MODULE 1

INTRODUCTION TO FINANCIAL MANAGEMENT

The term "finance" is understood as provision of the fund as and when needed.it refers to the science that describes the management , creation, and study of money, banking, credit, investments, assets, and liabilities.

Financial management may be defined as planning, organising, directing and controlling the financial activities of an organisation. According to Guthman and Dougal, financial management means, "the activity concerned with the planning, raising, controlling and administering of funds used in the business." It is concerned with the procurement and utilisation of funds in the proper manner. Financial activities deal with not only the procurement and utilisation of funds but also with the assessing of needs for funds, raising required finance, capital budgeting, distribution of surplus, financial controls, etc.

Ezra Solomon has described the nature of financial management as follows: "Financial management is properly viewed as an integral part of overall management rather than as a staff specially concerned with funds raising operations.

In this broader view, the central issue of financial policy is the wise use of funds and the central process involved is a rational matching of the advantage of potential uses against the cost of alternative potential sources so as to achieve the broad financial goals which an enterprise sets for itself.

Objectives of Financial Management

Financial management is one of the functional areas of business. Therefore, its objectives must be consistent with the overall objectives of business. The overall objective of financial management is to provide maximum return to the owners on their investment in the long- term.

This is known as wealth maximisation. Maximisation of owners' wealth is possible when the capital invested initially increases over a period of time. Wealth maximisation means maximising the market value of investment in shares of the company.

Wealth of shareholders = Number of shares held ×Market price per share.

In order to maximise wealth, financial management must achieve the following specific objectives:

1. To ensure availability of sufficient funds at reasonable cost (liquidity).
2. To ensure effective utilisation of funds (financial control).
3. To ensure safety of funds by creating reserves, reinvesting profits, etc. (minimisation of risk).
4. To ensure adequate return on investment (profitability).
5. To generate and build-up surplus for expansion and growth (growth).
6. To minimise cost of capital by developing a sound and economical combination of corporate securities (economy).
7. To coordinate the activities of the finance department with the activities of other departments of the firm (cooperation).

Profit Maximisation

Very often maximisation of profits is considered to be the main objective of financial management. Profitability is an operational concept that signifies

economic efficiency. Some writers on finance believe that it leads to efficient allocation of resources and optimum use of capital.

It is said that profit maximisation is a simple and straightforward objective. It also ensures the survival and growth of a business firm. But modern authors on financial management have criticised the goal of profit maximisation.

Objections against the Profit Maximisation Objectives

1. The concept is ambiguous or vague. It is amenable to different interpretations, e.g., long run profits, short run profits, volume of profits, rate of profit, etc.
2. It ignores the timing of returns. It is based on the assumption of bigger the better and does not take into account the time value of money. The value of benefits received today and those received a year later are not the same.
3. It ignores the quality of the expected benefits or the risk involved in the prospective earnings stream. The streams of benefits may have varying degrees of uncertainty. Two projects may have the same total expected earnings but if the earnings of one fluctuate less widely than those of the other it will be less risky and more preferable. More uncertain or fluctuating the expected earnings, lower is their quality.
4. It does not consider the effect of dividend policy on the market price of the share. The goal of profit maximisation implies maximising earnings per share which is not necessarily the same as maximising market-price share. According to Solomon, "to the extent payment of dividends can affect the market price of "the stock (or share), the maximisation of earnings per share will not be a satisfactory objective by itself."

5. Profit maximisation objective does not take into consideration the social responsibilities of business. It ignores the interests of workers, consumers, government and the public in general. The exclusive attention on profit maximisation may misguide managers to the point where they may endanger the survival of the firm by ignoring research, executive development and other intangible investments.

Wealth Maximisation

Prof. Ezra Solomon has advocated wealth maximisation as the goal of financial decision-making. Wealth maximisation or net present worth maximisation is defined as follows: "The gross present worth of a course of action is equal to the capitalised value of the flow of future expected benefits, discounted (or as capitalised) at a rate which reflects their certainty or uncertainty.

Wealth or net present worth is the difference between gross present worth and the amount of capital investment required to achieve the benefits being discussed. Any financial action which creates wealth or which has a net present worth above zero is a desirable one and should be undertaken.

Any financial action which does not meet this test should be rejected. If two or more desirable courses of action are mutually exclusive (i.e., if only one can be undertaken), then the decision should be to do that which creates the most wealth or shows the greatest amount of net present worth. In short, the operating objective for financial management is to maximise wealth or net present worth."

Wealth maximisation is more operationally viable and valid criterion because of the following reasons

1. It is a precise and unambiguous concept. The wealth maximisation means maximising the market value of shares.
2. It takes into account both the quantity and quality of the expected steam of future benefits. Adjustments are made for risk (uncertainty of expected returns) and timing (time value of money) by discounting the cash flows,
3. As a decision criterion, wealth maximisation involves a comparison of value of cost. It is a long-term strategy emphasising the use of resources to yield economic values higher than joint values of inputs.
4. Wealth maximisation is not in conflict with the other motives like maximisation of sales or market share. It rather helps in the achievement of these other objectives. In fact, achievement of wealth maximisation also maximises the achievement of the other objectives. Therefore, maximisation of wealth is the operating objective by which financial decisions should be guided.

The above description reveals that wealth maximisation is more useful if objective than profit maximisation. It views profits from the long-term perspective. The true index of the value of a firm is the market price of its shares as it reflects the influence of all such factors as earnings per share, timing of earnings, risk involved, etc.

Thus, the wealth maximisation objective implies that the objective of financial management should be to maximise the market price of the company's shares in the long-term. It is a true indicator of the company's progress and the shareholder's wealth.

Concepts of Financial Management

Regardless of whether you sell a product or service, operate locally or nationally or sell to consumers or other businesses, many basic financial

practices remain the same. During both slow and boom times, it's important to maintain consistent accounting practices. Understanding key concepts for managing your company's finances will help you minimize your expenses and maximize your profits.

Keeping an Eye on the Cash

A goal of the cash management function is to make certain the business enterprise always has the resources it needs to meet its financial obligations on time. A cash deficit compared to what the owner forecast can cause serious harm to the company's image and operations. For example, the company may not be able to fill an important order because it cannot pay for the raw materials needed to make the products.

Managing accounts receivable and accounts payable is part of effective cash management. The business owner wants to make certain he is collecting all the funds due the company – the accounts receivable – as quickly as he can. Conversely, he seeks to stretch out the time he takes to pay bills from outside vendors. In doing so, he doesn't want the company to get a reputation for paying so slowly that his suppliers insist on strict terms such as payment upon delivery.

Accurate Financial Reporting

A business owner and his management team require timely and accurate reports in order to make decisions and run the company effectively. The staff members responsible for financial management must determine the key pieces of information the owner and his team need for decision making. They then design reports to provide this information in a format that is most useful to the management team.

The most significant metrics vary by the type of company. A hotel owner, for example, keeps a close eye on occupancy – the percentage of rooms used. A

decline in occupancy compared to the same month in the previous year would prompt investigation by the financial staff into whether this was due to unusual circumstances such as bad weather or indicative of competitors taking business away from the hotel.

Analyzing the Capital Structure

Startup companies often need to obtain outside capital from wealthy individuals or venture capital firms in order to fund the company until it reaches the breakeven point. As the company grows, it may need additional infusions of capital to fund expansion. The financial management function determines the best form of capital for the venture – debt, equity or a combination – how much is required and when it is needed. Larger companies with stable cash flow can borrow funds from financial institutions rather than having to give up an equity share to investors in order to get the capital the company requires.

Planning and Forecasting

The financial management aspect of planning involves accurately forecasting the company's revenues, expenses and resulting net profit. The business owner uses the forecast – sometimes called a budget – as a tool to manage the company. Significant negative variances to forecast indicate that the business environment and his company's performance in the marketplace were not what he assumed they would be when he created his annual plan. Analyzing these variances focuses his attention on changes he needs to make to his strategies or operations to get the company back on course to reaching its goals.

Scope of Financial Management

Financial management helps a particular organisation to utilise their finances most profitably. This is achieved via the following three conducts.

1. **Investment decision** - Investment decision depicts investing in a fixed asset; it is also referred to as capital budgeting. Investment decisions can be of either long-term or short-term basis.
    - → Long-term investment decisions allow committing funds towards resources like fixed assets. Long-term investment decisions determine the performance of a business and its ability to achieve financial goals over time.
    - → Short-term investment decisions or working capital financing decisions mean committing funds towards resources like current assets. It occupies funds for a shorter period, including investments in inventory, liquid cash, etc. Short Term investment decisions directly affect the liquidity and performance of an organisation.

2. **Financing decision** - This scope of financial management indicates the possible sources of raising finances from various resources. They are of 2 different types -
    - → Financial planning decisions attempt to estimate the sources and possible application of accumulated funds. A proper financial planning decision is crucial to ensure the availability of funds whenever required.
    - → Capital structure decisions involve identifying various sources of funds. It facilitates the selection of the best external sources for short or long-term financial requirements.

3. **Dividend decision** - It involves decisions taken with regards to net profit distribution. It is divided into two categories -
    - → Dividend for the shareholders.
    - → Retained profits (usually depends on a particular company's expansion and diversification plans).

Features of Financial Management

The unique characteristics of financial management offer two different approaches to its functions.

1. Traditional approach -

Developed during the twentieth century, the traditional approach encourages the use of financial management only to secure financial assistance for that particular organisation. The utilisation of those funds was not on the cards.

Financial management is considered as corporate finance under this approach.

Traditional approach depicts that funding is required only for infrequent events like liquidation, reorganisation, etc.

The following aspects were studied for the procurement of finance -

- → Institutional sources of finance.
- → The process of issuing financial instruments to collect funds.
- → Legal and accounting relationship between businesses and sources of finance.

Limitations of the traditional approach

The traditional approach of finance can be considered somewhat narrow because of several reasons. Following are the primary drawbacks of this approach.

- → One-sided approach -Traditional approach gives more attention to the system of procurement and the problems that might arise during that scenario. It does not offer a system for efficient utilisation of procured funds.

- → More emphasis on large scale enterprises -The primary focus of the traditional approach is toward corporate entities. Non-corporate entities, i.e. partnership firms, remain outside its scope.
- → Emphasis on sporadic events -Traditional approach considers fund allocation as contingencies for sporadic incidents, ignoring everyday financial problems that a business enterprise might face. Working capital financing decisions arc also kept outside the scope of a traditional approach.

2. Modern approach -

The traditional approach became less effective in the changing business environment of the late '50s. A new approach was developed, keeping in mind a broad analytical viewpoint. It involved both acquisition of funds and their optimum utilisation.

The importance of financial management in a modern way considers both long and short-term financial shortcomings that an organisation might face. The modern approach also creates provision for various sporadic events as well. The primary components of this approach include -

- → Financial planning.
- → Perpetual functioning and proper capital budgeting evaluation.
- → Provision to manage working capital in an optimal manner.
- → A broad scope and capability to measure a company's performance.

Thus, the modern approach helps set a financial standard for the success of the business.

The above mentioned details about the scope of financial management offer an insight into the concept and the important details that Commerce students should be aware of to ace the exams.

Finance Function

There are three ways of defining the finance function. Firstly, the finance function can simply be taken as the task of providing funds needed by an enterprise on favourable terms, keeping in view the objectives of the firm.

This means that the finance function is solely concerned with the acquisition (or procurement) of short- term and long-term funds However, in recent years, the coverage of the term 'finance function' has been widened to include the instruments, institutions and practices through which funds are obtained. So, the finance function covers the legal and accounting relationship between a company and its source and uses of funds.

For example, in financial management, we discuss debt-equity ratio (determined by the government), as also various accounting and legal aspects of dividend policy.

No doubt, the basic function of the finance manager is one of determining how funds can best be raised (i.e., at the minimum possible cost). In other words, the essence of the finance function is keeping the business supplied with enough funds to fulfil its objectives.

But such a definition is too narrow and is not of much practical use. No doubt, the finance function is much broader than mere procurement of short-term and long-term funds so that a firm's working capital and fixed capital needs can be met.

Another extreme view is that finance is concerned with cash. This definition is much too broad and thus is not really meaningful.

The third view — based on a compromise between the two — is more useful for practical purposes. This definition treats the finance function as the

procurement of funds and their effective utilisation in business. The finance manager takes all decisions that relate to funds which can be obtained as also the best way of financing an investment such as the installation of a new machinery inside the factory-or office building.

The cost of the machinery may be financed by making a public issue of 8% cumulative preference shares. At the same time, he has to consider whether the additional return (cash flow) expected from the new machinery is sufficient to cover the cost of capital in terms of interest to be paid over a period of time.

In this case, the finance decision is based on an analysis of the alternative sources and uses of funds. To start with the finance manager has to draw a plan outlining the company's need for funds. Such a financial plan is based on forecasts of financial needs of the company. Such forecasts are based on sales forecasts.

In the next step, the finance manager has to raise necessary funds to meet the company's need for fixed and working capital. Then, in the third step, he has to put the acquired funds into effective uses.

The sequence of the three-step process is presented below:

1. Drawing a financial plan and forecasting financial needs

2. Raising necessary funds

3. Putting funds into proper use.

In a broad sense, the finance function covers the following six major activities

1. Financial planning;

2. Forecasting cash inflows and outflows;

3. Raising funds;

4. Allocation of funds;

5. Effective use of funds; and

6. Financial control (budgetary and non-budgetary).

The last function is very important. Through financial control the finance manager tries to bring performance closer to the targets.

Classification of Finance Function

Finance function can be classified into two broad categories, viz.,

(i) Executive finance function and

(ii) Incidental finance function.

While the former requires administration skill in planning and execution, the latter largely covers works of a routine nature, which are necessary to implement financial decisions at the executive level.

(i) Six Executive Functions

Six basic executive finance functions are the following:

1. Determining asset-management policies

All finance functions are concerned with the control of both cash flows and non-cash assets. The reason is easy to find out. The finance managers must know how much cash will be 'tied up' in various kinds of non-cash (or non-liquid) assets.

Without the information, it is not possible to estimate and arrange for necessary cash requirements. In fact, the formulation of sound and consistent asset management policies is an indispensable prerequisite to successful financial management.

2. Determining the allocation of net profits

This relates to retained earnings (corporate savings) and dividend policy. Most companies have to achieve balance between two alternatives, i.e., payment of dividends and the retention of earnings for acquiring additional assets.

3. Estimating cash flow requirements and control of such flows

An important responsibility of the finance manager is to ensure an adequate flow of cash as and when it is needed. Otherwise, the smooth operation of a company may not be possible. Since cash flow originates from sales and cash requirements are closely related to sales volume, adequate cash can be provided at the proper time only after forecasting cash needs.

4. Taking decision on needs and sources of new external finance

On the basis of sales forecasts, the financial managers will have to draw a plan to borrow funds from external sources. Such debt capital will add to the firm's own cash resources and thus improve its financial position. External capital may be obtained by borrowing funds from commercial banks.

The finance manager must be competent enough to determine exactly when additional funds from external sources will be needed. He (she) has also to judge how long they will be needed, how economically they can be raised (i.e., at the lowest possible cost) and from which sources will they be repaid.

5. Carrying on negotiations with outside financiers

The finance manager has also to carry on negotiations with outsiders to be able to arrange for necessary external financing in required amounts and on time. For obtaining working capital, a line of credit has to be established with commercial banks. Again sufficient time has to be devoted for completing arrangements for long-term financing. Long-term financing requires more skillful negotiations than short-term financing.

6. Checking upon financial performance

It is also necessary for the finance manager to evaluate the wisdom and efficiency of financial planning. Such evaluation is to be based on past performance of the company. This will enable the finance manager to improve the standards, techniques and procedures of financial planning and control which are important aspects of the finance function.

Interrelationship

It may be noted that all the six functions are interrelated. This means that a change in decision with respect to any one of the functions will call for a change in decision relating to some or all other functions.

(ii) Incidental Function

The incidental finance functions include supervision of cash inflows and outflows and maintaining cash balances and record keeping.

Fundamental Principles of Financial Management

There are 3 basic principles in financial management: a) Cost Benefit Principle - Decisions should be based on the result of analysis of total costs of a resource and the benefit derived therefrom. b) Risk Return Principle – entails evaluating the extent of the risk and the return derived. The greater the risk the higher the required rate of return. c) Time Value for Money – states that the value of an amount of money could be increased by investing it and earning interest on the amount.

Financial Objectives of a Firm

1. Profit Maximization Objective

Profitability objective may be stated in terms of profits, return on investment, or profit-to-sales ratios. According to this objective, all such actions as increased income and cut down costs should be undertaken and those that are likely to have adverse impact on profitability of the enterprise should be avoided.

Advocates of the profit maximisation objective are of the view that this objective is simple and has the inbuilt advantage of judging economic performance of the enterprise. Further, it will direct the resources in those channels that promise maximum returns. This, in turn, would help in optimal utilisation of society's economic resources.

Since the finance manager is responsible for the efficient utilisation of capital, it is plausible to pursue profitability maximisation as the operational

standard to test the effectiveness of financial decisions. However, profit maximisation objective suffers from several drawbacks rendering it as an ineffective decisional criterion.

These drawbacks are

(i) It is vague

Ambiguity of the term profit, as used in the profit maximisation objective, is its first weakness. It is not clear in what sense the term profit has been used. It may be total profit before tax or after tax or profitability rate. Rate of profitability may again be in relation to share capital, owner's funds, total capital employed or sales.

Which of these variants of profit should the management pursue to maximise so as to attain the profit maximisation objective remains vague.

Furthermore, the word profit does not speak anything about short-term and long-term profits. Profits in the short run may not be the same as those in the long run. A firm can maximise its short-term profit by avoiding current expenditure on maintenance of a machine.

But owing to this neglect, the machine being put to use may no longer be capable of operating after some time with the result that the firm will have to defray huge investment outlay to replace the machine. Thus, profit maximisation suffers in the long run for the sake of maximising short-term profit. Obviously, long-term consideration of profit cannot be neglected in favour of short-term profit.

(ii) It ignores time value factor

Profit maximisation objective fails to provide any idea regarding timing of expected cash earnings. For instance, if there are two investment projects and suppose one is likely to produce streams of earnings of Rs. 90,000 in sixth year from now and the other is likely to produce annual benefits of Rs. 15,000 in each of the ensuing six years, both the projects cannot be treated as equally useful ones although total benefits of both the projects are identical because of difference in value of benefits received today and those received a year or two years later.

Choice of more worthy projects lies in the study of time value of future inflows of cash earnings. The interests of the firm and its owners are affected by the time value factor. Profit maximization objective does not take cognizance of this vital factor and treats all benefits, irrespective of the timing, as equally valuable.

(iii) It ignores risk factor

Another serious shortcoming of profit maximisation objective is that it overlooks risk factors. Future earnings of different projects are related with risk of varying degrees. Hence, different projects may have different values even though their earning capacity is the same. A project with fluctuating earnings is considered more risky than the one with certainty of earnings.

Naturally, an investor would provide less value to the former than to the latter. Risk element of a project is also dependent on the financing mix of the project. Project largely financed by way of debt is generally more risky than the one predominantly financed by means of share capital.

In view of the above, the profit maximisation objective has been found inappropriate and unsuitable as an operational objective of the firm. Suitable and

operationally feasible objectives of the firm should be precise and clear cut and should give weight-age to time value and risk factors. All these factors are well taken care of by wealth maximisation objective.

2. Wealth Maximisation Objective

Wealth maximisation objective is a widely recognized criterion with which the performance of a business enterprise is evaluated. The word wealth refers to the net present worth of the firm. Therefore, wealth maximisation is also stated as maximisation of net present worth. Net present worth is the difference between gross present worth and the amount of Capital investment required to achieve the benefits.

Gross present worth represents the present value of expected cash benefits discounted at a rate which reflects their certainty or uncertainty. Thus, wealth maximisation objective as decisional criterion suggests that any financial action which creates wealth or which has a net present value above zero is desirable one and should be accepted and that which does not satisfy this test should be rejected.

Algebraically, net present value or worth can be expressed as follows, using Ezra Solomon's symbols and models.

$$W = \frac{A_1}{(1+K)} + \frac{A_2}{(1+K)} + \ldots + \frac{A_n}{(1+K)^n} - C \quad \ldots (1.1)$$

$$= \sum_{t=1}^{n} \frac{A_t}{(1+K)^t} - C \quad \ldots (1.2)$$

where : W = net present worth.

$A_1, A_2, \ldots A_n$ = the stream of benefits expected to occur from a course of action over a period of time.

K = appropriate discount rate to measure risk and timing

C = initial outlay required to acquire the asset.

The objective of wealth maximisation, as pointed out above, has the advantage of exactness and unambiguity and takes care of time value and risk factors. The wealth maximisation objective, when used as decisional criterion, serves as a very useful guideline in taking investment decisions. This is because the concept of wealth is very clear.

It represents the value of the benefits minus the cost of the investment. The concept of cash flow is more precise in connotation than that of accounting profit. Thus, measuring benefits in terms of cash flows generated avoids ambiguity.

The wealth maximisation objective considers time value of money. It recognizes that cash benefits emerging from a project in different years are not identical in value. This is why annual cash benefits of a project are discounted at a discount rate to calculate the total value of these cash benefits.

Objective of Profit Maximization Pools

In view of globalisation of business, emergence of common currencies, integration of financial markets and info-tech revolution, and convergence of informational, computational and recreational technologies, global markets have

become highly competitive where the market is driven by customers who need to be delighted every time. A company can delight customers in terms of cost, quality, speed and flexibility.

This requires a company to be excellent in its operations-doing superb and superior things every time with minimum cost. It has to be excellent in reducing cost, improving productivity and innovations, deep understanding of customers' needs, and delivery of world class service through leverages of existing resources with an emphasis on customers and volumes.

A finance manager has to set the financial objectives in such a way as to help the organisation to achieve its objective of excellence. It has, therefore, to focus on value maximization not only maximisation of shareholders but also of stakeholders' value.

Value maximisation is maximisation of present value of its future expected net earnings streams discounted at the expected rate of return of the investors. Sales growth or market share does not necessarily create a firm's value. Additional value accrues only with efforts that maximise profit pool.

Sustained value creation alone can ensure the viability of an organization and protect the interests of all its stakeholders. Translating this interest into reality represents the greatest challenge for corporate financial management in the years ahead.

Agency Problem

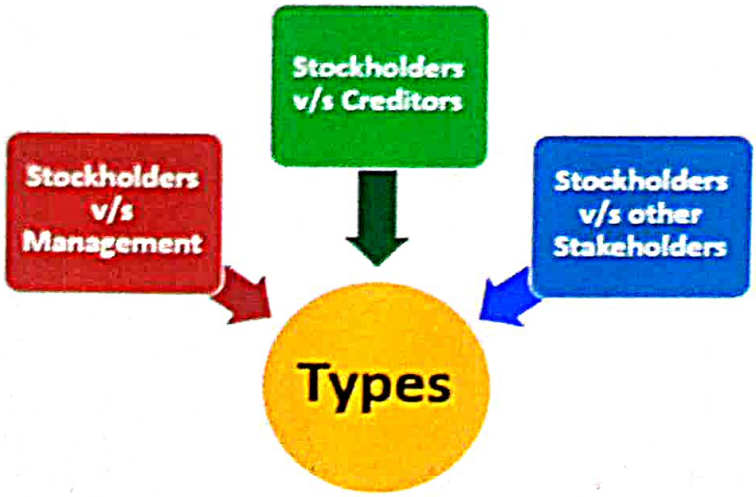
Owners of businesses are not always the ones responsible for running the business. They appoint people who run the business on their behalf in their best interest and create wealth. However, managers do not act in the interest of their

masters. They act in their own interests at the expense of their owners. It is a very common problem and it can be observed in almost every organization irrespective of the fact that whether it is a church, club, company or any government institution. It is a conflict of interest taking place that takes place when people who are interested in responsibilities misuse their authority and power for personal benefits. It can be resolved only if the organizations are willing to resolve it.

Types of Agency Problems

Every organization has its own set of long-term and short-term goals and objectives that it wishes to achieve in a predetermined period of time. In this context, it must also be noted that the goals of the management may not necessarily align with that of the stockholders.

The management of an organization may have goals that are most likely derived with the motive of maximizing their personal benefits while on the other hand, the stockholders of an organization are most likely interested in their wealth maximization. This contrast between the goals and objectives of the management and stockholders of an organization may often become a basis for agency problems. Precisely speaking there are three types.



→ **Stockholders vs Management** – Large companies may have a huge number of equity holders. It is always crucial for an organization to separate the management from ownership since there is no reason for them to form a part of management. Segregating ownership from management has endless advantages as it does not have any implications upon the regular business operations and the company will hire professionals for managing the key operations of the same. But hiring outsiders may become troublesome for stakeholders. The managers hired may take unjust decisions and might even misuse the shareholders' money and this can be a reason for the conflict of interests between the two and hence, agency problems.

→ **Stockholders v/s Creditors** – the stockholders might pick up risky projects for making more profits and this increased risk might elevate the required ROR on the company's debt and hence, the overall value of the pending debts might fall. If the project sinks, the bondholders will supposedly have to participate in losses and this can result in agency problems with the stockholders and the creditors.

- **Stockholders v/s other Stakeholders** – The stakeholders of a company may have a conflict of interests with other stakeholders like customers, employees, society, and communities. For example, the employees might be asking for a hike in their salaries which if rejected by the stakeholders then there are probabilities of agency problems to take place.

Solutions to Agency Problems

The agency problems existing between the stockholders and the management of the company can be resolved by means of offering stock packages or commission to the decisions taken by the management and their outcomes on the shareholders. The companies can try to resolve these problems that can exist between its stockholders and management/ creditors/ other stakeholders (employees, customers, society, community, etc) by means of taking instituting measures like tough screening mechanisms, offering of incentives for good performance and behavior and likewise penalizing for poor performance and bad behavior, and so on. However, it is not possible for an organization to get completely healed from agency problems since the costs associated have the tendency to outweigh the total outcomes sooner or later.

Emerging role of finance manager in India

Reflecting the emerging economic and financial environment in the post-liberalization era, the role/ job of financial managers in India has become more important, complex and demanding. The key challenges are, intern in the areas specified below:

1. financial structure,
2. foreign exchange management,
3. treasury operations,

4. investor communication,
5. management control and
6. investment planning.

