry & trade on the basis of security.
- RBI has appointed various committees to ensure equitable distribution of bank resources to various sectors of economy. The committees suggest ways & means to make the bank credit & effective instrument of industrialization.

Recommendation of Daheja and Tondon Committee on Working Capital

1. DAHEJA COMMITTEE:

In September 1969, Daheja committee of RBI pointed out in his report that in the financing practice of the banks. There was no relationship between the optimum requirement & bank loan. The committee also pointed out that banks do not give proper attention to financing patterns. So clients move towards double & multiple financing.
The Daheja committee suggested:

- ☐The heart hole which represents the minimum level of raw material, finished goods & stores which any industrial concerned is required to hold for maintaining certain level of production.
- ☐The strictly short term components which should be the fluctuating path of the accounting, the path should represents the short term inventory, taxes, dividend, bonus payments.

Conclusion of Daheja committee:

- Orientation towards project & need based lending.

2. TONDON COMMITTEE

In July 1974, RBI constituted a study group under the chairpersonship of Mr. P.L Tondon. The study group was asked to give its recommendations on the following matter:

- What contsitutes the working capital requirement of industry and what is end use of credit?
- How is the quantum of bank advanced to be decided?
- Can norms be involved of current assets & for debt equity ratio to ensure minimum dependents on bank finance?
- Canthe current manner & stage of lending be imposed?
- Can an adequate planning assessment & implementation system be involved to ensurea discipline flow of credit to meet genuine production needs & its proper supervision?

The study group reviewed the system of working capital financing and identified its major shortcoming as follows:

- The cash credit system of lending wherein the borrower can draw freely within limits sanctioned by the banker hinders sound credit planning on the part of the banker and induces financial indiscipline in the borrower.
- The securit yoriented approach to lending favored borrowers with strong financial resources and also led to diversion of funds, borrowed against the security of current assets, for financing fixed assets.
- Relativelyeasy access to working capital finance led to large inventory levels with industry.
- Working capital finance provided by banks, theoretically supposed to be short term in nature, tended to be, in practice, a long-term source of finance. For the regulating bank credit, the study group made comprehensive recommendations which have been made by and large accepted by the Reserve Bank of India.

The final recommendations for committee were:

A. Banks finance essentially for meeting working capital needs.

B. To fill up the working capital gap.

C. Norms: The borrowing requirement of industrial unit depends on the length of working capital cycle.

D. Three different methods for calculating the borrowing limit to finance working capital requirements are:

- First step is to use required fund deposit your money in term deposit, never purchase excessive inventory.
- The borrower will have to provide a minimum 25% of total current assets from hte term fund.
- To decide the limit as per current assets & current liabilities.

E. Style of credit

F. Information system for banks

UNIT 5

Introduction

Cash is one of the current assets of a business. It is needed at all times to keep the business going. A business concern should always keep sufficient cash for meeting its obligations. Any shortage of cash will hamper the operations of a concern and any excess of it will be unproductive. Cash is the most unproductive of all the assets. While fixed assets like machinery, plant, etc. and current assets such as inventory will help the business in increasing its earning capacity, cash in hand will not add anything to the concern. It is in this context that cash management has assumed much importance.

Nature of Cash

For some persons, cash means only money in the form of currency (cash in hand). For other persons, cash means both cash in hand and cash at bank. Some even include near cash assets in it. They take marketable securities too as part of cash. These are the securities which can easily be converted into cash.

Cash itself does not produce good or services. It is used as a medium to acquire other assets. It is the other assets which are used in manufacturing goods or providing services. The idle cash can be deposited in bank to earn interest.

A business has to keep required cash for meeting various needs. The assets acquired by cash again help the business in producing cash. The goods manufactured of services produced are sold to acquire cash. A firm will have to maintain a critical level of cash. If at a time it does not have sufficient cash with it, it will have to borrow from the market for reaching the required level.

There remains a gap between cash inflows and cash outflows. Sometimes cash receipts are more than the payments or it may be vice-versa at another time. A financial manager tries to synchronize the cash inflow and cash outflows.