The main elements of the changed economic and financial environment, inter alia, are the following:

- → Considerable relaxation in industrial licensing framework in terms of the modifications in the Industries Development (Regulations) Act;
- → Abolition of the Monopolies and Restrictive and Trade Practices Act and its replacement by the Competition Act;
- → Repeal of Foreign Exchange Regulation Act (FERA) and enactment of a liberalized Foreign Exchange Management Act (FEMA);
- → Abolition of Capital Issues (Control) Act and the setting-up of the Securities and Exchange Board of India (SEBI) under the SEBI. Act for the regulation and development of the securities market and the protection of investors;
- → Enactment! of the Insurance Regulatory and Development Authority (IRDA) Act and the setting-up of the IRDA for the regulation of the insurance sector and the consequent dismantling of the monopoly of UC and GIC and its subsidiaries;
- → Emergence of the capital market at the center-stage of the financing system and the disappearance of the erstwhile development/public financial/term lending ~institutions from the Indian financial scene;
- → Emergence of a' highly articulate and. sophisticated money market;'
- → Globalization,. convertibility of rupee, liberalized foreign resentments in India, Indian foreign investment abroad;
- → Market-determined interest rate, emergence of highly innovative financial instruments;
- → Growth of mutual funds; credit rating, other financial services;

- → Rigorous prudential, credit risk management framework for banks and financial institutions;
- → Access 10 Euro-issues, American Depository Receipts (ADRs);
- → Privatization/disinvestment of public sector undertakings.

MODULE 2

TIME VALUE OF MONEY

Time value of money is the common description for the general rule that cash in and today is worth more than the same amount of cash in the future. The concept of the time value of money is used for investment decisions. The principle of the time value of money signifies that, since money has time value, every financial decision must be made on the basis of PV or discounted value of cash flow Return from investment proposal.

Time value of money is a widely used concept in the literature of finance. Financial decision models based on finance theories basically deal with the maximization of the economic Welfare of shareholders. The concept of time value of money contributes to this aspect to a greater extent. The need for the concept of the time value of money could be stated as below:

Investment Decision

Investment decision is concerned with the allocation of capital into long-term investment projects. The cash flow from long-term investment occurs at different point times in the future. They are not comparable to each other and against the cost of the project spent at present. To make them comparable, the 'future cash flows are discounted back to present value:

The concept of time value of money is useful to securities investors. They use valuation models while making investments in securities such as stocks and bonds. These security valuation models consider the time value of cash flows from securities.

Financing Decision

Financing decisions are concerned with designing the optimum capital structure and raising funds from the least cost sources. The concept of the time value of money is equally used in financing decisions, especially when we deal with comparing the cost of different sources of financing. The effective rate of interest of each source of financing is calculated based on the time value of money concept. Similarly, in leasing versus buying decisions, we calculate the present value of the cost of leasing and the cost of buying. The present value of the cost of two alternatives is compared against each other to decide on an appropriate source of financing.

Compound Interest

Compounding is a process of growing. If you're familiar with the "snowball effect," you already know how something can build upon itself. Compound interest is interest earned on money that was previously earned as interest. This cycle leads to increasing interest and account balances at an increasing rate, sometimes known as exponential growth.

Advantage of Compound Interest

There are ways that you can make sure that compounding works out in your favor. **Save early and often:** When growing your savings, time is your friend. The longer you can leave your money untouched, the greater it can grow, because compound interest grows exponentially over time. If you deposit $100 a month at 5% interest (compounded monthly) for 5 years, you'll have saved

$6,000 in deposits, and earned $800.61 in interest. Even if you never made another deposit after that time, after 20 years your account would have earned an additional $7,573.87 in interest—more than your initial $6,000 in deposits, thanks to compounding.

Check the APY: To compare bank products such as savings accounts and CDs, look at the annual percentage yield (APY). It takes compounding into account and provides a true annual rate. Fortunately, it's easy to find because banks typically publicize the APY since it's higher than the interest rate. You should try to get decent rates on your savings, but it's probably not worth switching banks for an extra 0.10% unless you have an extremely large account balance.

Pay off debts quickly and pay extra when you can: Paying the minimum on your credit cards will cost you dearly because you'll barely make a dent in the interest charges and your balance could actually grow. If you have student loans, avoid capitalizing interest charges (adding unpaid interest charges to the balance total) and at least pay the interest as it accrues so you don't get a nasty surprise after graduation. Even if you're not required to pay, you'll do yourself a favor by minimizing your lifetime interest costs.

Keep borrowing rates low: In addition to affecting your monthly payment, the interest rates on your loans determine how quickly your debt grows, and the time it takes to pay it off. It's difficult to contend with double-digit rates, which most credit cards have. See if it makes sense to consolidate debts and lower your interest rates while you pay off debt; it could speed up the process and save you money.

Compound Interest Formula

We use the following formula to calculate compound interest:

A = P (1 + [r / n]) ^ nt

A: The amount you'll end up with

P: Your initial deposit, known as the principal

r: the annual interest rate, written in decimal format

n: the number of compounding periods per year (for example, monthly is 12 and weekly is 52)

t: the amount of time (in years) that your money compounds

The doubling time is the period of time required for a quantity to double in size or value. It is applied to population growth, inflation and resource extraction, consumption of goods, compound interest, the volume of malignant tumors, and many other things that tend to grow over time. When the relative growth rate is constant, The quantity undergoes exponential growth and has a constant doubling time or period which can be calculated directly from the growth rate,

The Doubling Time formula is used in Finance to calculate the length of time required to double an investment or money in an interest-bearing account:

$$Doubling\ Time = \frac{log(2)}{log(1+r)}$$

$$r = rate\ of\ return$$

It is important to note that r in the doubling time formula is the rate per period If one wishes to calculate the amount of time to double their money in a

money market account that is compounded monthly, then r needs to express the monthly rate and not the annual rate. The monthly rate can be found by dividing the annual rate of 12. With this situation, the doubling time formula will give the number of months it takes to double the money and not years.

In addition to expressing r as the monthly rate if the account is compounded monthly, one could also use the effective annual rate, or annual percentage yield; r in the doubling time formula.

Continuous Compounding

Continuous compounding is the mathematical limit that compound interest can reach if it's calculated and reinvested into an account's balance over a theoretically infinite number of periods. While this is not possible in practice, the concept of continuously compounded interest is important in finance. It is an extreme case of compounding, as most interest is compounded on a monthly, quarterly, or semiannual basis.

Formula and Calculation of Continuous Compounding

Instead of calculating interest on a finite number of periods, such as yearly or monthly, continuous compounding calculates interest assuming constant compounding over an infinite number of periods. The formula for compound interest over finite periods of time takes into account four variables:

- → PV = the present value of the investment
- → i = the stated interest rate
- → n = the number of compounding periods
- → t = the time in years

The formula for continuous compounding is derived from the formula for the future value of an interest-bearing investment:

Future Value (FV) = $PV \times [1 + (i / n)]^{(n \times t)}$

Calculating the limit of this formula as n approaches infinity (per the definition of continuous compounding) results in the formula for continuously compounded interest:

$FV = PV \times e^{(i \times t)}$, where e is the mathematical constant approximated as 2.7183.

Effective Interest rate (EIR)

The effective rate of interest is the equivalent annual rate of interest which is compounded annually. Further, the compounding must happen more than once every year.

Banks also charge assorted fees on their loans, such as administrative and processing fees, which they add to the cumulative interest charged on loans.

This no doubt increases the total amount people have to repay as the interest. Due to these extra captured costs and the mentioned compounding, EIR is always greater than the nominal APR for any debt provided compounding occurs more than once a year.

Effective Interest Rate Formula

Effective Interest Rate = $(1 + i/n)^n - 1$

where,

→ i = Stated Rate of Interest

→ n = Number of Compounding Periods Per Year

Present value of a single cash flow

Present value of a single cash flow refers to how much a single cash flow in the future will be worth today. The present value is calculated by discounting the future cash flow for the given time period at a specified discount rate.

$$PV = \frac{FV}{\left(1 + \frac{r}{m}\right)^{mT}}$$

Where:

FV = Future value of money

r = Annual interest rate

T = Number of years

m = Number of periods based on compounding frequency

Future value of a single cash flow

Future value of a single cash flow refers to how much a single cash flow today would grow over a period of time if put in an investment that pays compound interest.

The formula for calculating future value is:

$$FV = PV\left(1 + \frac{r}{m}\right)^{mT}$$

Where:

PV = Money invested today

r = Annual interest rate

T = Number of Years

m = Number of periods based on compounding frequency

Present and Future Value of Annuities

An annuity is a series of equal payments made at equal time intervals, with compounding or discounting taking place at the time of each payment. Each annuity payment is called a rent. There are several types of annuities, out of which in an ordinary annuity each rent is paid or received at the end of each period.

Future Value of Annuity of ₹ 1

If you open a savings account that compounds interest each month, and at the end of each month you deposit 100 in the savings account, your deposits are the rents of an annuity. After ₹ 1 year, you will have 12 deposits of 100 each, and a total of ₹ 1200, but the account will have more than 1200 in it because each deposit earns interest. If the interest rate is 6 percent a year, compounded monthly, your balance is ₹ 1233.56. The future value of an annuity or amount of annuity is the sum accumulated in the future from all the rents paid and the interest earned by the rents. The abbreviation FV is used for the future value of

an annuity to differentiate it from the lower case fv used for the future value of ₹ 1. To obtain a table of future values of annuities, we assume payments of 1 each period made into a fund that earns 8 percent interest compounded each period. The following diagram illustrates an annuity of four payments of ₹ 1, each paid at the end of each period, with interest of 8 percent compounded each period.

Notice that there are four rents and four periods, each rent is paid at the end of each period. At the end of the first period, ₹ 1 is deposited and earns interest for three periods. The next rent earns interest for two periods, and so on. The amount at the end of the fourth period can be determined by calculating the future value of each individual ₹ 1 deposit as follows:

Future value of ₹ 1 at 8% for 3 periods = ₹ 1.25971

Future value of ₹ 1 at 8% for 2 periods = ₹ 1.16640

Future value of ₹ 1 at 8% for 1 period = ₹ 1.08000

The fourth rent of ₹ 1 earns no interest = ₹ 1.0000

Total for 4 rents = **₹ 4.50611**

The formula for the future value of an annuity of 1 can be used to produce tables for a variety of periods and interest rates

$Fv = ((1+1)^n-1)\div i$

Present Value of Annuity of ₹ 1

The present value of an annuity is the sum that must be invested today at compound interest in order to obtain periodic rents over some future time. Notice that we use the abbreviation PV for the present value of an annuity, as differentiated from the lower case pv for the present value of ₹ 1. By using the

present value of ₹ 1, we can obtain a table for the present value of an ordinary annuity of ₹ 1.

With each rent available at the end of each period, when compounding takes place, the number of rents is the same as the number of periods. By discounting each future event to the present, we find the present value of the entire annuity.

Present value of ₹ 1 discounted for 1 period at 8% = ₹ 0.92593
Present value of ₹ 1 discounted for 2 periods at 8% = ₹ 0.85734
Present value of ₹ 1 discounted for 3 periods at 8% = ₹ 0.79383
Present value of ₹ 1 discounted for 4 periods at 8% = ₹ 0.73503
Present value of annuity of 4 rents at 8% **= ₹ 3.31213**

The first rent is worth more than others because it is received earlier. Table on the present value of annuities may be used to solve problems in this regard. The formula used to construct the table is:

$$PV = \frac{1 - \frac{1}{(1+i)^n}}{i}$$

Present Value of a Growing Annuity

The present value of a growing annuity formula calculates the present day value of a series of future periodic payments that grow at a proportionate rate. A growing annuity may sometimes be referred to as an increasing annuity.

The present value of a growing annuity formula relies on the concept of time value of money. The premise to this concept is that a specific quantity of money is worth more today than at a future time.

Like all financial formulas that involve a rate, it is important to correlate the rate per period to the number of periods in the present value of a growing annuity formula. If the payments are monthly, then the rate would need to be the monthly rate.

The present value of a growing annuity is the sum of future cash flows. For a growing annuity, each cash flow increases at a certain rate. The formula for the present value of a growing annuity can be written as

$$PV = \frac{P}{1+r} + \frac{P(1+g)}{(1+r)^2} + \ldots + \frac{P(1+g)^{n-1}}{(1+r)^n}$$

This formula is the general formula for summing the discounted future cash flows along with using **1 + g** to factor in that each future cash flow will increase at a specific rate.

This present value of a growing annuity formula can then be rewritten as

$$= \frac{P}{1+r} + \frac{P}{(1+r)}\left(\frac{1+g}{1+r}\right) +$$

$$\frac{P}{(1+r)}\left(\frac{1+g}{1+r}\right)^2 \ldots + \frac{P}{(1+r)}\left(\frac{1+g}{1+r}\right)^{n-1}$$

This would be considered a geometric series where **(1+g)/(1+r)** is the common ratio. By using the geometric series formula, the present value of a growing annuity will be shown as

$$= \frac{\frac{P}{1+r} - \frac{P}{1+r}\left(\frac{1+g}{1+r}\right)^n}{1 - \frac{1+g}{1+r}}$$

This formula can be simplified by multiplying it by **(1+r)/(1+r)**, which is to multiply it by 1. This cancels out many of these throughout the formula,

which leaves

$$\frac{P - P\left(\frac{1+g}{1+r}\right)^n}{(1+r)-(1+g)}$$

In the denominator, **(1+r) - (1+g)** will return **r-g**. At this point, **P** and **r-g** can be factored out, which will lead to the present value of a growing annuity.

Future Value of a Growing Annuity

The future value of a growing annuity can be calculated by working out each individual cash flow by (a) growing the initial cash flow at g; (b) finding future value of each cash flow at the interest rate r and (c) then summing up all the component future values.

The future value of a growing annuity can also be calculated by growing the present value of the growing annuity at the interest rate r for n periods. This can be expressed mathematically as follows:

$$FV_{GA} = PV_{GA} \times (1+r)^n$$

Where FVGA is the future value of growing annuity, PVGA is the present value of growing annuity, r is the periodic discount rate and n is the number of cash flows.

Perpetuities

Perpetuity in the financial system is a situation where a stream of cash flow payments continues indefinitely or is an annuity that has no end. In valuation

analysis, perpetuities are used to find the present value of a company's future projected cash flow stream and the company's terminal value. Essentially, a perpetuity is a series of cash flows that keep paying out forever.

Although the total value of a perpetuity is infinite, it comes with a limited present value. The present value of an infinite stream of cash flow is calculated by adding up the discounted values of each annuity and the decrease of the discounted annuity value in each period until it reaches close to zero.

The finite present value of a perpetuity is used by an analyst to determine the exact value of a company if it continues to perform at the same rate.

Present Value of Perpetuity Formula

The perpetuity concept refers to an infinite series of identical cash flows. It is most commonly applied to a discounted cash flow analysis, where this stream of cash flows is discounted to its present value. The specific application is to the aggregation of all cash flows beyond the date range for which more precise cash flows are being predicted, which is called the terminal value of a project. Here is the formula:

$$PV = C / R$$

Where:

- → PV = Present value
- → C = Amount of continuous cash payment
- → r = Interest rate or yield

Present Value of Growing Perpetuity Formula is derived through the following way:

A growing perpetuity is a series of periodic payments that continue indefinitely

and grow at a proportionate rate. Therefore, the formula for the present value of a growing perpetuity can be shown as

$$PV = \frac{D}{(1+r)} + \frac{D(1+g)}{(1+r)^2} + \frac{D(1+g)^2}{(1+r)^3} \cdots$$

This series will continue for an infinite amount of periods. This formula could be rewritten as

$$PV = \frac{D}{(1+r)} + \frac{D}{(1+r)}\left(\frac{1+g}{1+r}\right) + \frac{D}{(1+r)}\left(\frac{1+g}{1+r}\right)^2 \cdots$$

This is considered to be an infinite geometric series with a common ratio of (1+g)/(1+r).

Putting this formula into the infinite geometric series formula would result in

$$PV = \frac{\frac{D}{(1+r)}}{1 - \frac{1+g}{1+r}}$$

This formula could be shortened by multiplying it by ***(1+r)/(1+r)***, which is to multiply it by one. This would result in

$$PV = \frac{D}{(1+r) - (1+g)}$$

which could be further reduced to the present value of a growing perpetuity formula shown at the top of the page.

Calculation of the Compound Growth Rate

Compound growth rate can be calculated with the following formula:

$gr = Vo(1 + r)^n = V^n$

where, gr = Growth rate in percentage.

Vo = Variable for which the growth rate is needed (i.e., sales, revenue, dividend at the end of year '0').

V^n = Variable value (amount) at the end of year 'n'.

$(1 + r)^n$ = Growth rate.

Equated Annual Installments

Equal annual installments are the amounts of money payable or paid every year. It is arrived at by dividing the amount of the loan along with the interest with the period of loan.

Formula to calculate Equal annual installments

Equated Annual Installment = Loan Amount/PVIF(Interest & Time Period)

Example

Loan Amount ₹ 5,00,000 interest Rate 8%

Time period 5 equal instalments

The Answer will be EAI = 5,00,000/ PVIF(8%.5)

This Implies EAI = 5,00,000/3.9927

The Answer will be EAI = 1,25,228.54

PROBLEM

A firm wishes to buy additional land for extension purposes after three years. The value of the land after three is expected to be t 50 lakhs. If the firm wishes to save annually from the current year onwards, how much should the firm save annually at a rate of interest of 9 percent?

$A = FV(\frac{1}{CVAn,i})$

Where, A = Annuity amount per year

FV = Future value CVAFn,

i = Compound Value Annuity factor for n years at i rate of interest

A = 50,000 $(\frac{1}{3.278})$ = 15,25,320

Hence,the firm should save annually ₹ 15,25,320 @ 9%

MODULE 3

LONG-TERM FINANCING DECISIONS

Business is concerned with the production and distribution of goods and services for the satisfaction of the needs of society. For carrying out various activities, business requires money. Finance, therefore, is called the life blood of any business. The requirements of funds by business to carry out its various activities is called business finance. A business cannot function unless adequate funds are made available to it. The initial capital contributed by the entrepreneur is not always sufficient to take care of all financial requirements of the business. A business person, therefore, has to look for different other sources from where the need for funds can be met. A clear assessment of the financial needs and the identification of various sources of finance, therefore, is a significant aspect of running a business organisation. The need for funds arises from the stage when an entrepreneur makes a decision to start a business. Some funds are needed immediately for the purchase of plant and machinery, furniture, and other fixed assets. Similarly, some funds are required for day-to-day operations, say to purchase raw materials, pay salaries to employees, etc. Also when the business expands, it needs funds. The financial needs of a business can be categorised as follows:

A. **Fixed capital requirements:** In order to start business, funds are required to purchase fixed assets like land and building, plant and machinery, and furniture and fixtures. This is known as fixed capital requirements of the enterprise. The funds required in fixed assets remain invested in the business for a long period of time. Different business units need varying amounts of fixed capital depending on various factors such as the nature

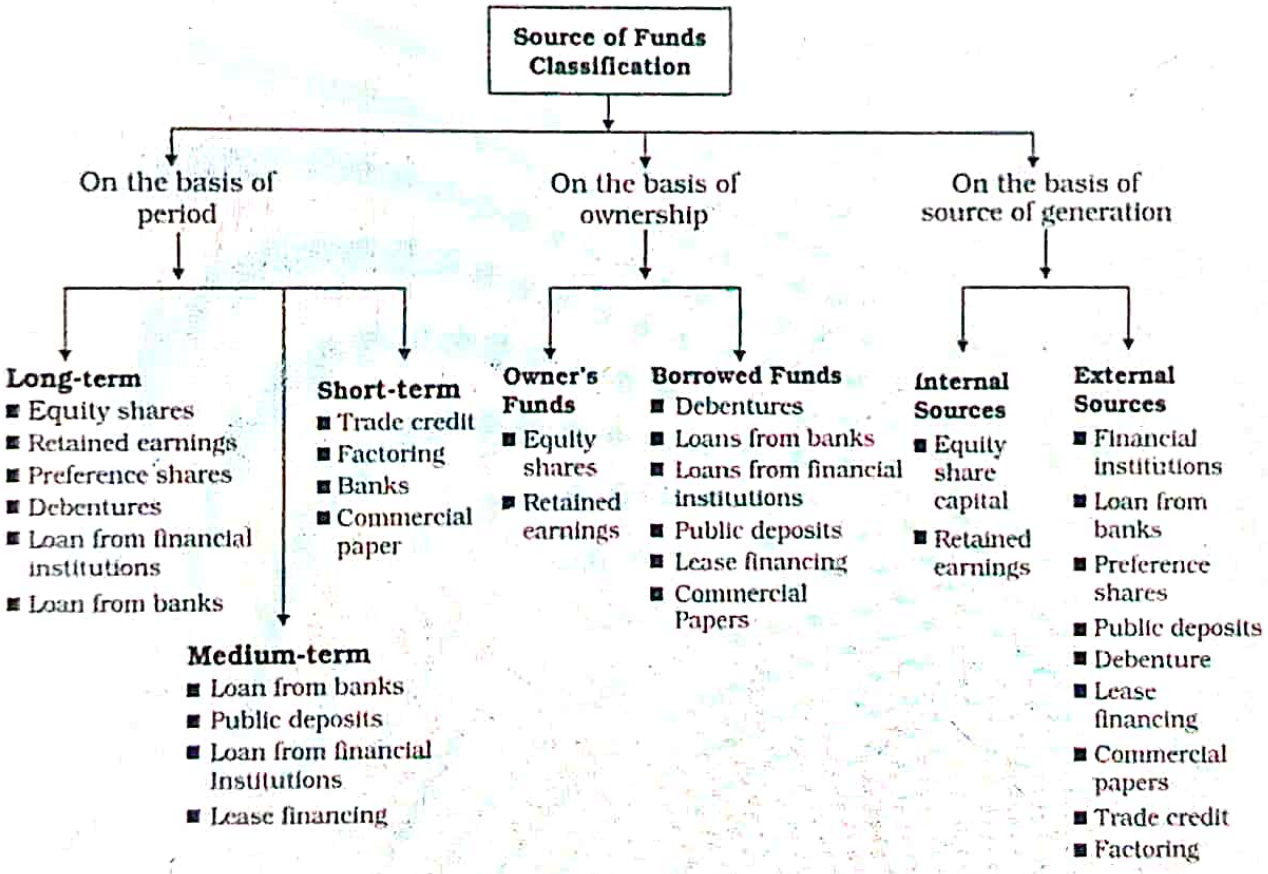
of business, etc. A trading concern for example, may require a small amount of fixed capital as compared to a manufacturing concern. Likewise, the need for fixed capital investment would be greater for a large enterprise, as compared to that of a small enterprise.

B. **Working capital requirements:** The financial requirements of an enterprise do not end with the procurement of fixed assets. No matter how small or large a business is, it needs funds for its day-to-day operations. This is known as the working capital of an enterprise, which is used for holding current assets such as stock of material, bills receivables and for meeting current expenses like salaries, wages, taxes, and rent.The amount of working capital required varies from one business concern to another depending on various factors. A business unit selling goods on credit, or having a slow sales turnover, for example, would require more working capital as compared to a concern selling its goods and services on a cash basis or having a speedier turnover. The requirement for fixed and working capital increases with the growth and expansion of business. At times additional funds are required for upgrading the technology employed so that the cost of production or operations can be reduced. Similarly, larger funds may be required for building higher inventories for the festive season or to meet current debts or expand the business or to shift to a new location. It is, therefore, important to evaluate the different sources from where funds can be raised.

CLASSIFICATION OF SOURCES OF FUNDS

In case of proprietary and partnership concerns, the funds may be raised either from personal sources or borrowings from banks, friends etc. In case of company form of organisation, the different sources of business finance which are available may be categorised as given in Table 8.1 As shown in the table, the sources of funds can be categorised using different basis viz., on the basis of the

period, source of generation and the ownership. A brief explanation of these classifications and the sources is provided as follows:



On the basis of period, the different sources of funds can be categorised into three parts. These are long-term sources, medium-term sources and short-term sources.

The **long-term** sources fulfil the financial requirements of an enterprise for a period exceeding 5 years and include sources such as shares and debentures, long-term borrowings and loans from financial institutions. Such financing is generally required for the acquisition of fixed assets such as equipment, plant, etc.

Where the funds are required for a period of more than one year but less than five years, medium-term sources of finance are used. These sources

include borrowings from commercial banks, public deposits, lease financing and loans from financial institutions. Short-term funds are those which are required for a period not exceeding one year. Trade credit, loans from commercial banks and commercial papers are some of the examples of the sources that provide funds for short duration.

Short-term financing is most common for financing of current assets such as accounts receivable and inventories. Seasonal businesses that must build inventories in anticipation of selling requirements often need short term financing for the interim period between seasons. Wholesalers and manufacturers with a major portion of their assets tied up in inventories or receivables also require large amounts of funds for a short period.

Types of Short Term Financing

1. **Overdraft Agreement:**By entering into an overdraft agreement with the bank, the bank will allow the business to borrow up to a certain limit without the need for further discussion. The bank might ask for security in the form of collateral and they might charge daily interest at a variable rate on the outstanding debt. However, if the business is confident of making the repayments quickly, then an overdraft agreement is a valuable source of financing and one that many companies resort to.
2. **Accounts Receivable Financing:**Many banks and non-banking financial institutions provide invoice discounting facilities. The company takes the commercial bills to the bank which makes the payment minus a small fee. Then, on the due date, the bank collects the money from the customer. This is another popular method of financing, especially among small traders. Businesses that offer large terms of credit can carry on their operations without having to wait for the customers to settle their bills.

3. **Customer Advances:**There are many companies that insist on the customer making an advance payment before selling them goods or providing a service. This is especially true while dealing with large orders that take a long time to fulfill. This method also ensures that the company has some funds to channelize into its operations for fulfilling those orders.
4. **Selling Goods on Installment:**Many companies, especially those that sell television sets, fans, radios, refrigerators, vehicles, and so on, allow customers to make their payments in installments. Since many of these items have become modern-day essentials, their customers might not come from well-to-do backgrounds or the cost of the product might be too prohibitive for immediate payment. In such a case, instead of waiting for a large payment at the end, they allow the customers to make regular monthly payments. This ensures that there is a constant flow of funds coming into the business that does not choke up the accounts receivable numbers.

Types of Long-Term Financing

Relying purely on short-term funds to meet working capital needs is not always prudent, especially for industries where the manufacture of the product itself takes a long time: automobiles, aircraft, refrigerators, and computers. Such companies need their working capital to last for a long time, and hence they have to think about long term financing.

1. **Long-Term Loan from a Bank:**Many companies opt for a full-fledged long term loan from a bank that allows them to meet all their working capital needs for two, three, or more years.
2. **Retain Profits:**Rather than making dividend payments to shareholders or investing in new ventures, many businesses retain a

portion of their profits so that they may use it for working capital. This way they do not have to take loans, pay interest, incur losses on discounted bills, and they can be self-sufficient in their financing.

3. **Issue Equities and Debentures:** In extreme cases when the business is really short of funds, or when the company is investing in a large-scale venture, they might decide to issue debentures or bonds to the general public or in some cases even equity stock. Of course, this will be done only by conglomerates and only in cases when there is a need for a huge quantum of funds.

Ownership Basis

On the basis of ownership, the sources can be classified into 'owner's funds' and 'borrowed funds'. Owner's funds means funds that are provided by the owners of an enterprise, which may be a sole trader or partners or shareholders of a company. Apart from capital, it also includes profits reinvested in the business. The owner's capital remains invested in the business for a longer duration and is not required to be refunded during the life period of the business. Such capital forms the basis on which owners acquire their right of control of management. Issue of equity shares and retained earnings are the two important sources from which owner's funds can be obtained. 'Borrowed funds' on the other hand, refer to the funds raised through loans or borrowings. The sources for raising borrowed funds include loans from commercial banks, loans from financial institutions, issue of debentures, public deposits and trade credit. Such sources provide funds for a specified period, on certain terms and conditions and have to be repaid after the expiry of that period. A fixed rate of interest is paid by the borrowers on such funds. At times it puts a lot of burden on the business as payment of interest is to be made even when the earnings are low or when loss is incurred. Generally, borrowed funds are provided on the security of some fixed assets.

Source of Generation Basis

Another basis of categorising the sources of funds can be whether the funds are generated from within the organisation or from external sources. Internal sources of funds are those that are generated from within the business. A business, for example, can generate funds internally by accelerating collection of receivables, disposing of surplus inventories and ploughing back its profit. The internal sources of funds can fulfill only limited needs of the business. External sources of funds include those sources that lie outside an organisation, such as suppliers, lenders, and investors. When a large amount of money is required to be raised, it is generally done through the use of external sources. External funds may be costly as compared to those raised through internal sources. In some cases, business is required to mortgage its assets as security while obtaining funds from external sources. Issue of debentures, borrowing from commercial banks and financial institutions and accepting public deposits are some of the examples of external sources of funds commonly used by business organisations.

SOURCES OF FINANCE

A business can raise funds from various sources. Each of the sources has unique characteristics, which must be properly understood so that the best available source of raising funds can be identified. There is not a single best source of funds for all organisations. Depending on the situation, purpose, cost and associated risk, a choice may be made about the source to be used. For example, if a business wants to raise funds for meeting fixed capital requirements, long term funds may be required which can be raised in the form of owned funds or borrowed funds. Similarly, if the purpose is to meet the day-to-day requirements of business, the short term sources may be tapped. A

brief description of various sources, along with their advantages and limitations is given below.

Retained Earnings

A company generally does not distribute all its earnings amongst the shareholders as dividends. A portion of the net earnings may be retained in the business for use in the future. This is known as retained earnings. It is a source of internal financing or self financing or 'ploughing back of profits'. The profit available for ploughing back in an organisation depends on many factors like net profits, dividend policy and age of the organisation.

Merits

The merits of retained earning as a source of finance are as follows:

1. Retained earnings is a permanent source of funds available to an organisation;
2. It does not involve any explicit cost in the form of interest, dividend or floatation cost;
3. As the funds are generated internally, there is a greater degree of operational freedom and flexibility;
4. It enhances the capacity of the business to absorb unexpected losses;
5. It may lead to increase in the market price of the equity shares of a company.

Limitations

Retained earning as a source of funds has the following limitations:

1. Excessive ploughing back may cause dissatisfaction amongst the shareholders as they would get lower dividends;
2. It is an uncertain source of funds as the profits of business are fluctuating;

3. The opportunity cost associated with these funds is not recognised by many firms. This may lead to suboptimal use of the funds.

Trade Credit

Trade credit is the credit extended by one trader to another for the purchase of goods and services. Trade credit facilitates the purchase of supplies without immediate payment. Such credit appears in the records of the buyer of goods as 'sundry creditors' or 'accounts payable'. Trade credit is commonly used by business organisations as a source of short-term financing. It is granted to those customers who have a reasonable amount of financial standing and goodwill. The volume and period of credit extended depends on factors such as reputation of the purchasing firm, financial position of the seller, volume of purchases, past record of payment and degree of competition in the market. Terms of trade credit may vary from one industry to another and from one person to another. A firm may also offer different credit terms to different customers.

Merits

The important merits of trade credit are as follows:

1. Trade credit is a convenient and continuous source of funds;
2. Trade credit may be readily available in case the credit worthiness of the customers is known to the seller;
3. Trade credit needs to promote the sales of an organisation;
4. If an organisation wants to increase its inventory level in order to meet expected rise in the sales volume in the near future, it may use trade credit to, finance the same;
5. It does not create any charge on the assets of the firm while providing funds.

Limitations

Trade credit as a source of funds has certain limitations, which are given as follows:

1. Availability of easy and flexible trade credit facilities may induce a firm to indulge in overtrading, which may add to the risks of the firm;
2. Only limited amount of funds can be generated through trade credit;
3. It is generally a costly source of funds as compared to most other sources of raising money.

Factoring

Factoring is a financial service under which the 'factor' renders various services which includes:

A. Discounting of bills (with or without recourse) and collection of the client's debts. Under this, the receivables on account of sale of goods or services are sold to the factor at a certain discount. The factor becomes responsible for all credit control and debt collection from the buyer and provides protection against any bad debt losses to the firm. There are two methods of factoring — recourse and non-recourse. Under recourse factoring, the client is not protected against the risk of bad debts. On the other hand, the factor assumes the entire credit risk under non-recourse factoring i.e., the full amount of invoice is paid to the client in the event of the debt becoming bad.

B. Providing information about credit worthiness of prospective client's etc., Factors hold large amounts of information about the trading histories of the firms. This can be valuable to those who are using factoring services and can thereby avoid doing business with customers having poor payment records. Factors may also offer relevant consultancy services in the areas of finance, marketing, etc.

Lease Financing

A lease is a contractual agreement whereby one party i.e., the owner of an asset grants the other party the right to use the asset in return for a periodic payment. In other words it is a renting of an asset for some specified period. The owner of the assets is called the 'lessor' while the party that uses the assets is known as the 'lessee'. The lessee pays a fixed periodic amount called lease rental to the lessor for the use of the asset. The terms and conditions regulating the lease arrangements are given in the lease contract. At the end of the lease period, the asset goes back to the lessor. Lease finance provides an important means of modernisation and diversification to the firm. Such type of financing is more prevalent in the acquisition of such assets as computers and electronic equipment which become obsolete quicker because of the fast changing technological developments. While making the leasing decision, the cost of leasing an asset must be compared with the cost of owning the same.

Commercial Paper (CP)

Commercial Paper emerged as a source of short term finance in our country in the early nineties. Commercial paper is an unsecured promissory note issued by a firm to raise funds for a short period, varying from 90 days to 364 days. It is issued by one firm to other business firms, insurance companies, pension funds and banks. The amount raised by CP is generally very large. As the debt is totally unsecured, the firms having good credit rating can issue the CP. Its regulation comes under the purview of the Reserve Bank of India.

Issue of Shares

The capital obtained by issue of shares is known as share capital. The capital of a company is divided into small units called shares. Each share has its nominal value. For example, a company can issue 1,00,000 shares of Rs. 10 each for a total value of Rs. 10,00,000. The person holding the share is known as a shareholder. There are two types of shares normally issued by a company.

These are equity shares and preference shares. The money raised by issue of equity shares is called equity share capital, while the money raised by issue of preference shares is called preference share capital.

A. Equity Shares

Equity shares is the most important source of raising long term capital by a company. Equity shares represent the ownership of a company and thus the capital raised by issue of such shares is known as ownership capital or owner's funds. Equity share capital is a prerequisite to the creation of a company. Equity shareholders do not get a fixed dividend but are paid on the basis of earnings by the company. They are referred to as 'residual owners' since they receive what is left after all other claims on the company's income and assets have been settled. They enjoy the reward as well as bear the risk of ownership. Their liability, however, is limited to the extent of capital contributed by them in the company. Further, through their right to vote, these shareholders have a right to participate in the management of the company.

Merits

The important merits of raising funds through issuing equity shares are given as below:

1. Equity shares are suitable for investors who are willing to assume risk for higher returns;
2. Payment of dividend to the equity shareholders is not compulsory. Therefore, there is no burden on the company in this respect;
3. Equity capital serves as permanent capital as it is to be repaid only at the time of liquidation of a company. As it stands last in the list of claims, it provides a cushion for creditors, in the event of winding up of a company;
4. Equity capital provides credit worthiness to the company and confidence to prospective loan providers;

5. Funds can be raised through equity issues without creating any charge on the assets of the company. The assets of a company are, therefore, free to be mortgaged for the purpose of borrowings, if the need be;
6. Democratic control over management of the company is assured due to voting rights of equity shareholders.

Limitations

The major limitations of raising funds through issue of equity shares are as follows:

1. Investors who want steady income may not prefer equity shares as equity shares get fluctuating returns;
2. The cost of equity shares is generally more as compared to the cost of raising funds through other sources;
3. Issue of additional equity shares dilutes the voting power, and earnings of existing equity shareholders;
4. More formalities and procedural delays are involved while raising funds through issue of equity share.

B. Preference Shares

The capital raised by issue of preference shares is called preference share capital. The preference shareholders enjoy a preferential position over equity shareholders in two ways:

1. receiving a fixed rate of dividend, out of the net profits of the company, before any dividend is declared for equity shareholders; and
2. receiving their capital after the claims of the company's creditors have been settled, at the time of liquidation. In other words, as compared to the equity shareholders, the preference shareholders have a preferential claim over dividend and repayment of capital. Preference shares resemble debentures as they bear a fixed rate of return. Also as the dividend is

payable only at the discretion of the directors and only out of profit after tax, to that extent, these resemble equity shares. Thus, preference shares have some characteristics of both equity shares and debentures. Preference shareholders generally do not enjoy any voting rights. A company can issue different types of preference shares.

Debentures

Debentures are an important instrument for raising long term debt capital. A company can raise funds through issue of debentures, which bear a fixed rate of interest. The debenture issued by a company is an acknowledgment that the company has borrowed a certain amount of money, which it promises to repay at a future date. Debenture holders are, therefore, termed as creditors of the company. Debenture holders are paid a fixed stated amount of interest at specified intervals say six months or one year. Public issue of debentures requires that the issue be rated by a credit rating agency like CRISIL (Credit Rating and Information Services of India Ltd.) on aspects like track record of the company, its profitability, debt servicing capacity, credit worthiness and the perceived risk of lending. A company can issue different types of debentures. Issue of Zero Interest Debentures (ZID) which do not carry any explicit rate of interest has also become popular in recent years. The difference between the face value of the debenture and its purchase price is the return to the investor.

Commercial Banks

Commercial banks occupy a vital position as they provide funds for different purposes as well as for different time periods. Banks extend loans to firms of all sizes and in many ways, like, cash credits, overdrafts, term loans, purchase/discounting of bills, and issue of letter of credit. The rate of interest charged by banks depends on various factors such as the characteristics of the firm and the level of interest rates in the economy. The loan is repaid either in

lump sum or in installments. Bank credit is not a permanent source of funds. Though banks have started extending loans for longer periods, generally such loans are used for medium to short periods. The borrower is required to provide some security or create a charge on the assets of the firm before a loan is sanctioned by a commercial bank.

Financial Institutions

The government has established a number of financial institutions all over the country to provide finance to business organisations. These institutions are established by the central as well as state governments. They provide both owned capital and loan capital for long and medium term requirements and supplement the traditional financial agencies like commercial banks. As these institutions aim at promoting the industrial development of a country, these are also called 'development banks'. In addition to providing financial assistance, these institutions also conduct market surveys and provide technical assistance and managerial services to people who run the enterprises. This source of financing is considered suitable when large funds for longer duration are required for expansion, reorganisation and modernisation of an enterprise.

FACTORS AFFECTING THE CHOICE OF THE SOURCE OF FUNDS

Financial needs of a business are of different types — long term, short term, fixed and fluctuating. Therefore, business firms resort to different types of sources for raising funds. Short-term borrowings offer the benefit of reduced cost due to reduction of idle capital, but long – term borrowings are considered a necessity on many grounds. Similarly equity capital has a role to play in the scheme for raising funds in the corporate sector. As no source of funds is devoid of limitations, it is advisable to use a combination of sources, instead of relying only on a single source. A number of factors affect the choice of this combination,

making it a very complex decision for the business. The factors that affect the choice of source of finance are briefly discussed below:

1. **Cost**: There are two types of cost viz., the cost of procurement of funds and cost of utilising the funds. Both these costs should be taken into account while deciding about the source of funds that will be used by an organisation.
2. **Financial strength and stability of operations**: The financial strength of a business is also a key determinant. In the choice of source of funds business should be in a sound financial position so as to be able to repay the principal amount and interest on the borrowed amount. When the earnings of the organisation are not stable, fixed charged funds like preference shares and debentures should be carefully selected as these add to the financial burden of the organisation.
3. **Form of organisation and legal status:** The form of business organisation and status influences the choice of a source for raising money. A partnership firm, for example, cannot raise money by issue of equity shares as these can be issued only by a joint stock company.
4. **Purpose and time period**: Business should plan according to the time period for which the funds are required. A short-term need for example can be met through borrowing funds at a low rate of interest through trade credit, commercial paper, etc. For long term finance, sources such as issue of shares and debentures are more appropriate. Similarly, the purpose for which funds are required need to be considered so that the source is matched with the use. For example, a long-term business expansion plan should not be financed by a bank overdraft which will be required to be repaid in the short term.
5. **Risk profile:** Business should evaluate each of the sources of finance in terms of the risk involved. For example, there is a least risk in equity as the

share capital has to be repaid only at the time of winding up and dividends need not be paid if no profits are available. A loan on the other hand, has a repayment schedule for both the principal and the interest. The interest is required to be paid irrespective of the firm earning a profit or incurring a loss.

6. **Control:** A particular source of funds may affect the control and power of the owners on the management of a firm. Issue of equity shares may mean dilution of the control. For example, as equity shareholders enjoy voting rights, financial institutions may take control of the assets or impose conditions as part of the loan agreement. Thus, a business firm should choose a source keeping in mind the extent to which they are willing to share their control over business.
7. **Effect on credit worthiness:** The dependence of business on certain sources may affect its credit worthiness in the market. For example, issues of secured debentures may affect the interest of unsecured creditors of the company and may adversely affect their willingness to extend further loans as credit to the company.
8. **Flexibility and ease:** Another aspect affecting the choice of a source of finance is the flexibility and ease of obtaining funds. Restrictive provisions, detailed investigation and documentation in case of borrowings from banks and financial institutions for example may be the reason that a business organisation may not prefer it, if other options are readily available.
9. **Tax benefits**: Various sources may also be weighed in terms of their tax benefits. For example, while the dividend on preference shares is not tax deductible, interest paid on debentures and loan is tax deductible and may, therefore, be preferred by organisations seeking tax advantage.

Venture Capital

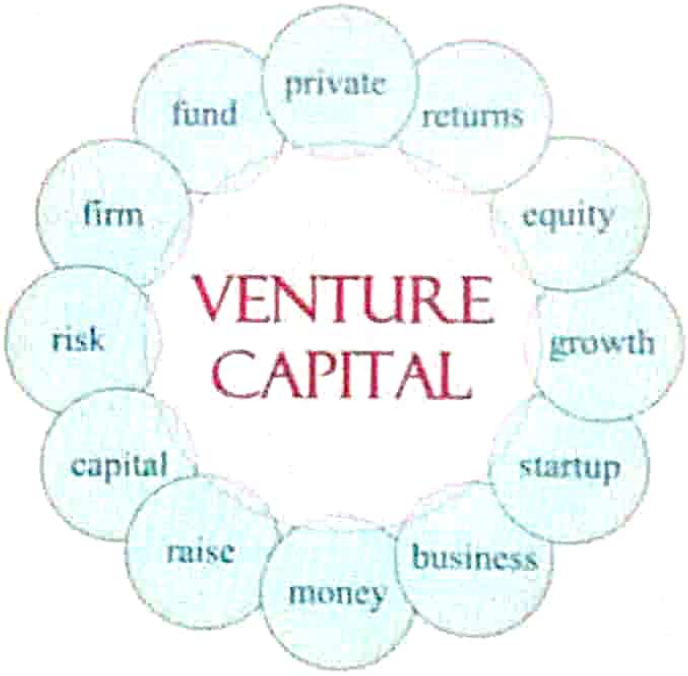
It is a private or institutional investment made into early-stage / start-up companies (new ventures). As defined, ventures involve risk (having uncertain outcome) in the expectation of a sizable gain. Venture Capital is money invested in businesses that are small; or exist only as an initiative, but have huge potential to grow. The people who invest this money are called venture capitalists (VCs). The venture capital investment is made when a venture capitalist buys shares of such a company and becomes a financial partner in the business.

Venture Capital investment is also referred to as risk capital or patient risk capital, as it includes the risk of losing the money if the venture doesn't succeed and takes a medium to long term period for the investments to fructify.

Venture Capital typically comes from institutional investors and high net worth individuals and is pooled together by dedicated investment firms.

It is the money provided by an outside investor to finance a new, growing, or troubled business. The venture capitalist provides the funding knowing that there's a significant risk associated with the company's future profits and cash flow. Capital is invested in exchange for an equity stake in the business rather than given as a loan.

Venture Capital is the most suitable option for funding a costly capital source for companies and most for businesses having large up-front capital requirements which have no other cheap alternatives. Software and other intellectual property are generally the most common cases whose value is unproven. That is why; Venture capital funding is most widespread in the fast-growing technology and biotechnology fields.



Features of Venture Capital investments

1. **High Degrees of Risk:**Venture capital represents financial investment in a highly risk project with the objective of earning a high rate of return.
2. **Equity Participation**Venture capital financing is, invariably, an actual or potential equity participation wherein the objective of venture capitalist is to make capital gain by selling the shares once the firm becomes profitable.
3. **Long Term Investment:**Venture capital financing is a long term investment. It generally takes a long period to encash the investment in securities made by the venture capitalists.
4. **Participation in Management:**In addition to providing capital, venture capital funds take an active interest in the management of the assisted firms. Thus, the approach of venture capital firms is different from that of a traditional lender or banker.It is also different from that of an ordinary stock

market investor who merely trades in the shares of a company without participating in their management.

Methods of Venture capital financing

- → Equity
- → participating debentures
- → conditional loan

FUNDING PROCESS

The venture capital funding process typically involves four phases in the company's development:

- → Idea generation
- → Start-up
- → Ramp up
- → Exit

Step 1: Idea generation and submission of the Business Plan

The initial step in approaching a Venture Capital is to submit a business plan. The plan should include the below points:

- → There should be an executive summary of the business proposal
- → Description of the opportunity and the market potential and size
- → Review on the existing and expected competitive scenario
- → Detailed financial projections
- → Details of the management of the company

There is detailed analysis done of the submitted plan, by the Venture Capital to decide whether to take up the project or no.

Step 2: Introductory Meeting

Once the preliminary study is done by the VC and they find the project as per their preferences, there is a one-to-one meeting that is called for discussing the project in detail. After the meeting the VC finally decides whether or not to move forward to the due diligence stage of the process.

Step 3: Due Diligence

The due diligence phase varies depending upon the nature of the business proposal. This process involves solving queries related to customer references, product and business strategy evaluations, management interviews, and other such exchanges of information during this time period.

Step 4: Term Sheets and Funding

If the due diligence phase is satisfactory, the VC offers a term sheet, which is a non-binding document explaining the basic terms and conditions of the investment agreement. The term sheet is generally negotiable and must be agreed upon by all parties, after which on completion of legal documents and legal due diligence, funds are made available.

Types of Venture Capital funding

The various types of venture capital are classified as per their applications at various stages of a business. The three principal types of venture capital are early stage financing, expansion financing and acquisition/buyout financing.

The venture capital funding procedure gets complete in six stages of financing corresponding to the periods of a company's development

→ Seed money: Low level financing for proving and fructifying a new idea

- → Start-up: New firms needing funds for expenses related with marketing and product development
- → First-Round: Manufacturing and early sales funding
- → Second-Round: Operational capital given for early stage companies which are selling products, but not returning a profit
- → Third-Round: Also known as Mezzanine financing, this is the money for expanding a newly beneficial company
- → Fourth-Round: Also called bridge financing, 4th round is proposed for financing the "going public" process

A. Early Stage Financing

Early stage financing has three subdivisions: seed financing, start up financing and first stage financing.

- → Seed financing is defined as a small amount that an entrepreneur receives for the purpose of being eligible for a start up loan.
- → Start up financing is given to companies for the purpose of finishing the development of products and services.
- → First Stage financing: Companies that have spent all their starting capital and need finance for beginning business activities at the full-scale are the major beneficiaries of the First Stage Financing.

B. Expansion Financing

Expansion financing may be categorized into second-stage financing, bridge financing and third stage financing or mezzanine financing.

Second-stage financing is provided to companies for the purpose of beginning their expansion. It is also known as mezzanine financing. It is provided for the purpose of assisting a particular company to expand in a major way. Bridge financing may be provided as a short term interest only finance option as well as a form of monetary assistance to companies that employ the Initial Public Offers as a major business strategy.

C. Acquisition or Buyout Financing

Acquisition or buyout financing is categorized into acquisition finance and management or leveraged buyout financing. Acquisition financing assists a company to acquire certain parts or an entire company. Management or leveraged buyout financing helps a particular management group to obtain a particular product of another company.

Advantages of Venture Capital

- → They bring wealth and expertise to the company
- → Large sum of equity finance can be provided
- → The business does not stand the obligation to repay the money
- → In addition to capital, it provides valuable information, resources, technical assistance to make a business successful

Disadvantages of Venture Capital

- → As the investors become part owners, the autonomy and control of the founder is lost
- → It is a lengthy and complex process
- → It is an uncertain form of financing
- → Benefit from such financing can be realized in long run only

Factors Influencing Capital Structure

1. **Expected Cash Flows:**Debentures and preference shares are often redeemable, i.e., they are to be paid back after their maturity. The expected cash flows over the years must be sufficient to meet the interest liability on debentures every year and also to return the maturity amount at the end of the term of debentures. Thus, debentures are not suitable for those companies which are likely to have irregular cash flows in future.
2. **Stability of Sales:**Stability of sales turnover enhances the company's ability to pay interest on debentures. If sales are rising, the company can use more debt capital as it would be in a position to pay interest. But if sales are unstable or declining, it would not be advisable to employ additional debt capital.
3. **Control over the Company:**The control of a company is entrusted to the Board of Directors elected by the equity shareholders. If the board of directors and shareholders of a company wish to retain control over the company in their hands, they may not allow to issue further equity shares to the public. In such a case, more funds can be raised by issuing preference shares and debentures.
4. **Flexibility of Financial Structure:**A good financial structure should be flexible enough to have scope for expansion or contraction of capitalisation whenever the need arises. In order to bring flexibility, those securities should be issued which can be paid off after a number of years.Equity shares cannot be paid off during the lifetime of a company. But redeemable preference shares and debentures can be paid off whenever the company feels necessary. They provide elasticity in the financial plan.
5. **Cost of Floating the Capital:**Cost of raising finance by tapping various sources of finance should be estimated carefully to decide which of the alternatives is the cheapest. Prevailing rate of interest, rate of return

expected by the prospective investors, and administrative expenses are the various factors which affect the cost of financing.Generally, the cost of financing by issuing debentures and preference shares for a reputed company is low. It is also essential to consider the floatation costs involved in the issue of shares and debentures, such as printing of prospectus, advertisement, etc.

6. **Period of Financing:**When funds are required for permanent investment in a company, equity share capital is preferred. But when funds are required to finance expansion programmes and the management of the company feels that it will be able to redeem the funds within the life-time of the company, it may issue redeemable preference shares and debentures.
7. **Market Conditions:**The conditions prevailing in the capital market influence the determination of the securities to be issued. For instance, during depression, people do not like to take risks and so are not interested in equity shares. But during the boom, investors are ready to take risk and invest in equity shares. Therefore, debentures and preference shares which carry a fixed rate of return may be marketed more easily during the periods of low activity.
8. **Types of Investors:**The capital structure is influenced by the likings of the potential investors. Therefore, securities of different kinds and varying denominations are issued to meet the requirements of the prospective investors. Equity shares are issued to attract the people who can take the risk of investment in the company. Debentures and preference shares are issued to attract those people who prefer safety of investment and certainty of return on investment.

Benefit to Owners

EBIT

Earnings Before Interest and Tax includes all profits from operations, before interest and income taxes are deducted. Normally, non-operating profits and non-operating expenses are not included in EBIT. Earnings Before Interest and Tax (EBIT) is a traditional measurement method that does not include the cost of capital. Other words for EBIT are Operating Profit and Operating Earnings.

EBIT focuses on the ability of a business to generate profit based on ongoing operations. Operating revenue is money earned by a business from regular operations and does not include changes in inventory value or non-recurring sources of income. Operating Expenses refer to transactions generated by the everyday operations of a business and would not include expenses from discontinued or non-recurring activities.