Motives for Holding Cash

The firm‟s needs for cash may be attributed to the following needs: Transactions motive, Precautionary motive and Speculative motive. These motives are discussed as follows:

1. Transaction Motive: A firm needs cash for making transacions in the day-to-day operations. The cash is needed to make purchases, pay expenses, taxes, dividend, etc. The cash needs arise due to the fact that there is no complete synchronization between cash receipts and payments. Sometimes cash receipts exceed cash payments or vice-versa. The transaction needs of cash can be anticipated because the expected

payments in near future can be estimated. The receipts in future may also be anticipated but the things do not happen as desired. If more cash is needed for payments than receipts, it may be raised through bank overdraft. On the other hand if there are more cash receipts than payments, it may be spent on marketable securities.

2. Precautionary Motive: A firm is required to keep cash for meeting various contingencies. Though cash inflows and cash outflows are anticipated but there may be variations in these estimates. For example a debtor who was to pay after 7 days may inform of his inability to pay; on the other hand a supplier who used to give credit for 15 days may not have the stock to supply or he may not be in a position to give credit at present. In these situations cash receipts will be less then expected and cash payments will be more as purchases may have to be made for cash instead of credit. Such contingencies often arise in a business. A firm should keep some cash for such contingencies or it should be in a position to raise finances at a short period.

3. Speculative Motive: The speculative motive relates to holding of cash for investing in profitable opportunities as and when they arise. Such opportunities do not come in a regular manner. These opportunities cannot be scientifically predicted but only conjectures can be made about their occurrence. The price of shares and securities may be low at a time with an expectation that these will go up shortly. Such opportunities can be availed of if a firm has cash balance with it.

Cash Management

Cash management has assumed importance because it is the most significant of all the current assets. It is required to meet business obligations and it is unproductive when not used.

Cash management deals with the following:

(i) Cash inflows and outflows

(ii) Cash flows within the firm

(iii) Cash balances held by the firm at a point of time.

Cash Management needs strategies to deal with various facets of cash. Following are some of its facets.

(a) Cash Planning: Cash planning is a technique to plan and control the use of cash. A projected cash flow statement may be prepared, based on the present business operations and anticipated future activities. The cash inflows from various sources may be anticipated and cash outflows will determine the possible uses of cash.

(b) Cash Forecasts and Budgeting: A cash budget is the most important device for the control of receipts and payments of cash. A cash budget is an estimate of cash

receipts and disbursements during a future period of time. It is an analysis of flow of cash in a business over a future, short or long period of time. It is a forecast of expected cash intake and outlay.

The short-term forecasts can be made with the help of cash flow projections. The finance manager will make estimates of likely receipts in the near future and the expected disbursements in that period. Though it is not possible to make exact forecasts even then estimates of cash flow will enable the planners to make arrangement for cash needs. A financial manager should keep in mind the sources from where he will meet short-term needs. He should also plan for productive use of surplus cash for short periods.

The long-term cash forecasts are also essential for proper cash planning. These estimates may be for three, four, five or more years. Long-term forecasts indicate company‟s future financial needs for working capital, capital projects, etc.

Both short term and long term cash forecasts may be made with help of following methods.

(a) Receipts and Disbursements method

(b) Adjusted net income method

Receipts and Disbursements method

In this method the receipt and payment of cash are estimated. The cash receipts may be from cash sales, collections from debtors, sale of fixed assets, receipts of dividend or other income of all the items; it is difficult to forecast the sales. The sales may be on cash as well as credit basis. Cash sales will bring receipts at the time of sales while credit sale will bring cash later on. The collections from debtors will depend upon the credit policy of the firm. Any fluctuation in sales will disturb the receipts of cash. Payments may be made for cash purchases, to creditors for goods, purchase of fixed assets etc.

The receipts and disbursements are to be equalled over a short as well as long periods. Any shortfall in receipts will have to be met from banks or other sources. Similarly, surplus cash may be invested in risk free marketable securities. It may be easy to make estimates for payments but cash receipts may not be accurately made.

Adjusted Net Income Method

This method may also be known as sources and uses approach. It generally has three sections: sources of cash, uses of cash and adjusted cash balance. The adjusted net income method helps in projecting the company‟s need for cash at some future date and to see whether the company will be able to generate sufficient cash. If not, then it will have to decide about borrowing or issuing shares etc. in preparing its statement the items like net income, depreciation, dividends, taxes etc. can easily be

determined from company‟s annual operating budget. The estimation of working capital movement becomes difficult because items like receivables and inventories are influenced by factors such as fluctuations in raw material costs, changing demand for company‟s products. This method helps in keeping control on working capital and anticipating financial requirements.