EBIT = Net Income + Interest + Taxes

Operating Income

Operating income is a company's profit after subtracting operating expenses and the other costs of running the business from total revenue. Operating income shows how much profit a company generates from its operations alone without interest or tax expenses. Operating income is calculated as:

Operating Income = Gross income - operating expenses

Operating expenses include selling, general and administrative expenses (SG&A), depreciation, and amortization, and other operating expenses. Operating income excludes taxes and interest expenses, which is why it's often

referred to as EBIT. However, there are times when operating income can differ from EBIT.

An **advantage** of EBIT is it is easy to calculate and observe at divisional or sub divisional levels of the firm.

A **disadvantage** of EBIT is it does not include the cost of capital. Compare EVA, CFROI and Economic Margin, which are all including the cost of capital.

Instead of EBIT, also the terms Operating Profit and Operating Earnings are widely used.

EBITDA

EBITDA stands for earnings before interest, taxes, depreciation and amortization. It is a way of measuring the cash flow of a business.

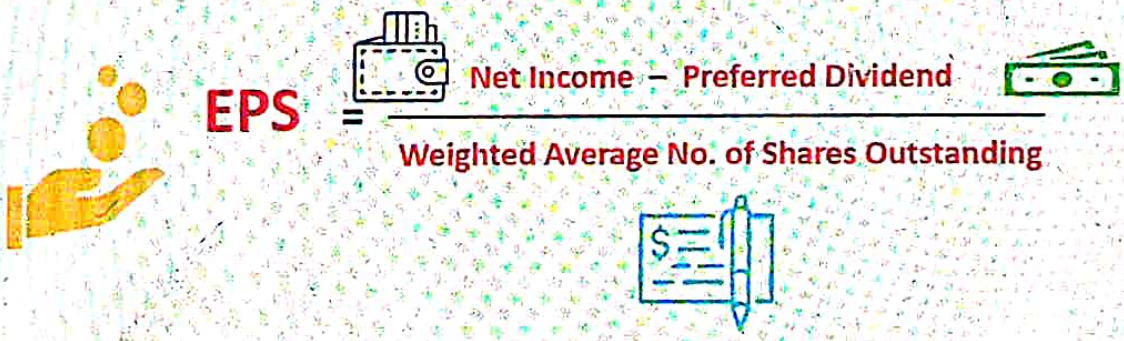
To calculate the EBITDA of a business, look to the income statement of the firm. You would take the total revenue and then account for all of the firm's operating cash outlays. This includes categories such as costs of goods and production, salaries and benefits, and rent and overhead.

Using EBITDA lets an analyst estimate a company's net cash flow. This gives an indication of the firm's operational health without calculating in abstract accounting losses. It also gives the analyst a sense of the firm's likely strength in terms of cash-heavy operations such as expansion, reinvestment and debt management.

However, analysts and investors should be careful when using EBITDA. While cash flow is a valuable metric for a firm's future performance, depreciation

and amortization are not hypothetical losses. They represent true deterioration over time. Investors who don't properly account for this as they review a company's performance can find themselves taken by surprise when a company is unable to effectively borrow or transform capital holdings into cash, when cash flow is disrupted for large-scale purchasing or when performance degrades due to aging equipment.

Earnings Per Share (EPS)



Earnings per share can be defined as that share of a company's profit that is distributed to each share of stocks. Further, it is considered to be a significant financial parameter as it helps to gauge a company's financial health. To elaborate, higher EPS reflects greater profitability from the company and its overall ventures.

EPS = (Net Income – Preferred Dividends)/End-of-Period Common Shares Outstanding

Typically, the company's balance sheet and its income statement are relied upon for EPS calculation. Also, it is often recommended to opt for the weighted average number of common shares as the number of shares may vary over a given period.

Types of Earnings Per Share

There are several variations of EPS, and each of them tends to signify a different aspect of this financial parameter. It is because, based on the use of EPS, a company's stock appears to be undervalued or overvalued.

Generally, EPS is divided into 3 broad categories, namely –

1. Trailing EPS: It is entirely based on the previous year's figures.
2. Current EPS: Mostly based on the current projections and available figures.
3. Forward EPS: Depends on anticipated future projections and estimated figures.

EBIT-EPS analysis

EBIT, better known as net operating Income Is earnings before interest and tax. EPS, better known as Earnings per share is calculated by dividing profit after taxes, PAT, [also called net income (NI)] by the number of shares outstanding.

When no leverage is employed with increasing EBIT, EPS also increases. Infact, EPS increases with improved EBIT under any mix of debt-equity plans. Financial leverage works both ways. It accelerates EPS (and ROE) under favourable economic conditions, but depresses EPS (and ROE) when the going is not good for the firm. With no leverage plan, If the firm's return on assets is positive, although low, the shareholders do obtain positive EPS or ROE. But It becomes lower with more debt used and even turns negative under very high leverage plans. The unfavourable effect on EPS (and ROE) is more severe with more debt in the capital structure when EBIT (or r) is negative. The reason again lies in the relationship between the return on assets and the cost of debt. If the cost of debt is more than the return on assets, EPS (or ROE) would depress with

more leverage. Whatever the firm earns on the funds raised through debt Is exactly paid to the suppliers of debt as interest charges.

The higher the financial leverage, the wider the range over which EPS varies with fluctuating EBIT. For any given level of variability in EBIT (or r), the increased financial leverage increases the degree of variability in EPS (or ROE). The indiscriminate use of financial leverage without taking into account the uncertainty surrounding EBIT (or r) can lead a firm into financial difficulties.

Thus shareholders will benefit by the use of the financial leverage in terms of the increased EPS if return on assets is higher than the interest cost, and will have reduced EPS if return on assets is lower than the interest cost. The shareholder's earnings will not be affected by the level of leverage if return on assets is just equal to the interest cost.

Point of Indifference

Point of indifference: Indifference point refers to that EBIT Level at which EPS (Earnings Per Share) remains the same, irrespective of the debt-equity mix. In other words, at this point, the rate of return on capital employed is equal to the rate of interest on debt.

It is computed by the following formula

$$\frac{X - Int1\ (1-T) - PD}{S1} = \frac{X - Int2\ (1-T) - PD}{S2}$$

X = EBIT at indifference point

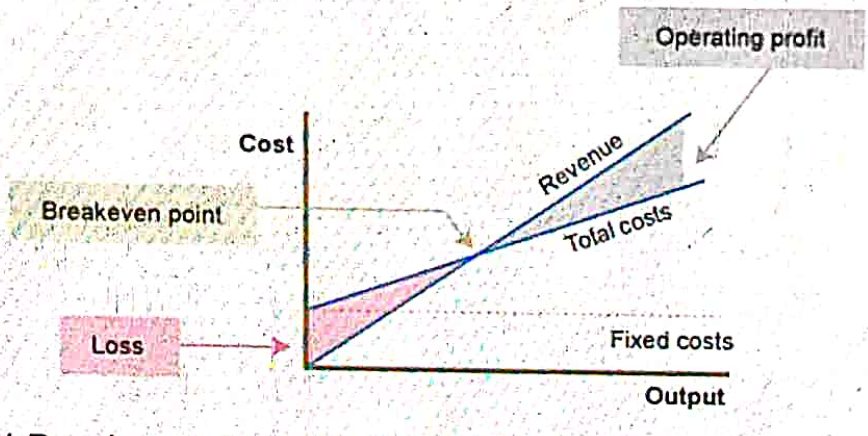
Int1 = Interest under alternative 1, Int2 = Interest under alternative 2

T = Tax rate, PD = Preference dividend

S1 = No. of equity shares under alternative 1

S2 = No. of equity shares under alternative 2

Financial Break-even Point



Financial Break-even Point Is the Level of earnings before interest and tax (EBIT) at which a firm's earnings per share is equal to zero.'The higher the point the financial risk of investment in the firm's stock (shares).

Financial Break-Even Point is the level of EBIT which Is equal to firm's fixed financial costs, which includes Interest and Preference Dividend.
It is the minimum level of EBIT required to pay off the commitments of Interest, preference dividend and tax Is Financial BEP. Anything beyond this point is profit to the shareholders.

The Financial BEP can be determined by the following formula Financial BEP = I + DP/(1+t)
Where i = Annual interest charges, Dp = Preference dividend, t = Tax Rate

Cost of capital

Cost of capital is defined as the minimum rate of return that a firm must earn on its investments so that market value per share remains unchanged.
Cost of debt refers to the minimum rate of return expected by the supplier of debt capital. It is an instrument that yields to protect the shareholdeer's interest.

$$Kd = \frac{Interest}{Net\ proceeds} \times (1 - tax)$$

Cost of equity and reserves. It refers to the minimum rate of return that a company must earn on the equity share capital financed portion of an investment project so that the market price of share does not change.

Weighted average cost of capital is nothing but overall cost of capital. In other words in case of WACC proper weightage is given to the cost of each and every source of funds i.e. proper assessment of relative proportion of each source of funds, to the total, is ascertained by considering either the book value or the market value of each source of funds.

The cost of equity is not the out-of-pocket cost of using these funds, that is, the cost of floatation and dividends;

It is rather the cost of the estimated stream of enterprise capital outlays derived from equity sources. The cost of obtaining funds through the sale of common stock may be determined in one of three ways: The first method uses the accepted earnings price ratio, the second method is to find a rate that will equate the present value to all future dividends per share to the current market price. The third way is to substitute earnings for dividends. This is known as the earnings model.

1st Method $\Rightarrow$ $Ke = \frac{Ea}{Po}$ where,Ke - Cost of equity capital

Ea - Expected average earning per share

Po - Price of share of equity stock, is sold

2ndMethod $\Rightarrow$ $Ke = \frac{Do}{Po} + g$ where,

Ke - Cost of equity capital,

Do - beginning dividend

Po - Price of share of stock is sold

g - Growth rate of dividend

3rdMethod $\Rightarrow$ Ke = $\frac{E}{Po}$ + g where

Ke - Cost of equity capital

E- Earning per share,

Po - Price of share of Stock if sold

g - growth rate of dividend

Measuring Cost of Capital

Cost of capital can be defined both from organization's and investor's point of view.

From an organization's point of view, cost of capital is a rate at which an organization raises capital to invest in various projects.

The basic motive of an organization to raise any kind of capital is to invest in its various projects for earning profit. Further, out of that profit, the organization pays interest and dividend to the sources of capital. The amount paid as interest and dividend is considered as cost of capital.

1. When the debt is issued at par

KD = [(1-T)×R]×100

Where,

KD = Cost of debt

T = Tax rate

R = Rate of interest on debt capital

KD = Cost of debt capital

2. Debt issued at premium or discount when debt is irredeemable

$KD = [1/NP^*(1-T) \times 100]$

Where,

NP = Net proceeds of debt

3. Cost of redeemable debt

$KD = [\{I (1-T) - H (P-NP/N) \times (1- T)\}/ (P - H NP/2)] \times 100$

Where,

N = Numbers of years of maturity

P = Redeemable value of debt

Cost of Preference Capital:

Cost of preference capital is the sum of amount of dividend paid and expenses incurred for raising preference shares. The dividend paid on

preference shares is not deducted from tax, as dividend is an appropriation of profit and not considered as an expense.

Cost of preference share can be calculated by using the following formulae

1. Cost of redeemable preference shares

$$KP = [\{D + F/N (1 - T) + RP/N\}/ \{P + NP/2\}] \times 100$$

Where,

KP = Cost of preference share

D = Annual preference dividend

F = Expenses including underwriting commission, brokerage, and discount

N = Number of years to maturity

RP = Redemption premium

P = Redeemable value of preference share

NP = Net proceeds of preference shares

2. Cost of irredeemable preference shares

$$KP = (D/NP) \times 100$$

Cost of Equity Capital

Calculating the cost of equity capital is a little difficult as compared to debt capital and preference capital. The main reason is that the equity shareholders do not receive fixed interest or dividend. The dividend on equity shares varies depending upon the profit earned by an organization. Risk factor also plays an important role in deciding the rate of dividend to be paid on equity capital.

The significance of cost of capital is as follows

1. **Capital Budgeting Decision:**Refers to the decision, which helps in calculating profitability of various investment proposals
2. **Capital Requirement:**Refers to the extent to which a fund is required by an organization at different stages, such as incorporation stage, growth stage, and maturity stage. When an organization is in its incorporation stage or growth stage, it raises more of equity capital as compared to debt capital. The evaluation of cost of capital increases the profitability and solvency of an organization as it helps in analyzing cost efficient financing mix.
3. **Optimum Capital Structure:**Refers to an appropriate capital structure in which total cost of capital would be least. Optimal capital structure suggests the limit of debt capital raised to reduce the cost of capital and enhance the Value of an organization.
4. **Resource Mobilization:**Enables an organization to mobilize its fund from non-profitable to profitable areas. Resource mobilization helps in reducing risk factors as an organization can shut down its unproductive projects and move the resources to productive projects to earn profit.
5. **Determination of duration of Project:**Refers to evaluating whether the project, for which the capital is raised, is long term or short term. If the project is long term in nature then the organization decides to raise equity

capital. However, if the project is short term in nature then the organization determines to raise debt capital.

Cost by Debit capital

The cost of debt capital may be derived by using a Formula that equates the present value of the expected future receipts with the cost of the project. It is the interest rate which equates the present value of the expected future receipts with the cost of the project. The present value of the tax - adjusted interest costs plus repayments of the principal is equated with the amount received at the time the loan is consummated.

$$CI_0 = \sum_{-}^{4} \frac{CO_t}{(1+k)^t}$$

Where

CI_0 = net amount received from lender

CO_t = tax adjusted sum of interest costs plus the repayment of principal

K = Market discount factor.

Internally generated funds

The opportunity cost of funds you Invest In the firrp is the Interest you could have earned if you had Invested those funds elsewhere. This cost is very real, and- your investment project has to generate enough cash to offset this lost opportunity.

Because the cost of using internally generated funds or equity is the lost opportunity for you to invest these funds In the next best alternative, you must

use a method that estimates the return the next best alternative generates. Typically, one of three methods - risk-premium, dividend valuation, or capital-asset pricing - is used to determine the cost

Weighted Average cost of capital (WACC)

WACC (Weighted Average cost of capital) gives us the overall cost of capital, Weightage is given to the cost of each source of fund by assessing the relative proportion of each source of fund to the total, and Is ascertained by using the book value or market value of each type of capital. Cost of capital of the market value Is usually higher than It would be If book value were used. The market value weights are sometimes preferred to the book value weights, for the market value represents the true expectations of the Investors. However, the market value weights' suffer from the following limitations.

1. It is very difficult to determine the market values because of frequent fluctuations.
2. With the use of market value weights, equity capital gets greater Importance.

For the above drawbacks, It Is better to use book value which Is readily available, WACC can be computed as which is readily available. WACC can be computed as follows.

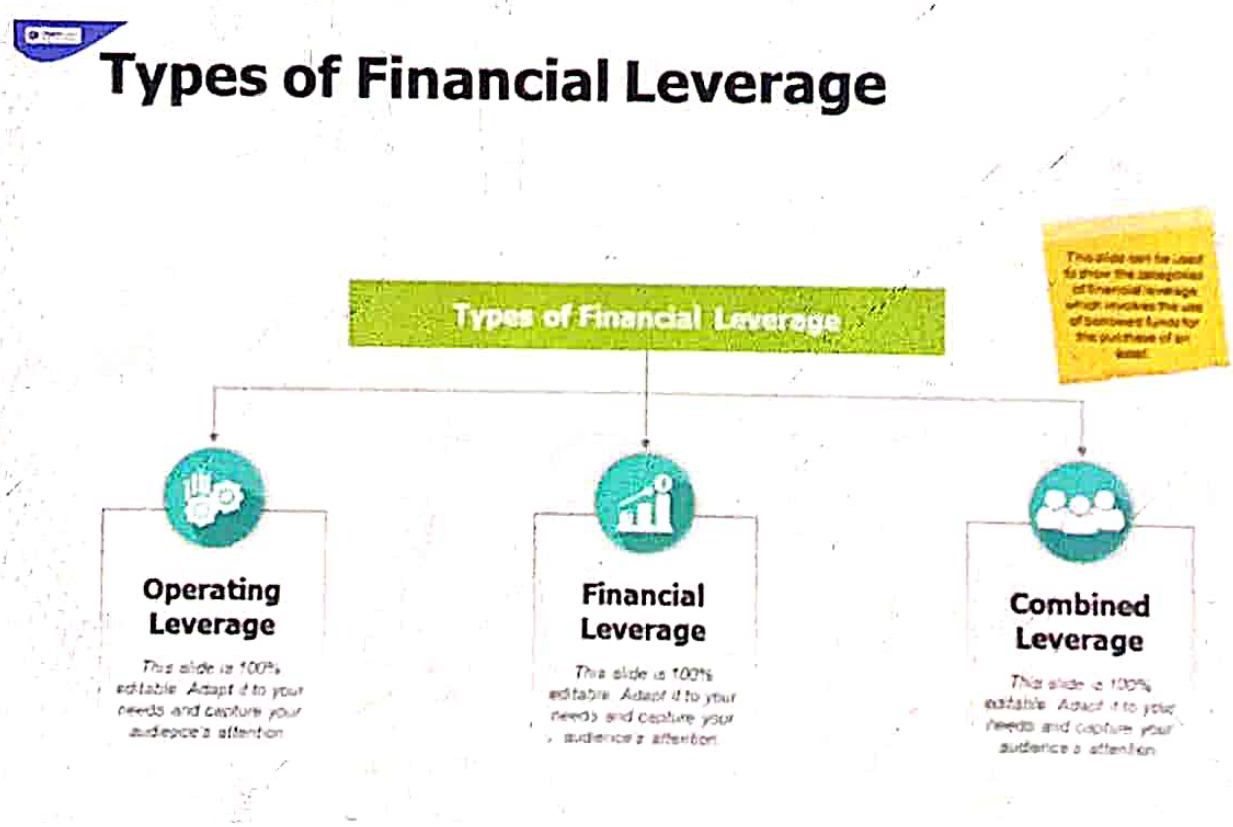
$$Kw = \frac{\Sigma XW}{\Sigma W}$$

where, Kw = WACC × Cost of specific source of finance
W= Weight, proportion of specific source of finance.

LEVERAGE

Leverage is the employment of fixed assets or funds for which a firm has to meet fixed costs or fixed rate of Interest obligation Irrespective of the level of activities attained or profit earned.

The types of leverages are:



1. Financial leverage
2. Operating leverage
3. Combined leverage.

The use of long term fixed interest and dividend bearing securities like debentures and preference shares along with equity is Called financial leverage or trading on equity. The object -ere is to get maximum benefit from the use of debt capital in order to give benefit to equity shareholders In the form of dividend.

The operating leverage occurs when a firm has fixed costs which must be recovered irrespect/ve of sales volume. The fixed costs remaining same the percentage change in operating revenue will be more than the percentage change in sales. This occurrence is known as operating leverage.

Operating leverage

1. to determine break-even sales
2. It measures operational efficiency of the fir
3. Increase in contribution, increases in profit
4. Decrease In contribution, decrease In profit

Financial leverage

1. It is associated with risk.
2. Higher the financial leverage; higher will the be risk.
3. Lower the financial leverage, lower will be the risk
4. Favourable when EPS Is positive
5. Unfavourable when EPS Is negative

Combined leverage

1. Increase In contribution, Increase In EPS, favourable
2. Decrease In contribution, Increase In EPS unfavourable

In an organisation leverage refers to tint use of debt content In capital structure to increase the profits of the organisation. It is a double edged weapon and emphasises the effects of deterioration as well as Improvement. Following are the limitations of financial leverage regarding trading on equity,

1. **Prevent new Investors from becoming shareholders of the company:** As the existing shareholders prefer to have more control and earning!,, so

they are In favour of debt financing. This leads to prevention of new Investors from becoming shareholders of I Im company,

2. **Control is not diluted of the management of the company:** Since the number of shareholders remains the same irrespective of increase in funds available by debts, so, the dilution of arrangement of the company does not take place. Each shareholder's holding and control in the management remains as it is So, they may misuse their holding or control the arrangement of the company.

3. **Fixed commitment /liability for future:** Debt or trading on equity creates a fixed obligation, commitment to be paid In the form of Interest, irrespective of the financial performance of the company. Even if a company suffers loss, it has to pay Interest on debt. This can be problematic if losses are faced by the company for continuous years.

4. **Investors in debts do not have any voting right or controlling authority In the management of the company:** Debt Investors do not have any voting right in the annual general meeting or the management of the company. They can only advise but do not have power to participate in. management and control of the company.

Relationship between leverage and cost of capital

According to the Net Operating Income (NOI) approach, the cost of equity is resumed to increase linearly with leverage. As a result, the weighted average cost of capital (WACC) remains constant and the total value of the firm also remains constant as leverage Is changed. According to NOI approach the market value of the firm is not affected by the capital structure changes. The market

value of the firm Is found out by capitalising the NOI at the overall, or the WACC, Ko, which Is a constant. The market value of the firm, V Is determined by

$V = (D + S) = \frac{NOI}{Ko}$ where,

S = Market value of equity,

D = Value of Debt

Ko is the overall capitalisation rate and depends on the business risk of the firm. It Is independent of financial mix. If NOI and Ko are Independent of financial mix, V will be a constant and Independent of capital structure changes. The critical assumptions- of the NOI approach are:

1. The market capitalises the value of the firm as a whole. Thus, the split between debt and equity is not Important.
2. The market uses an overall capitalisation rate, Ko to capitalise the NOI. Ko depends on the business risk.
3. The use of less costly debt funds Increases the risk of shareholders. This causes the equity capitalisation rate to increase.
4. The debt capitalisation rate, Kd, Is a constant.
5. Corporate income taxes do not exit.

The cost of equity, Ke, will be measured as follows:

$Ke = \frac{NOI - Interest}{V - D} = \frac{N1\ (Net\ Income)}{S}$

Alternatively, the cost of equity can be defined as follows:

$Ke = Ko + (Ko - Kd)\ \frac{D}{S}$ which Indicates that, If Ko and Kd are constant, Ke would Increase linearly with debt-equity ratio, D/S.

1. **Determine the earnings per share of a company which has operating profit of ₹ 4,80,000. Its capital structure consists of the following securities.**

Securities	**Amount**
10% debentures	15,00,000
12% preference shares	3,00,000
Equity shares of ₹100 each	12,00,000

The company is in the 55% tax bracket.

a. **Determine the company's EPSI.**
b. **Determine the percentage change in EPS, associated with 30% increase and 30% decrease in EBIT.**
c. **Determine the degree of financial leverage.**

Solutions:

(i) When EBIT is 4,80,000 what is the EPS?

EBIT	4,80,000
LESS: Interest 15,00,000 × $\frac{10}{100}$	1,50,000
EBT	3,30,000
LESS: Tax @ 55%	1,81,500

	1,48,500
LESS: Preference Dividend 3,00,000 × $\frac{12}{100}$	36,000
EAT	**1,12,500**

$$EPS = \frac{EAT \text{ or earning available to equity shareholders}}{Number \text{ of equity shareholders}}$$

$\frac{1,12,500}{12,000} = 9.38$ or 9.4

(ii) When EBIT increases by 30%

= Existing EBIT + Additional EBIT

= 4,80,000 + 30/100 x 4,80,000

= 4,80,000 + 1,44,000 = **6,24,000**

EBIT = 6,24,000

15,00,000 x $\frac{10}{100}$	
LESS: Interest	1,50,000
EBT	4,74,000
LESS : Tax@ 55%	2,60,700

EAT	2,13,300
LESS: Preference dividend ($3,00,000 \times \frac{12}{100}$	36,000
EAT	**1,77,300**

(iii) When EBIT reduced by 30%

Existing EBIT - 30% EBIT

$= 4,80,000 - 4,80,000 \times \frac{30}{100} = 4,80,000 - 1,44,000 =$ **3,36,000**

EBIT = 3,36,000

LESS: Interest $15,00,000 \times \frac{10}{100}$	1,50,000
Earning before tax EBT	1,86,000
LESS: Tax @ 55%	1,02,300
EAT	83,700
LESS: Preference dividend $3,00,000 \times \frac{12}{100}$	36,000
	47,700

$$EPS = \frac{EAT}{No.\ of\ ESH} = \frac{47,700}{12,000} = 3.9$$

(1) Percentage change in EPS at 30% increase in EBIT

$$\frac{EPS\ at\ EBIT\ 6{,}24{,}000 - EPS\ at\ 30\%\ increase\ at\ EBIT\ 4{,}80{,}000}{EPS\ at\ EBIT\ 4{,}80{,}000} \times 100$$

$$\frac{14.8-9.4}{9.4} \times 100 = 57.4\%\text{increase in EPS}$$

(2) Percentage change in EPS at 30% decrease in EBIT

$$\frac{EPS\ at\ EBIT\ 4{,}80{,}000 - EPS\ at\ EBIT\ 3{,}36{,}000}{EPS\ at\ EBIT\ 4{,}80{,}000} \times 100$$

$$\frac{9.4-3.9}{9.4} \times 100 = 58.5\%\text{decrease in EPS}$$

2. A company has a total investment of ₹ 10,00,000 in assets and ₹ 1,00,000 outstanding ordinary shares at ₹ 10 per share (per value). It earns a rate of 15 per cent on its investment and has a policy of retaining 50 percent of its earnings. If the appropriate discount rate of the firm is 10 percent, find the price of its share using Gordon's Mode of Dividend Relevance.

Solution:

The share valuation model of Gordon is :

$$P_o = \frac{D_1 V_1}{k-g} = \frac{(1-b)EPS_1}{k-b_r} = \frac{(1-b)rA}{k-b_r}$$

Where,

A = Investment per share, which is ₹10 in this case

Po = Price of Share

b = Retention ratio

r = Rate of return on investment

At a payout rate of 50% the price of the share is:

$$P_o = \frac{(1-0.50)0.15\times10}{0.10-0.15\times0.5} = \frac{0.75}{0.025} = ₹\,30$$

Hence, the price of share is ₹30

3. **A company needs ₹ 10,00,000 for construction of a new plant. The following three financial plans are feasible.**
   a. **The company may issue 1,00,000 ordinary shares at ₹ 10 per share.**
   b. **The company may issue 50,000 ordinary shares at ₹10 per share and 5,000 debentures of ₹ 100 denominations bearing 8% rate of interest.**
   c. **The company may issue 50,000 ordinary shares at ₹ 10 per share and 5,000 preference shares at ₹ 100 per share bearing a 8% rate of dividend.**

If the company's earnings before interest and taxes are ₹ 20,000, ₹ 40,000, ₹ 80,000, ₹ 1,20,000 and ₹ 2,00,000 shares. What are the earnings per share under each of the three financial plans? Which alternative would be recommended and why. Assume a corporate tax @ 50%.

Solution:

Computation of EPS under three financial plans

EBIT	20000	40000	80000	1,20,000	2,00,000
LESS: Interest	0	0	0	0	0
PBT	20000	40000	80000	120000	200000
LESS: Tax @ 50%	10000	20000	40000	60000	100000
PAT	10000	20000	40000	60000	100000
No. of Eqty. Shares	100000	100000	100000	100000	100000
EPS	wood	20000	40000	60000	100000
	100000	100000	100000	100000	100000
	= 0.10	= 0.20	= 0.40	= 0.6	= 1.00
Second alternative					
EBIT	20000	40000	80000	120000	200000
LESS: Int	40000	40000	40000	40000	. 40000
PBT	(20000)	0	40000	80000	160000
Tax @ 50%	(10000)	0	20000	40000	80000
PAT	(10000)	0	20000	40000	80000
, No. of eqt shares	50000	50000	50000	50000	50000
EPS =	(10000)	0	20000	40000	80000
	50000	50000	50000	50000	50000
=	(0.20)	0.00	0.40	0.8	1.60
Third Alternative					
EBIT	20000	40000	80000	120000	200000
LESS: Interest	0	0	0	0	0
PBT	20000	40000	80000	120000	200000
LESS: Tax	10000	20000	40000	60000	100000
PAT	10000	20000	40000	60000	100000
LESS: Pref, dividend					

	400000	40000	40000	40000	40000
	(30000)	(20000)	0	20000	60000
No. of Eqt Shares	.50000	50000	50000	50000	50000
EPS	(0.60)	(0.90)	(0.00)	(0.40)	(1-20)

Conclusion: The choice of a financial plan depends on the state of economic conditions. If the company experiences increasing sales, then a second financial alternative gives maximum EPS.

4. **The Trisha Ltd. needs 50,00,000 for construction of a new plant. The following three financial plans are feasible.**
   a. **The company may issue 50,000 equity shares at ₹ 100 per share.**
   b. **The company may issue 25,000 equity shares at ₹100 each and 2,500 debentures at ₹ 100 each at 8% interest.**
   c. **The company may issue 25,000 equity shares at ₹100 per share and 2,500 preference shares at ₹ 100 per share bearing an 8% rate of dividend.**

If the company's earnings before interest and taxes are 1,00,000, ₹ 2,00,000 and ₹ 4,00,000 what are the earnings per share under each of the three financial plans. Which alternative would you recommend and why? Assume corporate tax to be 50%.

Solution:

Details of Financial Plans

Financial Plan - I

50,000 Equity shares of ? 100 each — 50,00,000

Financial Plan - II

25,000 Equity shares of ? 100 each — 25,00,000

2,500 8% Debentures of Rs 100 each — 25,00,000

50,00,000

Financial Plan - III

25,000 Equity shares of ₹ 100 each — 25,00,000

2,500 8% Preference shares of ₹ 100 each — 25,00,000

50,00,000

Particulars	Financial Plan- I	Financial Plan- II	Financial Plan- III
EBIT	100,000	100,000	100,000
Less: Interest	-	(200,000)	-
EBT	100,000	(100,000)	100,000
Less: Tax @ 50%	(50,000)	-	(50,000)
Profit after Tax	50,000	(100,000)	50,000
Less: Preference Dividend	-	-	(200,000)
Profit for Equity Shareholders	50,000	(100,000)	(150,000)
No. of Equity Shares	50,000	25,000	25,000
EPS	1	(4)	(6)

Situation II- EBIT=2,00,000

Particulars	Financial Plan- I	Financial Plan- II	Financial Plan- III
EBIT	200,000	200,000	200,000
Less: Interest	-	(200,000)	-
EBT	200,000	-	200,000
Less: Tax @ 50%	(100,000)	-	(100,000)
Profit after Tax	100,000	-	100,000
Less: Preference Dividend	-	-	(200,000)
Profit for Equity Shareholders	100,000	-	(100,000)
No. of Equity Shares	50,000	25,000	25,000
EPS	2	-	(4)

Situation III- EBIT=4,00,000

Particulars	Financial Plan-I	Financial Plan-II	Financial Plan-III
EBIT	400,000	400,000	400,000
Less: Interest	-	(200,000)	-
EBT	400,000	200,000	400,00
Less: Tax @ 50%	(200,000)	(100,000)	(200,000)
Profit after Tax	200,000	100,000	200,000
Less: Preference Dividend	-	-	(200,000)
Profit for Equity Shareholders	200,000	100,000	-
No. of Equity Shares	50,000	25,000	25,000
EPS	4	4	-

a. If the EBIT of the company is below ₹ 4,00,000, then the company should go for Financial Plan -I, as the EPS is highest.

b. If the EBIT of the company is ₹ 4,00,000, then we are indifferent between Financial Plan -I and Financial Plan - II.

c. If the EBIT of the company is more than ₹ 4,00,000, then the company should go for Financial Plan -II since at that stage, the rate of return on capital employed will be more than the cost of debt thereby resulting in higher EPS for equity shareholders.

5. The Balance sheet of ABC company Ltd as on 31-12-2003 gives the following details

Balance Sheet

Liabilities		Assets	
Equity capital	30,00,000	Fixed Assets	40,00,000
Preference capital (5%)	6,00,000	Current Assets	10,00,000
10% Debentures	4,00,000		
Reserve and surplus			
Profits loss a/c	4,00,000		
General reserve	2,00,000		
Current liabilities	4,00,000		
	50,00,000		50,00,000

The net profit before Interest and tax amount to Rs 2,50,000 firm has the tax liability of 50%. Calculate return on capital employed and return on net worth ratio.

Solution:

a) Return on Equity capital employed

Profit before Interest and tax	2,50,000
Less: interest ($4,00,000 \times \frac{10}{100}$)	40,000
Profit after interest before tax	2,10,000
less: Tax at 50%	1,05,000
Profit after interest and tax	1,05,000

$$ROE = \frac{1,05,000 - \left(6,00,000 \times \frac{5}{100}\right)}{30,00,000} \times 100$$

$$= \frac{1,05,000 - 30,000}{30,00,000} \times 100 = \frac{75,000}{30,00,000} \times 100 = 2.5\%$$

b) Return on Net worth ratio

Situation No 1: Computation of return on Networth excluding preference dividend

Networth = Equity capital + Preference capital + Profit and loss a/c + Reserves.

= 30,00,000+6,00,000+4,00,000 + 2,00,000 = 42,00,000

Return on Net worth:

$$= \frac{Net\ profit\ after\ tax\ preference\ dividend}{Networth} \times 100$$

$$= \frac{1,05,000 - 30,000}{42,00,000} \times 100 = 1.78\%$$

6. A company currently has 100,000 shares of common stock outstanding with a market price of ₹ 2,600 per share It has ₹ 100 million in 6 percent debt. The company is considering a ₹ 150 million expansion program that it can finance with

   a. All common stock at ₹ 2,6000 a share
   b. Straight bonds at 8 percent-interest
   c. Preferred stock at ₹ percent, or
   d. Half common stock at ₹ 2,600 per share and half 8 percent bonds.

I. For a hypothetical EBIT level of ₹ 50 million after the expansion program, calculate the earnings per share for each of the alternative methods of financing. Assume a corporate tax rate of 30 percent.

II. Construct an EBIT-EPS chart. What are the indifference points between alternatives? What are your interpretations of them?

Solution:

(a) Earning Per share (EPS) under alternative financing favourable EBIT.

	Equity Financing	Debt Financing	Preference Financing	Half Equity Half Debt
EBIT	5,00,00,000	5,00,00,000	5,00,00,000	5,00,00,000

Less: Interest	60,00,000	1,80,00,000	60,00,000	1,20,00,000
PBT	4,40,00,000	3,20,00,000	4,40,00,000	3,80,00,000
Less: Taxes	1,32,00,000	96,00,000	1,32,00,000	1,14,00,000
PAT	308,00,000	2,24,00,000	308,00,000	2,66,00,000
Less: Pref. Dividend	0	0	105,00,000	0
Earning available to ordinary shareholder	3,08,00,000	2,24,00,000	2,03,00,000	2,66,00,000
Shares outstanding	1,57,692	1,00,000	1,00,000	1,28,846
EPS	195.32	224	203	206.45

(b) The indifference points are determined by formula and graphically as follows.

(i) Indifference points between first and second alternatives:

$$\frac{(1-0.30)(EBIT-60,00,000)}{1,57,692} = \frac{(EBIT-1,80,00,000)(1-0.30)}{1,00,000}$$

$$0.70\ EBIT - 42,00,000 = \frac{1,57,692}{1,00,000}(0.70\ EBIT - 1,26,00,000)$$

$$0.70\ EBIT - 42,00,000 = 1.58(0.70\ EBIT - 1,26,00,000)$$

0.70 EBIT - 42,00,000 = 1.11 EBIT - 1,99,08,000

1,57,08,000 = 0.41 EBIT

EBIT = 3,83,12,195

(ii) Indifference points between second and third alternatives:

$$\frac{(1-T)(EBIT-INT)}{N_1} = \frac{(1-T)(EBIT-INT)DIVP}{N_2}$$

$$\frac{(1-0.30)(EBIT-1,80,00,000)}{1,00,000} = \frac{[(1-0.30)(EBIT-60,00,000)-1,05,00,000]}{1,00,000}$$

$$\frac{0.70EBIT-1,26,00,000}{1,00,000} = \frac{0.70EBIT-42,00,000-1,05,00,000}{1,00,000}$$

0.70EBIT - 1,26,00,000 = 0.70 EBIT - 1,47,00,000

This comparison is not possible since $N_1 = N_2$

(iii) Indifference points between third and fourth alternatives:

$$\frac{(1-T)(EBIT-INT)DIVP}{N_1} = \frac{(1-T)(EBIT-INT)}{N_2}$$

$$\frac{[(1-0.30)(EBIT-60,00,000)-1,05,00,000]}{1,00,000} = \frac{(1-0.30)(EBIT-1,80,00,000)}{1,28,846}$$

0.70 EBIT - 1,47,00,000 = 0.78(0.70 EBIT - 84,00,000)

0.70 EBIT - 1,47,00,000 = 0.55 EBIT - 65,52,000

0.15 EBIT = 81,48,000

EBIT = 5,43,20,000

The firm is able to maximise the earnings per share when it uses debt financing. Though the rate of preference dividend is lower than the rate of interest on

bonds, EPS is high in case of debt financing because interest charges are tax deductible while preference dividends are not.

With increasing levels of EBIT, EPS will increase at a faster rate with a higher degree. However, if a company is not able to earn a rate of return on its assets higher than the interest-rate (or the preference dividend rate), debt (or preference financing) will have an adverse on EPS.

7. **The capital structure of ABC Ltd. consists of an ordinary share capital of ₹ 20,00,000 (₹ 100 par value) and ₹ 10,00,000 of 10% debentures. Sales increased by 20% from 100000 units to 120000 units. The selling price is ₹ 10 per unit, variable cost amount to ₹ 6 per unit and fixed expenses amount to ₹ 2,00,000, The tax rate is 40%.**

You are required to calculate the following:

a) **The degree of financial leverage and operating leverage at 100000 and 120000 units**

b) **Percentage of increase in EPS.**

c) **Comment on the behaviour of operating and financial leverages in relation to increase of production from 100000 units to 120000 units.**

Solution:

(a) Degree of financial leverage and operating leverage at 100000 and 12000 units

		Sales at 100,000 units	Sales at 1,20,000 units
Sales:	1,00,000×10	10,00,000	
	1,20,000×10		12,00,600

Less:	Variable cost		
	1,00,000×6	6,00,000	
	1,20,000×6		7,20,066
	Contribution	4,00,000	4,80,000
Less:	Fixed expenses	2,00,000	2,00,000
	EBIT	2,00,000	2,80,066
Less:	Interest on debentures	1,00,000	1,00,666
	EBIT	1,00,000	1^0,066
Less:	Tax @ 40%	40,000	72,000:
	EAT	60,000	1,08,000
Number	of equity shares	20,000	20,006
	EPS	₹3	₹5.40

Financial leverage at 1,00,000 and 1,20,000 units:

Financial leverage:

$$\frac{EBIT}{EBT} = \frac{2,00,000}{1,00,000} \& \frac{2,80,000}{1,80,000}$$

2 times & 1.56 times

Operating leverage at 1,00,000 and 1,20,000 units:

Operating leverage: $\frac{Contribution}{EBIT} = \frac{4,00,000}{2,00,000} \& \frac{4,80,000}{2,80,000}$

2 times & 1.71 times

(b) Percentage of increase in EPS:

From the table in (a) we have

EPS for 1,00,000 units as ₹3 and

EPs for 1,20,000 units as ₹ 5.40

Percentage change in EPS = $\frac{(5.40-3)}{3} \times 100 = 80\%$

(c) The financial and operating leverage are the same at sales of 1,00,000 units. However the degree of financial leverage and the operating leverage in case of increase In sales is lower than the earlier level. Since the operating leverage is not very high the firm will not suffer too much of a loss with a fall in sales. Also low financial leverages and relatively higher operating leverage is good for the company. It is not a risky company.

8. Varsha Ltd. has an average selling price of ₹ 30 per unit. Its variable costs are ₹ 21 and fixed costs are ₹ 4,00,000. All its assets are financed by equity funds. It pays 40% tax on income.

Trisha Ltd., is identical to Varsha Ltd., but its assets are financed by 50% equity and 50% debt, the interest on which amounts rs. 60,000.

Determine the degree of operating financial and combined leverage at ₹ 21,00,000 sales for both the firms and interpret the results.

Solutions:

	Varsha Ltd.	**Trisha Ltd**
Sales	21,00,000	21,00,000
Less: Variable cost	14,70,000	14,70,000

Contributing	6,30,000	6,30,000
Less: Fixed cost	4,00,000	4,00,000
EBIT	2,30,000	2,30,000
Less: Interest	-	60,000
EBT	2,30,000	1,70,000
Less: Tax	92,000	68,000
PAT	1,38,000	1,02,000
Operating Leverage=	Contribution / EBIT	Contribution / EBIT
	$\frac{6,30,000}{2,30,000} = 2.73$	$\frac{6,30,000}{2,30,000} = 2.73$
Combined Leverage=	Contribution / EBT	Contribution / EBT
	$\frac{6,30,000}{2,30,000} = 2.73$	$\frac{6,30,000}{1,70,000} = 3.70$

Both the firms have the same operating leverage as the sales and the total cost (both fixed and variable) are equal.

Trisha Ltd has a higher combined leverage than Varsha Ltd as. they have made use of debt in their capital structure. This also implies higher earnings per share for their shareholders.

9. **The ZBB Ltd. needs ₹ 5,00,000 for construction of a new plant. The following three financial plans are feasible.**
    a. **The company may issue 50,000 equity shares at ₹ 10 per share,**

b. **The company may issue 25,000 equity shares at ₹ 10 per share and 2,500 debentures of ₹ 100 denomination bearing 8% rate of interest,**

c. **The company may issue 25,000 equity shares at ₹ 10 per share and 2,500 preference shares at ₹ 100 per share bearing 8% rate of dividend.**

If the company's earnings before interest and taxes are ₹ 10,000 ₹ 20,000, ₹ 40,000, ₹ 60,000 and ₹ 10,000 what are the earnings per share under each of the three financial plans? Which alternative would you recommend and why? Assume corporate tax rate to be 50%.

Solution:

The following three plans are possible for the company.

Plan 1- Only Equity Shares

Plan 2- Equity shares anti Debentures

Plan 3 - Equity shares and preference shares

When profit before Interest and Tax Is ₹ 10,000

	Plan 1	Plan 2	Plan 3
Profit before Int 8t Tax	10,000	10,000	10,000
Interest	-	20,000	-
PBT	10,000	(10,000)	10,000
Tbx $ 50%	5,000	-	5,000
PAT	5,000	(10,000)	5,000
Preference Dividend	-	-	20,000

Distributable Profit	5,000	-	-
No.of Equity Shares	50,000	25,000	25,000
Earnings per share	**₹0.1**	-	-

B. When Profit before Interest and Tax is ₹ 20,000

	Plan 1	**Plan 2**	**Plan 3**
Profit before Int. & tax	20,000	20,000	20,000
Interest	-	20,000	-
PBT	20,000	-	20,000
Tax @ 50%	10,000	-	10,000
PAT	10,000	-	10,000
Preference Dividend	-	-	20,000
Distributable Profit	10,000	-	-
No.of Equity Shares	50,000	25,000	25,000
Earnings per share	**₹ 0.2**	-	-

When Profit before Interest & Tax is ₹ 40,000

	Plan 1	**Plan 2**	**Plan 3**
Profit before int & tax	40,000	40,000	40,000

Interest	-	20.000	-
PBT	40,000	20,000	40,000
Tax @ 50%	20,000	10,000	20,000
PAT	20,000	10,000	20,000
Preference Dividend	-	-	20.000
Distributable Profit	20,000	10,000	-
No. of Equity Shares	50,000	25,000	25,000
Earnings per share	**₹0.4**	**₹ 0.4**	-

When Profit before Interest & Tax is ₹ 60,000

	Plan 1	**Plan 2**	**Plan 3**
Profit before Int & tax	60,000	60,000	60,000
Interest	-	20,000	-
PBT	60,000	40,000	60,000
Tax @ 50%	30,000	20,000	30,000
PAT	30,000	20,000	30,000
Preference Dividend	-	-	20,000
Distributable profit	30,000	20,000	10,000
No.of Equity Shares	50,000	25,000	25,000
Earnings Per Share	**₹ 0.60**	**₹ 0.80**	**₹ 0.40**

E. When Profit before Interest & Tax is ₹ 7,1,00,000

	Plan 1	Plan 2	Plan 3
Profit before Int & tax	1,00,000	1,00,000	1,00,000
Interest	-	20,000	-
PBT	1,00,000	80,000	1,00,000
Tax 2 50%	50,000	40,000	50,000
PAT	50,000	40,000	50,000
Preference Dividend	-	-	20,000
Distributable profit	50,000	40,000	30,000
No.of Equity Shares	50,000	25,000	25,000
Earnings per share	**₹ 1.00**	**₹ 1.60**	**₹ 1.20**

10. AB Ltd. issues ₹ 1,00,000 9% debentures at a premium of 10%. The cost of floatation is ₹ 2,500. The tax rate applicable is 50%. Compute the cost of debt capital.

Solution:

Cost of Debt = Ki = $\frac{I}{Np} \times (1 - T)$

Np = 1,00,000 + 10% premium - Floatation cost

= 1,00,000 + 10,000 - 2,500

= 1,07,500

Ki = 9,000/1,07,500 (1 - 0.5) × 100 = 4.18 %

11. What is the net benefit cost ratio when the benefit cost ratio is 1.40:1?

Solution:

Benefit cost ratio	=	1.40:1
Total revenue	=	1.40
Cost	=	1
Therefore Net benefit	=1.40-1	
	= 0.40	

Therefore Net benefit cost ratio = 0.4 : 1

12. The Market price of the equity of a Ltd. Co. is ₹ 160. The dividend expected after a year is ₹ 12 per Share. The dividend is expected to grow at a constant rate of 4 percent per annum. Find the rate of return required by shareholders.

Solution:

$$\gamma_e = \frac{D_1 V_1}{P_0} + g$$

Where = Rate of return required by shareholders

P_o = Current market price

g= Growth rate of dividends.

$$\gamma_e = \frac{12}{160} + 0.04 = 0.075 + 0.04$$

γ_e =0.115 or 11.5%

13. A Ltd. company with net operating earnings ₹ 6,00,000 you want to evaluate possible capital structures, shown below, Which capital structure you will select? Why?

Capital Structure	Debt in capital structure	Cost of debt.	Cost of equity
1	₹ 6,00,000	10%	12%
2	₹ 8,00,000	10%	13%
3	₹ 10,00,000	11%	15%

Solution:

Computation of Market Value of firm, Value of shares of the Average Cost of Capital.

	(a) ₹ 6,00,000 10% deb.	(b) ₹ 8,00,000 10% deb.	(c) ₹ 10,00,000 11% deb.
Net operating Income	6,00,000	6,00,000	6,00,000
Less: Cost of debt	60,000	80,000	1,10,000

Earnings available to equity	5,40,000	5,20,000	4,90,000
Shareholders			
Equity Capitalisation Rate	12%	13%	15%
Market Value of Shares	$5,40,000 \times \frac{100}{12}$	$5,20,000 \times \frac{100}{13}$	$4,90,000 \times \frac{100}{15}$
	₹ 45,00,000	₹ 40,00,000	₹ 32,66,667
Market Value of Debentures	6,00,000	8,00,000	10,00,000
Market Value of Firm	51,00,000	48,00,000	42,66,667
Average Cost of Capital	$\frac{6,00,000}{51,00,000} \times 100$	$\frac{6,00,000}{48,00,000} \times 100$	$\frac{6,00,000}{42,66,667} \times 100$
Earnings Value of the firm	= 11.76%	= 12.5%	= 14.06 %

Comments:

It Is clear from the above that If debt of ₹ 6,00,000 @ 10% Is used the value of the firm Is maximum at ₹ 51,00,000. and the overall cost of capital Is minimum at 11.76%. Hence we shall select the capital structure 1 i.e. ₹ 6,00,000 debt 10%

14. XYZ Ltd. Co; has the following securities in Its capital structure.

Source	Amount (₹)
Debt	6,00,000

Preference capital	4,00,000
Equity capital	10,00,000
Total	20,00,000

The after tax cost of capital Is as follows

	After tax cost
Cost of debt	8%
Cost of preference shares	14%
Cost of equity capital	17%

From the above information compute weighted average cost of capital by using the book value weights.

Solution:

Sources of fund	Amount	Proportion	After tax cost	Weights
Debt	6,00,000	30	8	•2.4
Preference capital	4,00,000	20	14	2.8
Equity capital	10,00,000	50	17	8.5
	20,00,000	**100**		**13.7%**

Weighted average cost of capital is 13.7%.

15. From the following information compute operating leverages?

Sales	**3,00,000**
Variable cost	**1,00,000**
Fixed cost	**1,00,000**

Solution:

Sales	1,00,000
Less: Variable cost	1,00,000
Contribution	2,00,000
Less: Fixed cost	1,00,000
Profit/EBIT	1,00,000

Operating Leverage $= \frac{\text{Contribution}}{\text{EBIT}}$

$= \frac{2,00,000}{1,00,000}$

= 2 times

MODULE 4

LONG-TERM INVESTMENT DECISIONS

CAPITAL BUDGETING

Capital budgeting is the process of making investment decisions in long term assets. It is the process of deciding whether or not to invest in a particular project as all the investment possibilities may not be rewarding.

Thus, the manager has to choose a project that gives a rate of return more than the cost financing such a project. That is why he has to value a project in terms of cost and benefit.

Following are the categories of projects that can be examined using capital budgeting process:

- ➔ The decision to buy new machinery
- ➔ Expansion of business in other geographical areas
- ➔ Replacement of an obsolete equipment
- ➔ New product or market development etc

Thus, capital budgeting is the most important responsibility undertaken by a financial manager. This is because:

1. It involves the purchase of long term assets and such decisions may determine the future success of the firm.
2. These decisions help in maximizing shareholder's value.

3. Principles applicable to capital budgeting also apply to other corporate decisions like working capital management.

Process of Capital Budgeting

Following are the steps of capital budgeting process:

- → **Idea Generation:** The most important step of the capital budgeting process is generating good investment ideas. These investment ideas can come from a number of sources like the senior management, any department or functional area, employees, or sources outside the company.
- → **Analyzing Individual Proposals:** A manager must gather information to forecast cash flows for each project in order to determine its expected profitability. This is because the decision to accept or reject a capital investment is based on such an investment's future expected cash flows.
- → **Planning Capital Budget:** An entity must give priority to profitable projects as per the timing of the project's cash flows, available company resources, and a company's overall strategies. The projects that look promising individually may be undesirable strategically. Thus, prioritizing and scheduling projects is important because of the financial and other resource issues.
- → **Monitoring and Conducting a Post Audit:** It is important for a manager to follow up or track all the capital budgeting decisions. He should compare actual with projected results and give reasons as to why projections did not match with actual performance. Therefore, a systematic post-audit is essential in order to find out systematic errors in the forecasting process and hence enhance company operations.

Techniques of Capital Budgeting

Capital budgeting techniques are the methods to evaluate an investment proposal in order to help the company decide upon the desirability of such a proposal. These techniques are categorized into two heads : traditional methods and discounted cash flow methods.

Traditional Methods

Traditional methods determine the desirability of an investment project based on its useful life and expected returns. Furthermore, these methods do not take into account the concept of time value of money.

Payback Period Method

Payback period refers to the number of years it takes to recover the initial cost of an investment. Therefore, it is a measure of liquidity for a firm. Thus, if an entity has liquidity issues, in such a case, the shorter a project's payback period, better it is for the firm.

$$\text{Payback Period Formula} = \frac{\text{Initial Investment OR Original Cost of the Asset}}{\text{Cash Inflows}}$$

Therefore,

Payback period = Full years until recovery + (unrecovered cost at the beginning of the last year)/Cash flow during the last year

Here, full years until recovery is nothing but the payback that occurs when cumulative net cash flow equals to zero. Cumulative net cash flow is the running total of cash flows at the end of each time period.

Average Rate of Return Method (ARR)

Under the ARR method, the profitability of an investment proposal can be determined by dividing average income after taxes by average investment, which is average book value after depreciation.

Thus, ARR = Average Net Income After Taxes/Average Investment x 100

Where, Average Income After Taxes = Total Income After Taxes/Total Number of Years

Average Investment = Total Investment/2

Based on this method, a company can select those projects that have ARR higher than the minimum rate established by the company. And, it can reject the projects having ARR less than the expected rate of return.