Managing Cash Flows

After estimating the cash flows, efforts should be made to adhere to the estimates or receipts and payments of cash. Cash management will be successful only if cash collections are accelerated and cash disbursements, as far as possible, are delayed. The following methods of cash management will help:

Methods of Accelerating Cash Inflows

1. ***Prompt Payment by Customers*:** In order to accelerate cash inflows, the collections from customers should be prompt. This will be possible by prompt billing. The customers should be promptly informed about the amount payable and the time by which it should be paid. Another method for prompting customers to pay earlier is to allow them cash discount.
2. ***Quick Conversion of Payment into Cash:*** Cash inflows can be accelerated by improving the cash collecting process. Once the customer writes a cheque in favour of the concern the collection can be quickened by its early collection. There is a time gap between the cheque sent by the customer and the amount collected against it. This is due to many factors, (i) mailing time, i.e. time taken by post office for transferring cheque from customer to the firm, referred to as ***postal float***; (ii) time taken in processing the cheque within the organization and sending it to bank for collection, it is called ***lethargy*** and (iii) collection time within the bank, i.e. time taken by the bank in collecting the payment from the customer‟s bank, called ***bank float***. The postal float, lethargy and bank float are collectively referred to as ***deposit float.*** The term deposit float refers to cheques written buy customers but the amount not yet usable by the firm.
3. ***Decentralised Collections*:** A big firm operating over wide geographical area can accelerate collections by using the system of decentralized collections. A number of collecting centres are opened in different areas instead of collecting receipts at one place. The idea of opening different collecting centres is to reduce the mailing time for customer‟s dispatch of cheque and its receipt in the firm and then reducing the time in collecting these cheques.
4. ***Lock Box System*:** Lock box system is another technique of reducing mailing, processing and collecting time. Under this system the firm selects some collecting

centres at different places. The places are selected on the basis of number of consumers and the remittances to be received from a particular place.

Methods of Slowing Cash Outflows

A company can keep cash by effectively controlling disbursements. The objective of controlling cash outflows is slow down the payments as far as possible. Following methods can be used to delay disbursements:

1. Paying on Last Date: The disbursements can be delayed on making payments on the last due date only. It is credit is for 10 days then payment should be made on 10th day only. It can help in using the money for short periods and the firm can make use of cash discount also.

2. Payments through Drafts: A company can delay payments by issuing drafts to the suppliers instead of giving cheques. When a cheque is issued then the company will have to keep a balance in its account so that the cheque is paid whenever it comes. On the other hand a draft is payable only on presentation to the issuer. The receiver will give the draft to its bank for presenting it to the buyer‟s bank. It takes a number of days before it is actually paid. The company can economies large resources by using this method.

3. Adjusting Payroll Funds: Some economy can be exercised on payroll funds also. It can be done by reducing the frequency of payments. If the payments are made weekly then this period can be extended to a month. Secondly, finance manager can plan the issuing of salary cheques and their disbursements. If the cheques are issued on Saturday then only a few cheque may be presented for payment, even on Monday all cheques may not be presented.

4. Centralisation of Payments: The payments should be centralized and payments should be made through drafts or cheques. When cheques are issued from the main office then it will take time for the cheques to be cleared through post. The benefit of cheque collecting time is availed.

5. Inter-bank Transfer: An efficient use of cash is also possible by inter-bank transfers. If the company has accounts with more than one bank then amounts can be transferred to the bank where disbursements are to be made. It will help in avoiding excess amount in one bank.

6. Making use of Float: Float is a difference between the balance shown in company‟s cash book (Bank column) and balance in passbook of the bank. Whenever a cheque is issued, the balance at bank in cashbook is reduced. The party to whom the cheque is issued may not present it for payment immediately. If the party is at some other station then cheque will come through post and it may take a number of days

before it is presented. Until the time; the cheques are not presented to bank for payment there will be a balance in the bank. The company can make use of this float if it is able to estimate it correctly.

Determining Optimum Cash Balance

A firm has to maintain a minimum amount of cash for settling the dues in time. The cash is needed to purchase raw materials, pay creditors, day-to-day expenses, dividend etc.