Discounted Cash Flow Methods

As mentioned above, traditional methods do not take into the account time value of money. Rather, these methods take into consideration present and future flow of incomes. However, the DCF method accounts for the concept that a rupee earned today is worth more than a rupee earned tomorrow. This means that DCF methods take into account both profitability and time value of money.

Net Present Value Method (NPV)

NPV is the sum of the present values of all the expected incremental cash flows of a project discounted at a required rate of return less than the present value of the cost of the investment.

In other words, NPV is the difference between the present value of cash inflows of a project and the initial cost of the project. As per this technique, the projects whose NPV is positive or above zero shall be selected.

If a project's NPV is less than zero or negative, the same must be rejected. Further, if there is more than one project with positive NPV, then the project with the highest NPV shall be selected.

NPV = CF1/(1 + k)1 + ... CFn/ (1 + k)n + CF0

where CF0 = Initial Investment Outlay (Negative Cash flow)

CFt = after tax cash flow at time t

k = required rate of return

Internal Rate of Return (IRR)

Internal Rate of Return refers to the discount rate that makes the present value of expected after-tax cash inflows equal to the initial cost of the project.

In other words, IRR is the discount rate that makes present values of a project's estimated cash inflows equal to the present value of the project's estimated cash outflows.

If IRR is greater than the required rate of return for the project, then accept the project. And if IRR is less than the required rate of return, then reject the project.

PV (inflows) = PV (outflows)

NPV = 0 = CF0 + CF1/(1 + IRR)1 + ... CFn/ (1 + IRR)n + CF0

Profitability Index

Profitability Index is the present value of a project's future cash flows divided by initial cash outlay. Thus, it is closely related to NPV. NPV is the difference between the present value of future cash flows and the initial cash outlay.

Whereas, PI is the ratio of the present value of future cash flows and initial cash outlay.

PI = PV of future cash flows/CFO = 1 + NPV/CFO

Thus, if the NPV of a project is positive, PI will be greater than 1. If NPV is negative, PI will be less than 1. Therefore, based on this, if PI is greater than 1, accept the project otherwise reject.

Reference Material

Thus, the manager has to evaluate the project in terms of costs and benefits as all the investment possibilities may not be rewarding. This evaluation is done based on the incremental cash flows from a project, opportunity costs of undertaking the project, timing of cash flows and financing costs.

Therefore, it is the planning of expenditure and benefit that spreads over a number of years.

Capital budgeting process used by managers depends upon the size and complexity of the project to be evaluated, size of the organization and the position of the manager in the organization.

Establish norms for a company on the basis of which it either accepts or rejects an investment project. The most widely used techniques in estimating cost-benefit of investment projects.

These methods are used to evaluate the worth of an investment project depending upon the accounting information available from a company's books of accounts.

Objectives of Capital Budgeting

The following are the objectives of capital budgeting.

1. To find out the profitable capital expenditure.
2. To know whether the replacement of any existing fixed assets gives more return than earlier.
3. To decide whether a specified project is to be selected or not.
4. To find out the quantum of finance required for the capital expenditure.
5. To assess the various sources of finance for capital expenditure.
6. To evaluate the merits of each proposal to decide which project is best.

Features of Capital Budgeting

The features of capital budgeting are briefly explained below:

1. Capital budgeting involves the investment of funds currently for getting benefits in the future.
2. Generally, the future benefits are spread over several years.
3. The long term investment is fixed.
4. The investments made in the project is determining the financial condition of business organization in future.
5. Each project involves a huge amount of funds.
6. Capital expenditure decisions are irreversible.
7. The profitability of the business concern is based on the quantum of investments made in the project.

Principles of Capital Budgeting

Decisions should be based on incremental cash flows (not on accounting income as it is based on accrual basis):

- Exclude sunk costs

For example, already incurred costs like preliminary consulting fees should not be included in the analysis.

- Include externalities - Both positive/negative externalities should be considered in the analysis.

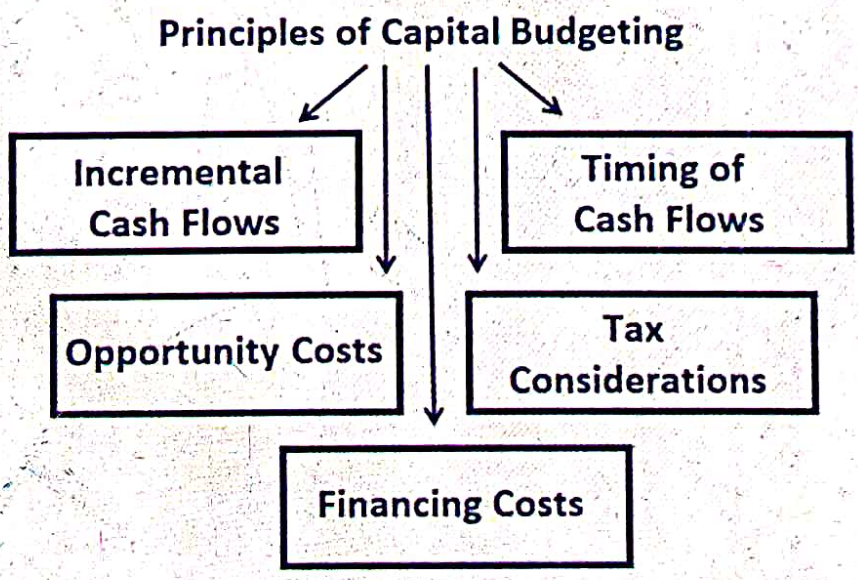
For example, the negative impact of a new diet soda product launch on the sales of existing soda products.

(Note: In a conventional cash flow, the sign of cash flows changes only once during the life of the project: while an unconventional cash flow has more than one sign change.)

1. **Timing of cash flows is vital:** Due to time value of money, cash flows received earlier are more valuable than cash flows received later.
2. Cash flows are based on opportunity cost

For example, if you plan to use an existing office space rather than renting it out, then rental income from the office space is an opportunity cost.

3. **Cash flows are analyzed on an after-tax basis:** Shareholder value increases only on the cash that they have earned. Hence, any tax expenses must be deducted from the cash flows..
4. **Financial costs are ignored:** Financial costs are already included in the cost of capital (discount rates) used to discount cash flows to arrive at the present value. Hence, to avoid double-counting, they must not be deducted from the project's cash flows.



Capital Budgeting Proposal

There are two broad evaluation methods for a capital budgeting proposal:

1. **Non-Discounted Cash Flow Methods:** These are the traditional methods and include payback period and the accounting rate of return (ARR). Their biggest disadvantage is that they ignore the time value of money. The payback method is skewed towards selection of projects with the shortest payback period; it ignores the timing of profits as well as expected profits after the payback period. The ARR is the average annual expected profits from the project divided by the project cost. It is superior to the payback method because it considers all future profits but its value is affected by computation—average pre-tax profits and average project cost will generate a higher ARR than post-tax profits and total project cost.
2. **Discounted Cash Flow (DCF Methods):** They take into account the time value of money. The methods include net present value, internal rate of return, and profitability index. All three methods consider the time value of money, use post-tax cash flows, and consider all cash flows over the project's life. They are therefore superior to traditional evaluation methods.

Computation of Cash Flows

A capital budgeting proposal requires an outflow of cash, either at the beginning of the project itself (initial outlay) or over the first few years. Depreciation (D) is a non-cash expense. The amount of depreciation per annum is known at the outset, based upon the depreciation method the company follows (such as the straight line method, or the written down value method).

Earnings before Depreciation and Taxes (EBDT) are revenues minus costs before deducting depreciation and corporate income tax payable. Earnings Before Tax (EBT) is the EBDT minus depreciation. Earnings after Tax (EAT) is EBT minus the tax payable. Cash Flows After Tax (CFAT) is earnings after tax (EAT) plus depreciation.

EAT = (EBDT – D) (1 – T) where 'T' is the tax rate

CFAT = EAT + D

or CFAT = (EBDT – D) (1 – T) + D

Cost of Capital:

It is the weighted average cost of capital (WACC).

Given cost of equity (ke), the after-tax cost of debt (kd), and weights of equity and debt (we and wd respectively), the WACC is:

$WACC = (k_e)\ (w_e) + (k_d)\ (w_d)$

Under the NPV method, the cost of capital is the discount rate used to compute the present value of after-tax cash flows. Under IRR, the cost of capital is the hurdle rate against which the project's IRR is compared.

Capital budgeting decisions

Generally the business firms are confronted with three types of capital budgeting decisions.

1. **Accept-reject decisions**: Business firm is confronted with alternative investment proposals. If the proposal is accepted, the firm incur the investment and not otherwise. Broadly, all those investment proposals which yield a rate of return greater than cost of capital are accepted and the others are rejected. Under this criterion, all the independent proposals are accepted.

2. **Mutually exclusive decisions:** It includes all those projects which compete with each other in a way that acceptance of one precludes the acceptance of other or others. Thus, some technique has to be used for selecting the best among all and eliminates other alternatives.
3. **Capital rationing decisions:** Capital budgeting decisions are a simple process in those firms where funds are not the constraint, but in the majority of the cases, firms have fixed capital budgets. So a large amount of projects compete for these limited budgets. So the firm rations them in a manner so as to maximize the long run returns. Thus, capital rationing refers to the situations where the firm has more acceptable investment requiring a greater amount of finance than is available with the firm. It is concerned with the selection of a group of investment out of many investment proposals ranked in the descending order of the rate or return.

Kinds of Capital Budgeting

Capital budgeting is basically a long term decision. Capital budgeting involves the planning and development of available financial resources with the object of maximising the long term profit earning capacity of the company.

The different kinds of capital' budgeting proposals are as follows:

a) **By project size:**Small projects may be approved by departmental managers. More careful analysis and Board of Directors' approval Is needed for large projects of, say, half a million dollars or more.

b) **By type of benefit to the firm:**
   i) an increase In cash flow.
   ii) a decrease in risk.
   iii) an Indirect benefit (showers for workers, etc).

c) **By degree of dependence:**

i) mutually exclusive projects (can execute project A or B, but not both).

ii) complementary projects:t taking project A Increases the cash flow of project B.

iii) substitute projects: taking project A decreases the cash flow of project B.

d) By degree of statistical dependence:

i) Positive dependence

ii) Negative dependence

iii) Statistical Independence.

e) By type of cash flow:

i) Conventional cash flow: only one change In the cash flow sign

ii) Non-conventional cash flows: more than one change in the cash flow sign

Methods for evaluating investment

At each point of time a business firm has a number of proposals regarding various projects in which it can Invest funds. But the funds available are limited and it is not possible to invest funds in all proposals at one time. Hence there Is a need for evaluation of profitability of the different proposals. The commonly used methods for this purpose are:

(A) Traditional Methods

(i) Payback Period method: The 'Payback' period method represents the period in which the total investment In permanent asset 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. The investment with a shorter payback period is preferred to the one which has a longer payback period.

$$\text{Payback period} = \frac{\textit{Cash outlay or Original Cost of Asset}}{\textit{Annual Cash Inflows}}$$

The main advantage of this method is that it is simple to understand and easy to calculate. It saves in cost, requires lesser time and labour as compared to other methods. However it does not take into account the cash inflows earned after the payback period and hence the true profitability of the project cannot be assessed. It also ignores the time value of money and does not consider the magnitude and. timing of cash inflows.

(ii) Average Rate of Return (ARR): This method takes into account the earnings expected from the investment over its whole life. Under this method, the accounting concept of profit is used rather than cash inflows. The project with the higher rate of return is selected as compared to the one with lower rate of return.

$$\text{ARR} = \frac{\textit{Average Annual Profit}}{\textit{average Investment}} \times 100$$

This method is simple to understand and easy to operate. It uses the entire Warnings of a project in calculating rate of return. As this method is based upon the accounting concept of profits, it can be readily calculated from financial data. However this method ignores the time value of money as the profits earned at different points of time are given equal weight by averaging the profits. It ignores the cash flows which are more important than accounting profits. It cannot be applied to a situation where investment in a project is to be made in parts.

(B) Time Adjusted Methods

The time adjusted or discounted cash flow methods take into account the profitability and also the time value of money.

(i) Net Present Value Method (NPV): This method takes into consideration the time value of money and attempts to calculate the return on investment by introducing the factor of time element. It recognises the fact that a rupee earned today Is Worth more than the same rupee earned tomorrow. The net present values of all inflows and outflows of cash occupied-during the entire life of the project is determined separately for each year by discounting these flows by the firm's cost of capital on a predetermined rate.

The present value of Re. 1 due in any number of years can be found by the following formula:

$$PV = \frac{1}{(1+r)^n} \text{ where}$$

PV = Present Value

r = Rate of Interest/discount rate

n = number of years.

The present value for all the cash inflows for a number of years in thus found as follows:

$$PV = \frac{A_1}{(1+r)^1} + \frac{A_2}{(1+r)^2} + \frac{A_3}{(1+r)^3} + \ldots + \frac{A_n}{(1+r)^n}$$

where,

$A_1, A_2, A_3, \ldots A_n$ = future net cash flows

2, 3, ... ,n = number of years

r = rate of interest

This method takes into account the time value of money and can be applied in a situation with uniform cash outflows and uneven cash inflows. It also considers the earnings over the entire life of the project and the objective of maximum profitability. However it is difficult to understand and operate. It may not give good results while comparing projects with unequal lives as the project having higher net present value but realised in a longer life span may not be as desirable as a project having something lesser net present value achieved in a much shorter span of life of asset. Also it is not easy to determine an appropriate discount rate.

(ii) Internal Rate of Return Method (IRR): Under this method the cash flows of a project are discounted at a suitable-rate by hit and trial method, which equates the net present value so calculated to the amount of the investment. The discount rate is determined internally. The IRR can be defined as that rate of discount at which the present value of cash inflows is equal to the present value of cash outflows.

$$C = \frac{A_1}{(1+r)^1} + \frac{A_2}{(1+r)^2} + \frac{A_3}{(1+r)^3} + \ldots + \frac{A_n}{(1+r)^n}$$

Where,

C = Initial outlay at Time Zero

$A_1, A_2, A_3, \ldots A_n$ = Future net cash flows at different periods

2, 3, ... ,n = number of years

r = rate of discount of internal rate of return.

This method takes into account the time value of money and can be usefully applied in situations with even as well as uneven cash flow at different periods of time. It considers the profitability of the project for its entire economic life. The determination of cost of capital is not a prerequisite for the use of this method. However, this method is difficult to understand and is the most difficult method of evaluation of proposals. Also this method is based upon the assumption that the earnings are reinvested at the internal rate of return for the remaining life of the project, which is not a justified assumption particularly when the average rate of return earned by the firm is not close to the IRR.

(iii) Profitability Index or Benefit Cost Ratio Method: It is the relationship between present value of cash inflows and the present value of cash outflows and is given by:

$$\text{Profitability Index (P.I)} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

$$\text{PI} = \frac{\text{PV of Cash inflows}}{\text{Initial cash outlay}}$$

$$\text{PI Net} = \frac{NPV}{\text{Initial Cash outlay}}$$

or P.I. (Net) = P.I (Gross) -1

The proposal is accepted if P.I. is more than one and vice versa.

Under this method it is easy to rank projects particularly when the costs of the projects differ significantly.

(iv) Terminal Value Method: This method is an improvement. oyer the NPV method. Under this method it is assumed that each of the future cash flows is immediately reinvested in another project at a certain rate of return until the termination of the project. In other words, net cash flows and outlay are compounded forward rather than discounting them backward as followed in NPV method. In case of a single project, the project Is accepted if the present value of the total of the compounded reinvested cash inflows is greater than the present value of the outlays, otherwise it is rejected. In case of mutually exclusive projects, the project with higher present value of the total of the compounded cash flows is accepted.

Hence, Present Value = $\frac{Compounded\ value\ of\ Cash\ Inflows}{(1+k)^n}$

Where, K = Cost of capital, n = life of project (years)

Payback period (PBP)

Payback period is the time required to recover the initial cost of an investment. It is the number of years it would take to get back the initial investment made for a project. Therefore, as a technique of capital budgeting, the payback period will be used to compare projects and derive the number of years it takes to get back the initial investment. The project with the least number of years usually is selected.

- → Payback period is a simple calculation of time for the initial investment to return.
- → It ignores the time value of money. All other techniques of capital budgeting consider the concept of time value of money. Time value of money means that a rupee today is more valuable than a rupee tomorrow.

So other techniques discount the future inflows and arrive at discounted flows.

→ It is used in combination with other techniques of capital budgeting. Owing to its simplicity the payback period cannot be the only technique used for deciding the project to be selected.

Advantages and Disadvantages

The most important advantage of this method is that it is very simple to calculate and understand. If the manager requires a rough idea about the time frame for which the money would be blocked, he need not sit with a pen, paper or a computer. It can be calculated on our fingertips. It can at least tell the manager whether the project is worth spending further analysis time or not.

There are two disadvantages to this method. One, it does not consider the cash flows after the payback period. Because of this, we cannot consider two projects with the same payback period as equally good. This method will give the same rating to two projects with the same initial cash flow of 100 million where cash inflow of one is 50 million in first two years and the other is 50 million for three years.

Second, it does not consider the time value of money. So, it is avoiding the basic rule of finance i.e. 'a dollar today is worth more than a dollar a year later.' In PBP, we calculate the years where the total investment is recovered. In true sense, it is only the principle which is covered; the portion of interest is still to be covered.

Other drawbacks include its inability to deal with uneven cash flows with negative cash flows in between. It may result in dual results.

Discounted Payback Period

It's a solution to one of the disadvantages mentioned above which says it does not take into account the time value of money. The discounted payback period is just a little different from the normal payback period calculations. We just need to replace the normal cash flows with discounted cash flows and the rest of the calculation will remain the same. It is also referred to as net present value (NPV) payback period.

Accounting Rate of Return

Accounting Rate of Return (ARR) is the percentage rate of return that is expected from an investment or asset compared to the initial cost of investment. Typically, ARR is used to make capital budgeting decisions. For example, if your business needs to decide whether to continue with a particular investment, whether it's a project or an acquisition, an ARR calculation can help to determine whether going ahead is the right move.

The Accounting Rate of Return formula is as follows:

- ARR = average annual profit / average investment

$$ARR = \frac{\text{AverageAccounting Profit}}{\text{Average Investment}}$$

Average accounting profit is the arithmetic mean of accounting income expected to be earned during each year of the project's lifetime. Average investment may be calculated as the sum of the beginning and ending book value of the project divided by 2. Another variation of the ARR formula uses initial investment instead of average investment.

Advantages and Disadvantages

Advantages

1. Like payback period, this method of investment appraisal is easy to calculate.
2. It recognizes the profitability factor of investment.

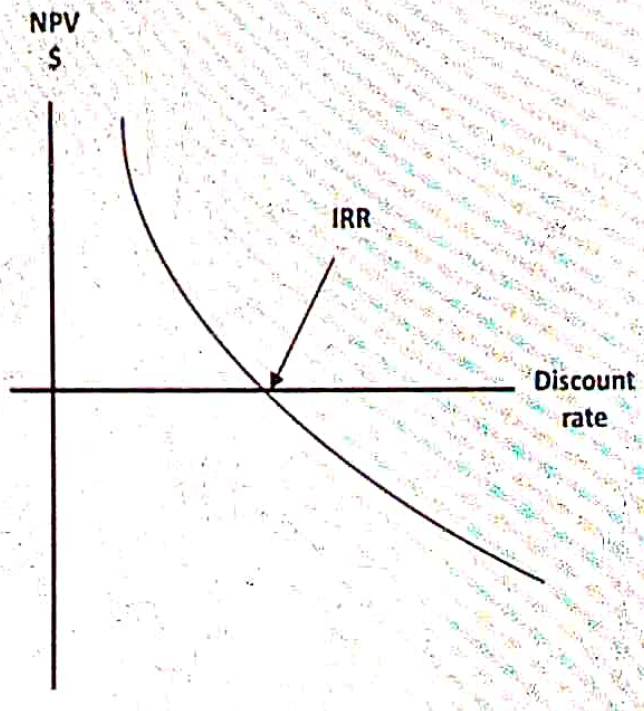
Disadvantages

1. It ignores the time value of money. Suppose, if we use ARR to compare two projects having equal initial investments. The project which has higher annual income in the latter years of its useful life may rank higher than the one having higher annual income in the beginning years, even if the present value of the income generated by the latter project is higher.
2. It can be calculated in different ways. Thus there is a problem of consistency.
3. It uses accounting income rather than cash flow information. Thus it is not suitable for projects which have high maintenance costs because their viability also depends upon timely cash inflows.

Internal Rate of Return (IRR)

The internal rate of return (IRR) is a discounting cash flow technique which gives a rate of return earned by a project. The internal rate of return is the discounting rate where the total of initial cash outlay and discounted cash inflows are equal to zero. In other words, it is the discounting rate at which the net present value(NPV) is equal to zero.

If the cash flows of a 'normal' (cash outflow followed by a series of cash inflows) project are taken and discounted at different discount rates, it will be possible to plot the following graph:



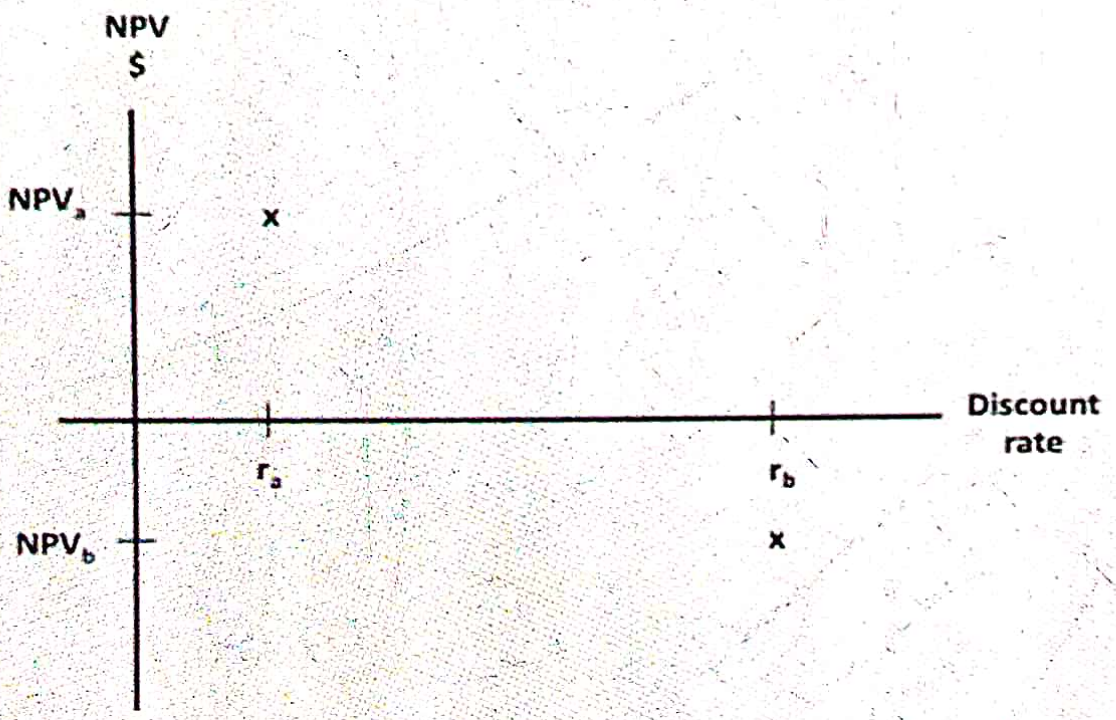
The discount rates used are on the x-axis, and the NPV ($) is on the y-axis. As you can see, the graph is a smooth curve, which crosses the x-axis. It is this point that we need to calculate the discount rate, which has produced a NPV of zero – this is the IRR.

It would be very time consuming to calculate the NPV of a project for many different discount factors and then plot the graph and estimate where the graph crosses the x-axis. Instead, there is a shortcut using the formula:

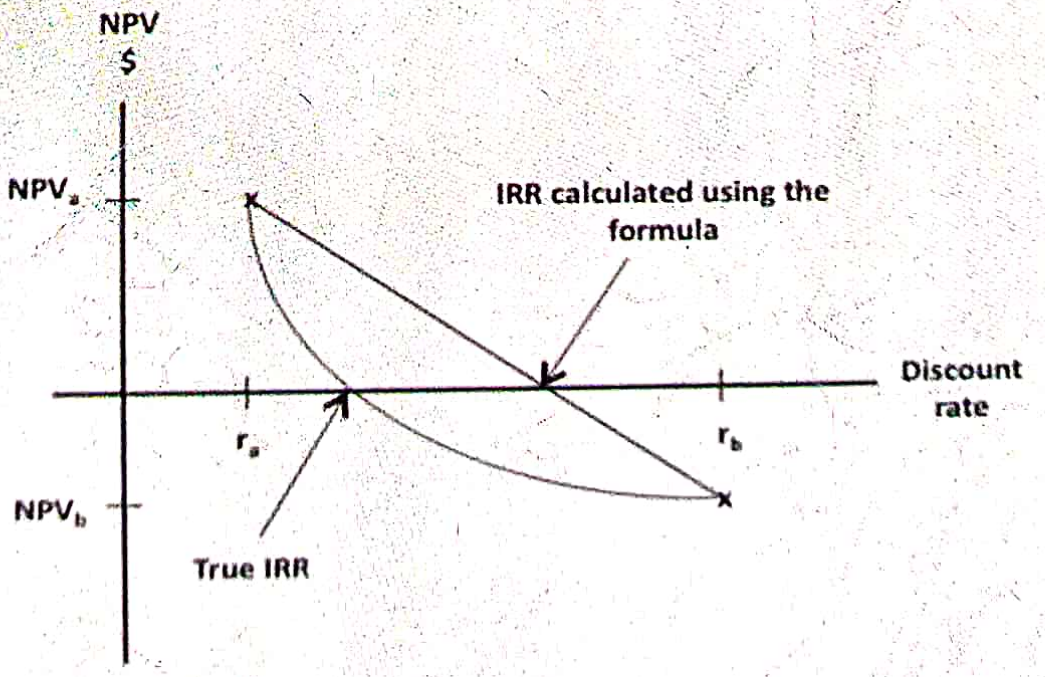
$$IRR = r_a + \frac{NPV_a}{NPV_a - NPV_b}(r_b - r_a)$$

r_a = lower discount rate chosen
r_b = higher discount rate chosen
N_a = NPV at r_a
N_b = NPV at r_b

In order to use the formula then, we need to take the cash flows of the project and discount them twice – once using a discount rate a%, and once using a discount rate b%. If we plot these results on a graph it would be as follows:



We know that the line joining these two points should be a curve, but the formula approximates the curve with a straight line and so calculates the point at which a straight line crosses the x-axis and is therefore the IRR:



The estimation is most accurate if one NPV used in the formula is positive and the other one is negative. So if a candidate chooses a discount factor and calculates the NPV of the project which turns out to be negative, a lower discount rate should be chosen for the next discounting so that there is a possibility of obtaining a positive NPV.

Net Present Value (NPV)

The Formula for NPV

$$NPV = \frac{\text{Cash flow}}{(1+i)^t}$$

Where:

i=Required return or discount rate

t=Number of time periods

If analyzing a longer-term project with multiple cash flows, the formula for the net present value of a project is:

$$NPV = \sum_{t=0}^{n} \frac{R_t}{(1+i)^t}$$

Where:

R_t=net cash inflow-outflows during a single period t

i=discount rate or return that could be earned in alternative investments

t=number of time periods

Positive NPV: If the present value of cash inflows is greater than the present value of the cash outflows, the net present value is said to be positive and the investment proposal is considered to be acceptable.

Zero NPV: If the present value of cash inflow is equal to the present value of cash outflow, the net present value is said to be zero and the investment proposal is considered to be acceptable.

Negative NPV: If the present value of cash inflow is less than the present value of cash outflow, the net present value is said to be negative and the investment proposal is rejected.

1. Present value of cash inflow > Present value of cash outflow
   NPV is positive and the project is acceptable

2. Present value of cash inflow = Present value of cash outflow
   NPV is zero and the project is acceptable

3. Present value of cash inflow < Present value of cash outflow
   NPV is negative and the project is not acceptable

Advantages

1. Considers the time value of money
2. Considers cash inflow of the entire project.
3. Estimation of present value of their cash flows based on a discounting rate equal to cost of capital.
4. Consistent with the objective of maximising the shareholders' wealth.
5. One of the most acceptable and adaptable methods of capital budgeting evaluation.

Disadvantages

1. Based on discount rate: In practical life, it is very difficult to understand and calculate as compared to ARR method or payback method
2. It does not consider the magnitude of the initial outlay and cash benefits together.
3. Does not give reliable answers if alternative projects have unequal effective lives.
4. This method is an absolute measure. When two projects are being considered, this method favours the project with higher NPV.

Modified Internal Rate of Return (MIRR)

Modified internal rate of return (MIRR) is a similar technique to IRR. Technically, MIRR is the IRR for a project with an identical level of investment and NPV to that being considered but with a single terminal payment.

In order to calculate MIRR, we first need to find future value of all cash inflows at the end of the project using an appropriate reinvestment rate, calculate the present value of all cash outflows at the relevant discount rate and then use the following formula to work out MIRR:

$$MIRR = (FVCI/PV_{CO})^{(1/n)} - 1$$

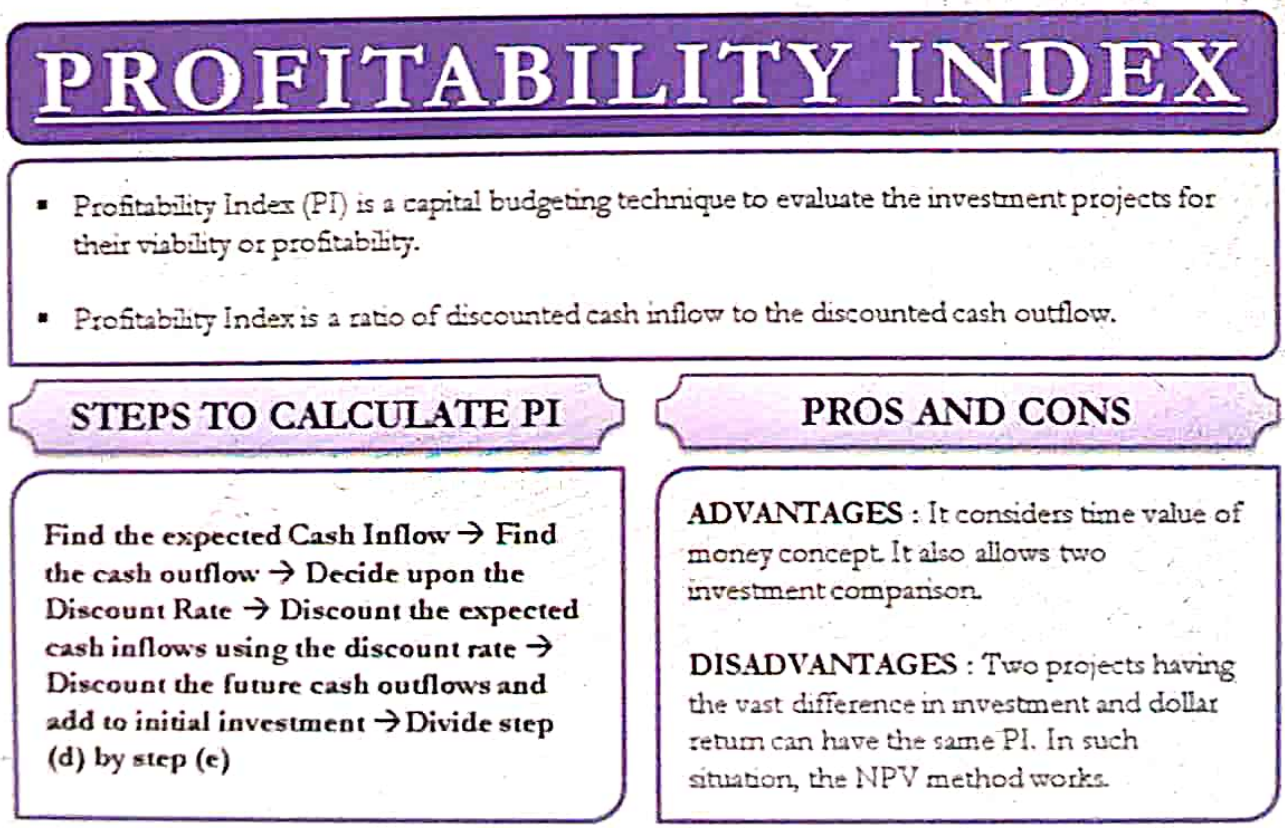
Profitability Index (PI)

Profitability Index (PI) is a capital budgeting technique to evaluate the investment projects for their viability or profitability. Discounted cash flow technique is used in arriving at the profitability index. It is also known as a benefit-cost ratio. Calculation of profitability index is possible with a simple

formula with inputs as – discount rate, cash inflows, and outflows. PI greater than or equal to 1 is interpreted as a good and acceptable criterion.

The method used for arriving at profitability index of a proposed project is explained stepwise below:

1. Find the expected cash inflows of the project
2. Find the cash outflows of the project (Initial Investment + any other cash outflow)
3. Decide an appropriate discount rate
4. Discount the expected cash inflows using the discount rate
5. Discount the future cash outflows and add to initial investment



Advantages of profitability Index

1. It recognizes the time value of money.

2. It considers all cash flows over the entire life of the project In its calculation.
3. If one tries to maximize projects, the use of NPV always finds the correct costs and revenues.
4. It Is easy to calculate compared to IRR.
5. It Is consistent with the objective of maximizing the welfare of owners.
6. It Is quite suitable for evaluating Investment proposals when their costs differ significantly.

Disadvantages of profitability method

1. It is a complicated method, In the sense that it Involves a good amount of calculations.
2. It is not suitable for ranking projects requiring different capital outlay.
3. There is a difficulty in determining the discount rate.

Economic value added method (EVA)

The EVA (Economic Value Added) is an indicator of profitability and a measure of financial performance, based on residual wealth. It is the excess profit above the cost of capital, generated by the business, adjusted for taxes, and presented on a cash basis. The consulting firm Stern Value Management developed the method. It represents the difference between the Rate of Return and Cost of Capital and measures the value generated by invested capital.

The Economic Value Added (EVA) attempts to capture the truest economic profitability of the company. Therefore, we also refer to it as Economic Profit.

A negative EVA means that the business is generating no value. Whereas, a positive EVA implies the company is creating value for the shareholders.

Capital Rationing

Capital rationing is defined as the process of placing a limit on the extent of new projects or investments that a company decides to undertake. This is made possible by placing a much higher cost of capital for the consideration of the investments or by placing a ceiling on a particular proportion of a budget.

A company might intend to implement capital rationing in scenarios where the past revenues generated through investments were not up to the mark.

Capital rationing is necessarily an approach of management in allocating the funds available across various opportunities of investment, thereby enhancing the bottom line of the company. The company will go on to accept the blend of projects that have the net present value (NPV) on the higher side.

The primary intention of the capital rationing is to make sure that a company is not going to invest heavily in assets. With insufficient rationing, a company may go on to witness the returns provided by their investments going on the lower side and may even reach a scenario where the company enters the stage of financial insolvency.

The first type of capital rationing is called hard capital rationing. This type of rationing happens if a company is having issues with raising excessive funds, either by means of debt or equity. The rationing happens from an external dependence in order to cut down on expenses and may result in the shortage of capital to raise enough money for projects in future.

The second kind of capital, rationing, is referred to as the soft capital rationing. It is also called internal rationing. This happens because of the internal policies of an organisation. A company that is financially conservative will have a

high required return on the capital invested in taking up projects in the coming days, thereby imposing self capital rationing.

PRACTICAL PROBLEMS

1. **A project requires an initial investment of ₹ 1,20,000 and yields an annual cash inflow of ₹ 40,000 for 7 years. What is the Payback period?**

Solution:

Payback period = $\frac{Original\ Investment}{Annual\ Cash\ Inflow} = \frac{1,20,000}{40,000}$ = 3Years

2. **Compute NPV from the following information given below.**

A project which requires an initial investment of ₹ 40,000 and which has a net cash inflow of ₹ 12,000 per annum for 6 years. The cost of funds is 8% . There is no scrap value (P.V. of annuity of Re. 1 for 6 years @ 8% per annum is 4.623)

Solution:

Present value of cash inflow (12,000x4.623)	55,476
LESS: Initial cash outlay	40,000
Net Present value	**15,476**

3. If the discount factor (cost of capital) is 12% and if tl is received after 2 years what is the present value?

Solution:

The formula for computing the Pv is

$$PV = \frac{1}{(1+i)^n} = \frac{1}{\left(1+\frac{12}{100}\right)^n} = \frac{1}{(1+0.12)^2} = \frac{1}{1.25} = 0.8$$

4. Keerthi Co., Ltd is considering the purchase of machinery. Two machinery S and T each costing ₹ 2,00,000 are available. Cash inflows are expected to be as under. Calculate

a) Payback Period

b) Post Pay back period Method.

Year	Machine S	Machine T
1	60,000	20,000
2	80,000	60,000
S	1,00,000	80,000
4	60,000	1,20,000
5	40,000	80,000

Solution:

$$PBP = \frac{Original\ Investment}{Annual\ Cash\ Inflow}$$

The above formula cannot be applied as the cash inflow of the projects are not uniform, thereby the second method i.e. cumulative method has to be adopted.

Machine "S"

Payback period method

Year	Cash Inflow	Cumulative Cash Inflow
1	60,000	60,000
2	80,000	1,40,000

$$= \frac{60000}{100000} = 0.6$$

∴ PBP is 2.6 years for Machine "S"

Machine "T"

Year	Cash Inflow	Cumulative Cash Inflow
1	20,000	20,000
2	60,000	80,000
3	80,000	1,60,000

$$= \frac{40000}{120000} = 0.33$$

∴ PBP is 3.33 years for Machine "T"

From the above, it is clear that Machine "S" is profitable according to pay back period method as it gives the Investment early.

Post Payback profitability

Machine "S"

Total Cash inflows of the project	3,40,000
(60,000+80,000+1,00,000+60,000+40,000)	
Less: Original Investment	2,00,000
Post Payback Profitability	1,40,000
Machine "T"	
Total cash inflows of the project	3,60,000
(20,000+60,000+80,000+1,20,000+80,000)	
Less: Original Investment	2,00,000
	1,60,000

From the above, it is clear that Machine "T" is profitable according to the post payback profitability method as the profit is more.

5. **Kiran Industries Limited is considering the purchase of a new machine which would carry out some operations; there are 2 alternative models under consideration for investment they are Polar & Sony.**

The following information is available in respect of both the machine:

	Polar	**Sony**
Estimated life in years	20	22
Cost of machines	₹12,00,000	₹ 20,00,000

Estimated savings in scrap p.a.	₹ 80,000	₹ 1,20,000
Additional cost of supervision p.a.	₹ 96,000	₹ 1,28,000
Additional cost of maintenance p.a.	₹ 56,000	₹ 88,000
Cost of indirect material p.a.	₹ 48,000	₹ 64,000
Estimated savings in wages		
a) Wages per worker pa	₹ 4,800	₹ 4,800
b) No. of workers not required	150	200

Using the method of pay back period suggest which is profitable

Solution:

Comparative Analysis of Cash inflows of two machine

	Polar (₹)	Sony (₹)
Total savings		
a. Estimated savings in scrap.	80,000	1,20,000
b. Estimated savings in wages		
Polar 4,800 x 150		
Sony 4,800 x 200	7,20,000	9,60,000
	8,00,000	10,80,000
Total additional cost		
a. Cost of supervision	96,000	1,28,000
b. Cost of maintenance	56,000	88,000

c. Cost of indirect material	48,000	64,000
	2,00,000	2,80,000
Total savings	8,00,000	1-0,80,000
LESS: Total additional cost	2,00,000	2,80,000
Cash inflow	**6,00,000**	**8,00,000**

Payback period: $\frac{Original\ Investment}{Annual\ cash\ inflow}$

POLAR = $\frac{12,00,000}{6,00,000}$ = 2Years SONY = $\frac{20,00,000}{8,00,000}$ = 2. 5Years

Machine Polar is profitable

6. Zenith Industries ltd., are thinking of investing in a project costing ₹ 20 lakhs. The life of the project is five years and the estimated salvage value of the project is zero. Straight line method of charging depreciation is followed. The tax rate is 50%. The expected cash flows before tax are as follows:

Year	1	2	3	4	5
Estimated cash flow before depreciation and tax (t lakhs)	4	6	8	8	10

You are required to determine the (i) Payback period for the investment (ii) Average rate of return (iii) Net present value (iv) Internal rate of return. Cost of capital is 10%

Solution:

a. Payback period

Year	1	2	3	4
Cash Inflow before tax & depreciation	4,00,000	6,00,000	8,00,000	8,00,000
(-) Depreciation	4,00,000	4,00,000	4,00,000	4,00,000
Cash inflow before tax	-	2,00,000	4,00,000	4,00,000
(-) Tax (50%)	-	1,00,000	2,00,000	2,00,000
Net cash inflow	-	1,00,000	2,00,000	2,00,000
Add: Depreciation	4,00,000	4,00,000	4,00,000	4,00,000
Cash inflow before depreciation & after tax	**4,00 000**	**5,00,000**	**6,00,000**	**6,00,000**

1st year cash inflow = 4,00,000

2nd year cash inflow = 5,00,000

3rd year cash inflow = 6,00,000

4th year cash inflow (required)= 5,00,000

Payback period = 3 year & $\frac{5,00,000}{6,00,000} = 3.83$years

b. Average Rate of Return

Annual average net earning = $\frac{0 + 1{,}00{,}000 + 2{,}00{,}000 + 2{,}00{,}000 + 3{,}00{,}000}{5} = 1{,}60{,}000$

APR = $\frac{Annual\ Average\ Net\ earnings}{Average\ Investment} = \frac{1{,}60{,}000}{10{,}00{,}000} \times 100 = 16\%$

c. Net Present value

Year	Cash inflow	PV at 10% discount	PV of cash inflow
1	4,00,000	0.909	3,63,600
2	5,00,000	0.826	4,13,000
3	6,00,000	0.751	4,50,600
4	6,00,000	0.683	4,09,800
5	7,00,000	0.621	4,34,700
			20,71,700

Net Present value = PV of cash Inflow - original investment = **71,700**

iv) Internal Rate of Return

Factor = $\frac{Original\ Investment}{Average\ cash\ inflow} = \frac{20{,}00{,}000}{5{,}60{,}000} = 3.57$

Factor, 3.57, will be between 11% and 13%

PV of cash inflow @ 11%

Year	Cash inflow	PV factor	PV of cash inflow
1	4,00,000	0.901	3,60,400

2	5,00,000	0.812	4,06,000
3	6,00,000	0.731	4,38,600
4	6,00,000	0.659	3,95,400
5	7,00,000	0.593	4,15,100
			20,15,500

PV of cash inflow @ 13%

Year	Cash inflow	PV factor	PV of cash inflow
1	4,00,000	0.885	3,54,000
2	5,00,000	0.783	3,91,500
3	6,09,000	0.693	4,15,800
4	6,00,000	0.613	3,67,800
5	7,00,000	0.543	3,80,100
			19,09,200

IRR = $A+\frac{C-O}{C-D} \times (B - A)$

where A= 11, B= 13, C= 20, D = 19,09,200, O = 2,00,00,000

$\Rightarrow 11+\frac{20,15,500-20,00,000}{20,15,500-19,09,200} \times 2 \Rightarrow 11 + \frac{15,500}{1,06,300} \times 2 = 11.29\%$

MODULE 5

SHORT-TERM FINANCING AND INVESTMENT DECISIONS

In an ordinary sense, working capital denotes the amount of funds needed for meeting day-to-day operations of a concern.

This is related to short-term assets and short-term sources of financing. Hence it deals with both assets and liabilities—in the sense of managing working capital it is the excess of current assets over current liabilities.

Concept of Working Capital

The funds invested in current assets are termed as working capital. It is the fund that is needed to run the day-to-day operations. It circulates in the business like the blood circulates in a living body. Generally, working capital refers to the current assets of a company that are changed from one form to another in the ordinary course of business, i.e. from cash to inventory, inventory to work in progress (WIP), WIP to finished goods, finished goods to receivables and from receivables to cash.

There are two concepts in respect of working capital:

1. Gross working capital and
2. Net Working capital.

Gross Working Capital

The sum total of all current assets of a business concern is termed as gross working capital. So,

Gross working capital = Stock + Debtors + Receivables + Cash.

Net Working Capital

The difference between current assets and current liabilities of a business concern is termed as the Net working capital.

Hence,

Net Working Capital = Stock + Debtors + Receivables + Cash – Creditors – Payables.

Nature of Working Capital

The nature of working capital is as discussed below:

1. It is used for purchase of raw materials, payment of wages and expenses.
2. It changes form constantly to keep the wheels of business moving.
3. Working capital enhances liquidity, solvency, creditworthiness and reputation of the enterprise.
4. It generates the elements of cost namely: Materials, wages and expenses.
5. It enables the enterprise to avail the cash discount facilities offered by its suppliers.
6. It helps improve the morale of business executives and their efficiency reaches at the highest climax.
7. It facilitates expansion programmes of the enterprise and helps in maintaining operational efficiency of fixed assets.

Need for Working Capital

Working capital plays a vital role in business. This capital remains blocked in raw materials, work in progress, finished products and with customers.

1. Adequate working capital is needed to maintain a regular supply of raw materials, which in turn facilitates smoother running of the production process.
2. Working capital ensures the regular and timely payment of wages and salaries, thereby improving the morale and efficiency of employees.
3. Working capital is needed for the efficient use of fixed assets.
4. In order to enhance goodwill a healthy level of working capital is needed. It is necessary to build a good reputation and to make payments to creditors in time.
5. Working capital helps avoid the possibility of under-capitalization.
6. It is needed to pick up stock of raw materials even during economic depression.
7. Working capital is needed in order to pay a fair rate of dividend and interest in time, which increases the confidence of the investors in the firm.

Importance of Working Capital

It is said that working capital is the lifeblood of a business. Every business needs funds in order to run its day-to-day activities.

1. It helps measure profitability of an enterprise. In its absence, there would be neither production nor profit.
2. Without adequate working capital an entity cannot meet its short-term liabilities in time.
3. A firm having a healthy working capital position can get loans easily from the market due to its high reputation or goodwill.

4. Sufficient working capital helps maintain an uninterrupted flow of production by supplying raw materials and payment of wages
5. Sound working capital helps maintain optimum level of investment in current assets
6. It enhances liquidity, solvency, credit worthiness and the reputation of enterprise.
7. It provides necessary funds to meet unforeseen contingencies and thus helps the enterprise run successfully during periods of crisis.

Components of Working Capital:

A. Current Assets

These assets are generally realized within a short period of time, i.e. within one year.

Current assets include:

1. Inventories or Stocks
    a. Raw materials
    b. Work in progress
    c. Consumable Stores
    d. Finished goods
2. Sundry Debtors
3. Bills Receivable
4. Pre-payments
5. Short-term Investments
6. Accrued Income and
7. Cash and Bank Balances

B. Current Liabilities

Current liabilities are those which are generally paid in the ordinary course of business within a short period of time, i.e. one year.

Current liabilities include:

1. Sundry Creditors
2. Bills Payable
3. Accrued Expenses
4. Bank Overdrafts
5. Bank Loans (short-term)
6. Proposed Dividends
7. Short-term Loans
8. Tax Payments Due

Factors Determining the Requirements of Working Capital

1. **Sales:**Among the various factors, size of the sales is one of the important factors in determining the amount of working capital. In order to increase sales volume, the enterprise needs to maintain its current assets. In the course of period, the enterprise becomes in the position to keep a steady ratio of its current assets to annual sales. As a result, the turnover ratio, i.e., current assets to turnover increases reducing the length of operating cycle. Thus, less the operating cycle period, less will be requirements for working capital and vice versa.

2. **Length of Operating Cycle:**Conversion of cash through various stages viz., raw material, semi-processed goods, finished goods, sales, debtors and bills receivables into cash takes a certain period of time that is known as 'length of operating cycle'. Longer the operating cycle time, the more is the working capital required.
3. **Nature of Business:**The requirement of working capital also varies among the enterprises depending upon the nature of the business. For instance, trading companies require more working capital than manufacturing companies. This is because the trading business requires large quantities of goods to be held in stock and also carry large amounts of working capital than manufacturing concerns.In both these types of businesses, the value of current assets is 80% to 90% of the value of total assets. The investment in current assets is relatively smaller in the case of hotels and restaurants because they mostly have cash sales, and only small amounts of debtors' balances.
4. **Terms of Credit:**Another important factor that determines the amount of working capital requirements relates to the terms of credit allowed to the customers. For instance, an enterprise may allow only 15 days credit, while another may allow 90 days credit to its customers. Besides, an enterprise may extend credit facilities to its all customers, while another enterprise in the same business may extend credit only to select and those too reliable customers only.Then, the requirements for working capital will naturally be more if the credit period is longer and credit facilities are extended to all customers, no matter how reliable or unreliable they are. This is because there will be a longer balance of debtors and that too for a relatively longer period which will obviously demand for more capital.On the contrary, if supplies of raw materials are available on favourable conditions or terms of credit i.e., the payment will be made after a relatively longer period of time, the requirement for working capital will be correspondingly smaller.

5. **Seasonal Variations:**The seasonal enterprises, i.e., the enterprise whose operations pick up seasonally may require more working capital to meet their increased operations during the particular season. A popular example of seasonal enterprise may be sugar factories whose operations are highly seasonal.
6. **Turnover of Inventories:**If inventories are large in size but turnover is slow, the small-scale enterprise will need more working capital. On the contrary, if inventories are small but their turnover is quick, the enterprise will need a small amount of working capital.
7. **Nature of Production Technology:**In case of labour intensive technology, the unit will need more amount to pay the wages and, therefore, will require more working capital. On the other hand, if the production technology is capital- intensive, the enterprise will have to make less payment for expenses like wages. As a result, enterprise will require less working capital
8. **Contingencies:**If the demand for and price of the products of small- scale enterprises are subject to wide variations or fluctuations, the contingency provisions will have to be made for meeting the fluctuations. This will obviously increase the requirements for working capital of the small enterprises. While one can add certain other factors to this list, the said factors appear to be the major ones in determining the requirement of working capital of a small-scale enterprise.

Sources of working capital

1. Public Deposits is a significant source of working capital. It is an unsecured loan. It is taken by the company from the depositor for a short period. The maximum duration is three years. It has a high rate of interest. It is very popular in India. All types of companies widely use it because it gives many benefits. The procedure for taking it is simple. It is very economical.

Here, the company can trade on equity, the capital becomes flexible, so on. However, it is not suitable for all firms and is only suitable for reputed ones.

2. Bank Credit is also called Bank Loan. It is a well-known source of working capital. Manufacturing and trading companies use it. It is a secured loan. That is, the company first has to give some security to the bank only then the bank approves the loan. Once approved, later the company has to pay interest on the loan. Commercial and Co-operative Banks give bank credit. It is given for short and long periods. It is very lengthy and time-consuming. It involves many formalities. Therefore, many companies take private loans instead of bank loans. Banks give credit through following ways:
    1. Demand Loans,
    2. Advances,
    3. Overdrafts,
    4. Cash Credit,
    5. Letter of Credit,
    6. Discounting of Bills, etc.

3. Trade Credit: Dealers purchase goods from the company and sometimes give an advance payment. This advance payment is called Advance from Dealers or Trade Credit. The company uses this money as a working capital. So, trade credit is another source of working capital. It is readily available. It is given for 60 to 90 days. Here, the rate of interest is low. Companies that have a monopoly in the market gets this credit. It is given for the Consumer Durable Goods like scooters, motorbikes, cars, televisions, refrigerators, etc.