An appropriate amount of cash balance to be maintained should be determined on the basis of past experience and future expectations. If a firm maintains less cash balance then its liquidity position will be weak. If higher cash balance is maintained then an opportunity to earn is lost. Thus, a firm should maintain an optimum cash balance, neither a small nor a large cash balance.

There are basically two approaches to determine an optimal cash balance, namely, (i) Minimizing Cost Models and (ii) Preparing Cash Budget. Cash budget is the most important tool in cash management.

Cash Budget

A cash budget is an estimate of cash receipts and disbursements of cash during a future period of time. In the words of soloman Ezra, a cash budget is "an analysis of flow of cash in a business over a future, short or long period of time. It is a forecast of expected cash intake and outlay." It is a device to plan and control the use of cash. Thus a firm by preparing a cash budget can plan the use of excess cash and make arrangements for the necessary cash as and when required.

The cash receipts from various sources are anticipated. The estimated cash collections for sales, debts, bills receivable, interests, dividends and other incomes and sale of investments and other assets will be taken into account. The amounts to be spent on purchase of materials, payment to creditors and meeting various other revenue and capital expenditure needs should be considered. Cash forecasts will include all possible sources from which cash will be received and the channels in which payments are to be made so that a consolidated cash position is determined.

Baumol's Model

William J. Baumol has suggested a model for determining the optimum balance of cash based upon carrying and transaction costs of cash. The carrying cost refers to the cost of the holding cash i.e. interest; and transaction cost refers to the cost involved in getting the marketable securities converted into cash, the algebraic representation of the model is:

where, C = Optimum cash balance

A = Annual (or monthly) cash disbursements)

F = Fixed cost per transaction

O = Opportunity cost of cash

Limitations of Model:

1. The model assumes a constant rate of use of cash. This is hypothetical assumption. Generally the cash outflows in any firm are not regular and hence this model may not give correct results.
2. The transaction cost will also be difficult to be measured since these depend upon the type of investment as well as the maturity period.

Miller-Orr Model

The Miller–Orr model argues that changes in cash balance over a given period are random in size as well as in direction. The cash balance of a firm may fluctuate irregularly over a period of time. The model assumes (i) out of the two assets i.e. cash and marketable securities, the latter has a marginal yield, and (ii) transfer of cash to marketable securities and vice versa is possible without any delay but of course of at some cost.

The model has specified two control limits for cash balance. An upper limit, H, beyond which cash balance need not be allowed to go and a lower limit, L, below which the cash level is not allowed to reduce. The cash balance should be allowed to move within these limits. If the cash level reaches the upper control limit, H, then at this point, apart of the cash should be invested in marketable securities in such a way that the cash balance comes down to a predetermined level called return level, R, If the cash balance reaches the lower level, L then sufficient marketable securities should be sold to realize cash so that cash balance is restored to the return level, R. No transaction between cash and marketable securities is undertaken so long as the cash balance is between the two limits of H and L.

The Miller–Orr model has superiority over the Baumol‟s model. The latter assumes constant need and constant rate of use of funds, the Miller-Orr model, on the other hand is more realistic and maintains that the actual cash balance may fluctuate between higher and the lower limits. The model may be defined as:

$$Z = (3TV/4i)^{1/3}$$

Where, T = Transaction cost of conversion

V = Variance of daily cash flows

i = Daily % interest rate on investments.

Investment of Surplus Funds

There are, sometimes surplus funds with the companies which are required after sometime. These funds can be employed in liquid and risk free securities to earn some income. There are number of avenues where these funds can be invested. The selection of securities or method of investment is very important. Some of these methods are discussed herewith:

Treasury Bills : The treasury bills or T-Bills are the bills issued by the Reserve Bank of India for different maturity periods. These bills are highly safe investment an are easily marketable. These treasury bills usually have a vary low level of yield and that too in the form of difference purchase price and selling price as there is no interest payable on these bills.

Bank Deposits: All the commercial banks are offerings short term deposits schemes at varying rate of interest depending upon the deposit period. A firm having excess cash can make deposit for even short period of few days only. These deposits provide full safety, facility of pre-mature retirement and a comfortable return.

Inter-Corporate Deposits: A firm having excess cash can make deposit with other firms also. When company makes a deposits with another company, such deposit is known as inter corporate deposits. These deposits are usually for a period of three months to one year. Higher rate of interest is an important characteristic of these deposits.

Bill Discounting: A firm having excess cash can also discount the bills of other firms in the same way as the commercial banks do. On the bill maturity date, the firm will get the money. However, the bill discounting as a marketable securities is subject to 2 constraints (i) the safety of this investment depends upon the credit rating of the acceptor of the bill, and (ii) usually the pre mature retirement of bills is not available.

Illustration 1: From the following forecast of income and expenditure, prepare cash budget for the months January to April, 1995.

Months	Sales	Purchases	Wages	Manufac-ring expenses	Adminis trative expenses	Selling Expenses
1994						
Nov	30,000	15,000	3,000			
Dec	35,000	20,000	3,200			
1995						
Jan	25,000	15,000	2,500	1,150	1,060	500
Feb	30,000	20,000	3,000			
March	35,000	22,500	2,400	1,225	1,040	550
April	40,000	25,000	2,600			
				990	1,100	600
				1,050	1,150	620
				1,100	1,220	570
				1,200	1,180	710

Additional information is as follows: -

1. The customers are allowed a credit period of 2 months.
2. A dividend of Rs. 10,000 is payable in April.
3. Capital expenditure to be incurred: Plant purchased on 15th January for Rs. 5,000; a Building has been purchased on 1stMarch and the payments are to be made in monthly installments of Rs. 2,000 each.
4. The creditors are allowing a credit of 2 months.
5. Wages are paid on the 1st of the next month.

6. Lag in payment of other expenses is one month.
7. Balance of cash in hand on Ist January, 1995 is Rs. 15,000.

Solution:

Details	***January***	***February***	***March***	***April***
Receipts				
Opening Balance of cash	15,000	18,985	28,795	30,975
Cash realized from debtors	30,000	35,000	25,000	30,000
Payments				
Payments to customers	15,000	20,000	15,000	20,000
Wages	3200	2500	3000	2400
Manufacturing expenses	1225	990	1050	1100
Administrative expenses	1040	1100	1150	1220
Selling expenses	560	600	620	570
Payment of dividend	------	------	------	10,000
Purchase of plant	5000	-----	------	------
Instalment of building plant	-----	----	2,000	2,000
Total Payments				
Closing Balance	26,015	25,190	22,820	37,290
	18,985	**28,795**	**30,975**	**23,685**

Illustration 2: ABC Co. wishes to arrange overdraft facilities with its bankers during the period April to June, 1995 when it will be manufacturing mostly for stock. Prepare a cash budget for the above period from the following data, indicating the extent of the bank facilities the company will require at the end of each month:

1995	Sales	Purchases	Wages
	Rs.	Rs.	Rs.
February	1,80,000	1,24,800	12,000
March	1,92,00	1,44,000	14,000
April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,26,000	2,68,000	15,000

(c) 50 per cent of credit sales are realised in the month following the sales and remaining 50 per cent in the second month following. Creditors are paid in the month following the month of purchase.

(d) Cash at bank on 1.4.1995 (estimated) Rs.25000

Solution:

Receipts	**April**	**May**	**June**
Opening Balance	25,000	53000	(-) 51000
Sales	90,000	96,000	54000
Amount received from sales	96,000	54,000	87000
Total Receipts	2,11,000	2,03,000	90000
Payments			
Purchase	1,44,000	2,43,000	246000
Wages	14,000	11,000	10000
Total Payments	1,58,000	2,54,000	256000
Closing Balance (a-b)	53,000	(-)51,000	(-)1,66,000

Lets Sum Up

- Cash Management refers to management of ash and bank balance or in a broader sense it is the management of cash inflows and outflows.
- Every firm must have minimum cash. There may be different motives for holding cash. These may be Transactionary motive, Precautionary motive or Speculative motive for holding cash.

- The objectives of cash management may be defined as meeting the cash outflows and minimizing the cost of cash balance.
- Cash budget is the most important technique for planning the cash movement. It is a summary of cash inflows and outflows during particular period. In cash budget all expected receipts and payments are noted to find out the cash shortage or surplus during that period.
- Optimum level of cash balance is the balance which firm should have in order to minimize the cost of maintaining cash. Baumol‟s model gives optimum cash balance which aims at minimizing the total cost of maintaining cash. The Miller – Orr model says that a firm should maintain its cash balance within a range of lower and higher limit.