4. Advance from Customers: Sometimes, customers also make an advance payment to the company. The company uses this money paid in advance as a working capital. Hence, the advance from customers is a source of working capital for it. For example, a luxury automobile manufacturer gets an advance from customers who have booked a car. Today, it is difficult to get such an advance from customers because of rising competition in the market.

5. Income from Sales: The company sells its goods and earns income. This income later gets used as a working capital. Income earned from sales is the largest source of working capital for most companies.

6. Self Financing: The company does not distribute its all profits to the shareholders. It saves a part of profits. This saving gets used as a working capital. So, the company uses its own savings as working capital. Such behaviour is called Self Financing or Ploughing Back of Profits. Self-financing is very economical because there is no need to pay any interest.

7. Issue of Shares: The company issues shares to the public. It gets equity share capital. This equity share capital gets used as a long-term working capital. Equity share capital is the best source of working capital because there is no interest payment on it. Also, the company need not repay the equity share capital.

8. Issue of Debentures:
    1. The company issues different types of debentures to get debenture capital. The company uses debenture capital as a working capital. So, the issue of debentures is a significant source of working capital.

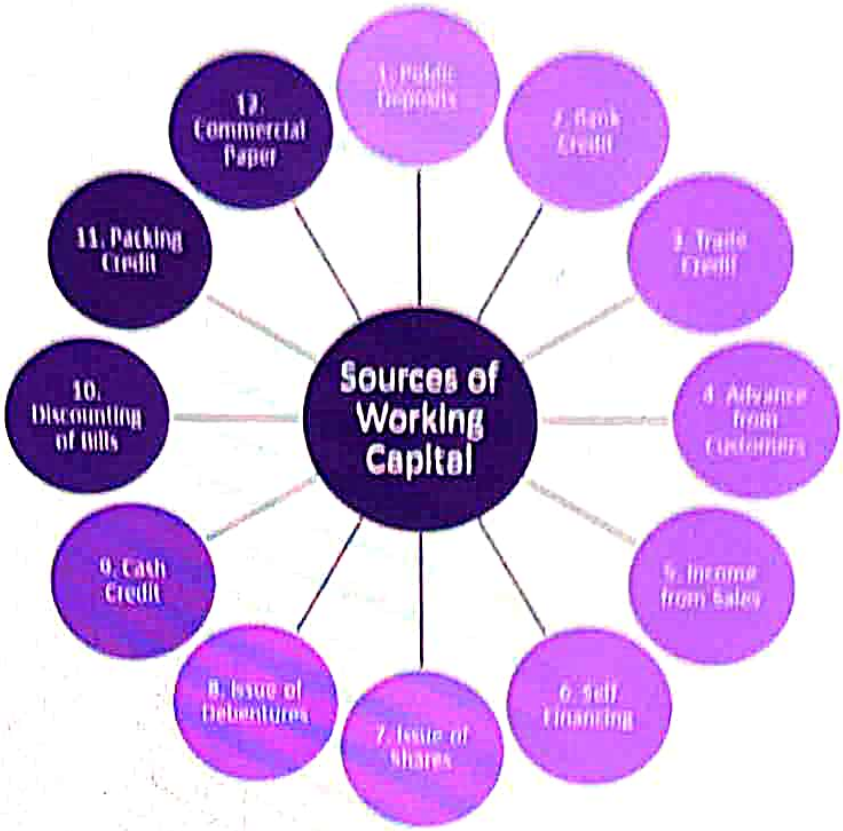
2. In India, debentures are very popular. It receives a good response from the public. Therefore, most companies use debenture capital as working capital. However, debenture capital is a borrowed capital. Therefore, the company has to repay it at a high rate of interest.

9. Cash Credit is also an important source of working capital. It is a secured loan. It is similar to Overdraft. The company is allowed to withdraw money from the bank up to a certain limit. Bank charges interest on the amount that is withdrawn.

10. Discounting Bills is another important source of working capital. The company sells goods on credit. It gets Bills Receivable from the debtors. Banks discount these bills. Here, it is not necessary to wait for the maturity of the bills. So, the company receives money very quickly from the bank. This money is also a working capital.

11. Packing Credit is a loan facility given to the exporters by commercial banks. It is also called Pre-Shipment Finance. This loan is offered to the exporters only if they have a Letter of Credit. This money gets used as a working capital.

12. Commercial Paper is a short-term promissory note. It is unsecured. Only well-established companies can issue it. Banks and financial institutions purchase it. It is purchased, at a discount. This discount is just like interest. The banks provide short-term finance to established companies in exchange for commercial paper. It is given for a short period of 90 to 180 days.



Estimating working Capital needs

There are broadly three methods of estimating or analyzing the requirement of working capital of a company viz. percentage of revenue or sales, regression analysis, and operating cycle method. Estimating working capital means calculating future working capital. It should be as accurate as possible because the planning of working capital would be based on these estimates and bank and other financial institutes finance the working capital needs to be based on such estimates only.

Percentage of Sales Method

It is the easiest of the methods for calculating the working capital requirement of a company. This method is based on the principle of 'history repeats itself'. For estimating, a relationship of sales and working capital is worked out for say last 5 years. If it is constantly coming near say 40% i.e.

working capital level is 40% of sales, the next year estimation is done based on this estimate. If the expected sales are 500 million dollars, 200 million dollars would be required as working capital.

The advantage of this method is that it is very simple to understand and calculate also. Disadvantage includes its assumption which is difficult to be true for many organizations. So, where there is no linear relationship between the revenue and working capital, this method is not useful. In new startup projects also, this method is not applicable because there is no past.

Regression Analysis Method

This statistical estimation tool is utilized by mass for various types of estimation. It tries to establish a trend relationship. We will use it for working capital estimation. This method expresses the relationship between revenue & working capital in the form of an equation (Working Capital = Intercept + Slope * Revenue). The slope is the rate of change of working capital with one unit change in revenue. Intercept is the point where the regression line and working capital axis meets (Will not go deeper into statistical details). At the end of the statistical exercise with past revenue and working capital data.

Operating Cycle Method

This is probably the best of the methods because it takes into account the actual business or industry situation into consideration while giving an estimate of working capital. A general rule can be stated in this method. Longer the working capital operating cycle, higher would be the requirement of working capital and vice versa. We would agree to the point also. The following formula can be used to estimate or calculate the working capital

Working Capital = Cost of Goods Sold (Estimated) ×(No. of Days of Operating Cycle / 365 Days) + Bank and Cash Balance.

Managing cash

Cash management is the process of collecting and managing cash flows. Cash management can be important for both individuals and companies. In business, it is a key component of a company's financial stability. For individuals, cash is also essential for financial stability while also usually considered as part of a total wealth portfolio.

Individuals and businesses have a wide range of offerings available across the financial marketplace to help with all types of cash management needs. Banks are typically a primary financial service provider for the custody of cash assets. There are also many different cash management solutions for individuals and businesses seeking to obtain the best return on cash assets or the most efficient use of cash comprehensively.

Cash is the primary asset individuals and companies use to pay their obligations on a regular basis. In business, companies have a multitude of cash inflows and outflows that must be prudently managed in order to meet payment obligations, plan for future payments, and maintain adequate business stability. For individuals, maintaining cash balances while also earning a return on idle cash are usually top concerns.

In corporate cash management, also often known as treasury management, business managers, corporate treasurers, and chief financial officers are typically the main individuals responsible for overall cash management strategies, cash related responsibilities, and stability analysis. Many companies may outsource part or all of their cash management responsibilities to different service providers. Regardless, there are several key metrics that are monitored and analyzed by cash management executives on a daily, monthly, quarterly, and annual basis.

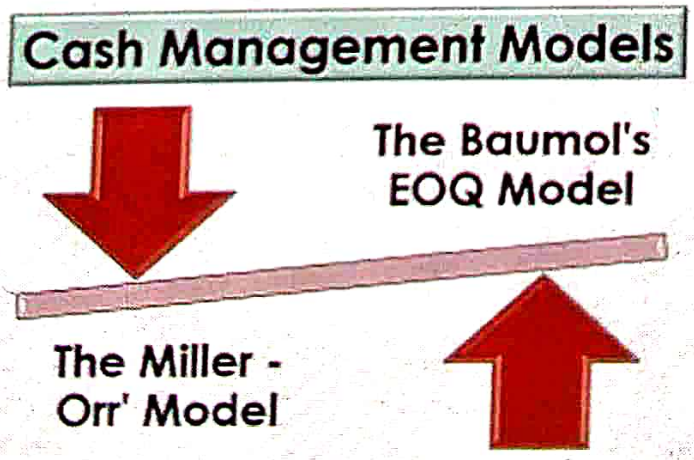
The cash flow statement is a central component of corporate cash flow management. While it is often transparently reported to stakeholders on a quarterly basis, parts of it are usually maintained and tracked internally on a daily basis. The cash flow statement comprehensively records all of a business's cash flows. It includes cash received from accounts receivable, cash paid for accounts payable, cash paid for investing, and cash paid for financing. The bottom line of the cash flow statement reports how much cash a company has readily available

- → Cash management is the process of managing cash inflows and outflows.
- → There are many cash management considerations and solutions available in the financial marketplace for both individuals and businesses.
- → For businesses, the cash flow statement is a central component of cash flow management.

Cash Management Models

Cash management requires a practical approach and a strong base to determine the requirement of cash by the organization to meet its daily expenses. For this purpose, some models were designed to determine the level of money on different parameters.

The two most important models are discussed in detail below:



The Baumol's EOQ Model

Based on the Economic Order Quantity (EOQ), in 1952, William J. Baumol gave Baumol's EOQ model, which influences the cash management of the company.

This model emphasizes on maintaining the optimum cash balance in a year to meet the business expenses on the one hand and grab the profitable investment opportunities on the other side.

The following formula of the Baumol's EOQ Model determines the level of cash which is to be maintained by the organization:

$$C = \sqrt{\frac{2FT}{i}}$$

Where,

'C' is the optimum cash balance;

'F' is the fixed transaction cost;

'T' is the total cash requirement for that period;

'i' is the rate of interest during the period

The Miller – Orr' Model

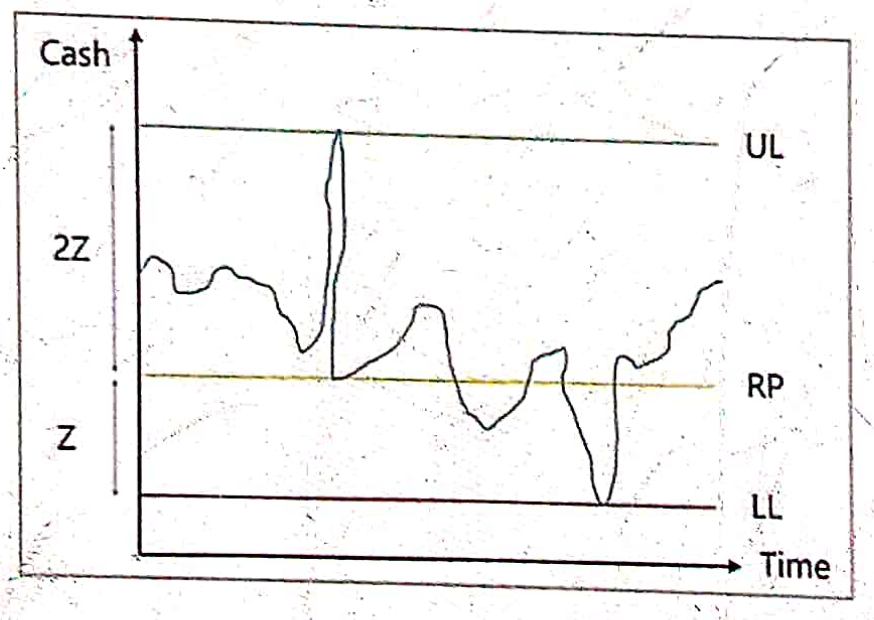
According to Merton H. Miller and Daniel Orr, Baumol's model only determines the cash withdrawal; however, cash is the most uncertain element of the business.

There may be times when the organization will have surplus cash, thus discouraging withdrawals; instead, it may require to make investments.

Therefore, the company needs to decide the return point or the level of money to be maintained, instead of determining the withdrawal amount.

This model emphasizes on withdrawing the cash only if the available fund is below the return point of money whereas investing the surplus amount exceeds this level.

Given below is the **graphical representation** of this model:



Where,

'Z' is the spread of cash;

'UL' is the upper limit or maximum level

'LL' is the lower limit or the minimum level

'RP' is the Return Point of cash

We can see that the above graph indicates a lower limit which is the minimum cash a business requires to function. Adding up the spread of cash (Z) to this lower limit gives us the return point or the average cash requirement.

Cash Management

Definition: Cash Management refers to the collection, handling, control and investment of the organizational cash and cash equivalents, to ensure optimum utilization of the firm's liquid resources. Money is the lifeline of the business, and therefore it is essential to maintain a sound cash flow position in the organization.

Receivables Cash Management

Any amount which the company has earned however not yet received, i.e. its outstanding and is expected to be received in future, is known as receivables.

An organization must manage its receivables to maintain the surplus cash inflow. It helps the firm to fulfil its immediate cash requirements.

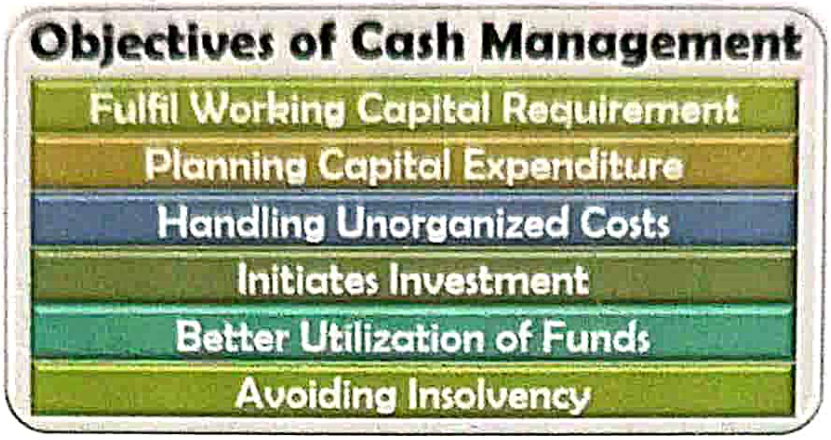
The cash receivables must be planned in such a way that the organization can realise its debts quickly and should allow a short credit period to the debtors.

Payables Cash Management

The payables refer to the payment which is unpaid by the organization and is to be paid off shortly.

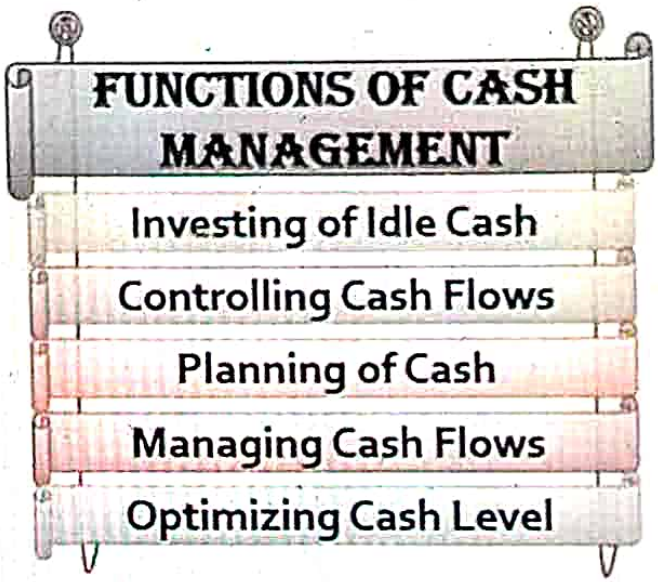
Objectives of Cash Management

Following purposes of cash management will resolve the above queries:



- **Fulfil Working Capital Requirement**: The organization needs to maintain ample liquid cash to meet its routine expenses which are possible only through effective cash management.
- **Planning Capital Expenditure**: It helps in planning the capital expenditure and determining the ratio of debt and equity to acquire finance for this purpose.
- **Handling Unorganized Costs**: There are times when the company encounters unexpected circumstances like the breakdown of machinery. These are unforeseen expenses to cope up with; cash surplus is a lifesaver in such conditions.

- **Initiates Investment**: The other aim of cash management is to invest the idle funds in the right opportunity and the correct proportion.
- **Better Utilization of Funds**: It ensures the optimum utilization of the available funds by creating a proper balance between the cash in hand and investment.
- **Avoiding Insolvency**: If the business does not plan for efficient cash management, the situation of insolvency may arise. It is either due to lack of liquid cash or not making a profit out of the money available.



→ **Investing Idle Cash**: The company needs to look for various short term investment alternatives to utilize surplus funds.

→ **Controlling Cash Flows**: Restricting the cash outflow and accelerating the cash inflow is an essential function of the business.

→ **Planning of Cash**: Cash management is all about planning and decision making in terms of maintaining sufficient cash in hand and making wise investments.

→ **Managing Cash Flows**: Maintaining the proper flow of cash in the organization through cost-cutting and profit generation from investments is necessary to attain a positive cash flow.

→ **Optimizing Cash Level**: The organization should continuously function to maintain the required level of liquidity and cash for business operations.

Cash Management Strategies

Cash management involves decision making at every step. It is not an immediate solution but a strategic approach to financial problems. Following are the strategies of cash management:

1. **Business Line of Credit:** The organization should opt for a business line of credit at an initial stage to meet the urgent cash requirements and unexpected expenses.
2. **Money Market Fund:** While carrying on a business, the surplus fund should be invested in the money market funds. These are readily convertible into cash whenever required and yield a considerable profit over the period.
3. **Lockbox Account:** This facility provided by the banks enables the companies to get their payments mailed to its post office box. This lockbox is managed by the banks to avoid manual deposit of cash regularly.
4. **Sweep Account:** The organizations should avail the facility of sweep accounts which is a mix of savings and fixed deposit accounts. Thus, the minimum balance of the savings account is automatically maintained, and the excess sum is transferred to the fixed deposit account.
5. **Cash Deposits (CDs):** If the company has a sound financial position and can predict the expenses well along with availing of a lengthy period, it can invest the surplus cash in the cash deposits. These CDs yield good interest, but early withdrawals are liable to penalties.

Cash management is a **very time consuming** and skilful activity which is required to be performed regularly.

As it requires financial expertise, the company may need to hire consultants or other experts to perform the task by paying **administrative and consultation charges.**

Small business entities which are managed solely, **face problems** such as lack of skills, knowledge, time and risk-taking ability to practice cash management.

Marketable Securities

Marketable securities are liquid financial instruments that can be quickly converted into cash at a reasonable price. The liquidity of marketable securities comes from the fact that the maturities tend to be less than one year, and that the rates at which they can be bought or sold have little effect on prices.

- → Marketable securities are assets that can be liquidated to cash quickly.
- → These short-term liquid securities can be bought or sold on a public stock exchange or a public bond exchange.

- → These securities tend to mature in a year or less and can be either debt or equity.
- → Marketable securities include common stock, Treasury bills, and money market instruments, among others.

Marketable securities are defined as any unrestricted financial instrument that can be bought or sold on a public stock exchange or a public bond exchange. Therefore, marketable securities are classified as either marketable equity security or marketable debt security. Other requirements of marketable securities include having a strong secondary market that can facilitate quick buy and sell transactions, and having a secondary market that provides accurate price quotes for investors. The return on these types of securities is low, due to the fact that marketable securities are highly liquid and are considered safe investments.

Types of Marketable Securities

Equity Securities

Marketable equity securities can be either common stock or preferred stock. They are equity securities of a public company held by another corporation and are listed in the balance sheet of the holding company. If the stock is expected to be liquidated or traded within one year, the holding company will list it as a current asset. Conversely, if the company expects to hold the stock for longer than one year, it will list the equity as a non-current asset. All marketable equity securities, both current and non current, are listed at the lower value of cost or market.

If, however, a company invests in another company's equity in order to acquire or control that company, the securities aren't considered marketable equity securities. The company instead lists them as a long-term investment on its balance sheet.

Debt Securities

Marketable debt securities are considered to be any short-term bond issued by a public company held by another company. Marketable debt securities are normally held by a company in lieu of cash, so it's even more important that there is an established secondary market. All marketable debt securities are held at cost on a company's balance sheet as a current asset until a gain or loss is realized upon the sale of the debt instrument.

Marketable debt securities are held as short-term investments and are expected to be sold within one year. If a debt security is expected to be held for longer than one year, it should be classified as a long-term investment on the company's balance sheet.

Managing debtors

Debtors are people or businesses who owe you money. Proper management of your debtors will help you get paid faster and prevent bad debts. Prompt collection of debtors' accounts will also help you maintain a healthy cash flow.

Giving your customer an invoice or bill after they have supplied a product or service is a way of offering credit, since you have to wait for the payment. By giving your customers time to pay for goods or services already delivered, you are making it easier for them to make purchases. This will increase sales, but will reduce the cash flow critical to your business.

Managing debtors is often referred to as credit management, and includes:

- → collecting debts on time
- → setting credit limits and payment terms
- → making credit applications and credit checks
- → enforcing a clear credit policy
- → considering debtor finance.

Debt management also involves keeping debtor records — this is a legal tax requirement. There are also laws governing how you are allowed to follow up debts with your customers.

Inventory management

Inventory management is a systematic approach to sourcing, storing, and selling inventory—both raw materials (components) and finished goods (products).

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Inventory management is a systematic approach to sourcing, storing, and selling inventory—both raw materials (components) and finished goods (products).

In business terms, inventory management means the right stock, at the right levels, in the right place, at the right time, and at the right cost as well as price.

There are various types of inventory management techniques which can help in efficient inventory management. They are as follows:

Types of Inventory Management Techniques

1. ABC Analysis
2. Just In Time (JIT) Method
3. Material Requirements Planning (MRP) Method
4. Economic Order Quantity (EOQ) Model
5. Minimum Safety Stocks
6. VED Analysis
7. Fast, Slow & Non-moving (FSN) Method

ABC Analysis

ABC analysis stands for Always Better Control Analysis. It is an inventory management technique where inventory items are classified into three categories namely: A, B, and C. The items in A category of inventory are closely controlled as it consists of high-priced inventory which may be less in number but are very expensive. The items in B category are relatively less expensive inventory as compared to A category and the number of items in B category is moderate so control level is also moderate. The C category consists of a high number of inventory items which require lesser investments so the control level is minimum.

Just In Time (JIT) Method

In Just in Time method of inventory control, the company keeps only as much inventory as it needs during the production process. With no excess inventory in hand, the company saves the cost of storage and insurance. The company orders further inventory when the old stock of inventory is close to replenishment. This is a little risky method of inventory management because a little delay in ordering new inventory can lead to a stock out situation. Thus this method requires proper planning so that new orders can be timely placed.

Material Requirements Planning (MRP) Method

Material Requirements Planning is an inventory control method in which the manufacturers order the inventory after considering the sales forecast. The MRP system integrates data from various areas of the business where inventory exists. Based on the data and demand in the market, the manager would carefully place the order for new inventory with the material suppliers.

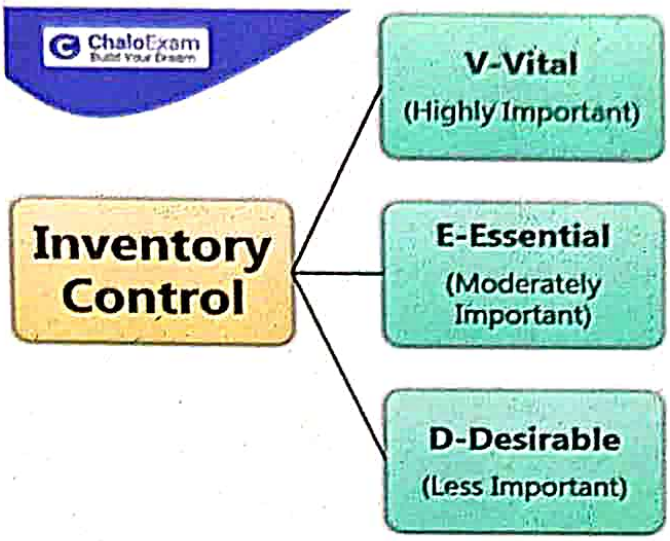
Economic Order Quantity (EOQ) Model

Economic Order Quantity technique focuses on taking a decision regarding how much quantity of inventory should the company order at any point of time and when they should place the order. In this model, the store manager will reorder the inventory when it reaches the minimum level. EOQ model helps to save the ordering cost and carrying costs incurred while placing the order. With the EOQ model, the organization is able to place the right quantity of inventory.

Minimum Safety Stocks

The minimum safety stock is the level of inventory which an organization maintains to avoid the stock-out situation. It is the level when we place the new order before the existing inventory is over.

VED Analysis



VED stands for Vital Essential and Desirable. Organizations mainly use this technique for controlling spare parts of inventory. Like, a higher level of inventory is required for vital parts that are very costly and essential for production. Others are essential spare parts, whose absence may slow down the production process, hence it is necessary to maintain such inventory. Similarly, an organization can maintain a low level of inventory for desirable parts, which are not often required for production.

Fast, Slow & Non-moving (FSN) Method

This method of inventory control is very useful for controlling obsolescence. All the items of inventory are not used in the same order; some are required frequently, while some are not required at all. So this method classifies inventory into three categories, fast-moving inventory, slow-moving inventory, and non-moving inventory. The order for new inventory is placed based on the utilization of inventory.

Inventory management is an essential part of every business. With an effective inventory management system in place, the business can significantly

reduce its various costs like warehousing cost, inventory carrying cost, ordering cost, cost of obsolescence, etc. It improves the supply chain of the business. Managers are able to forecast the level of production at which they need to place new orders for inventory. Hence, organizations should take all the necessary steps to maintain an effective inventory management and control system.

Practical Problems

1. **From the following information compute the working capital requirement for a company.**
   a. **Annual sales 2,00,000 units**
   b. **Selling price ₹ 8 per unit**
   c. **Percentage net profit on sales 25%**
   d. **Average credit period allowed to customer - 8 weeks**
   e. **Average credit period allowed by suppliers - 4 weeks**
   f. **Average stock holding in terms of sales requirement - 12 weeks**
   g. **Allow 10% for contingencies**

Solution:

The above problem can be solved in the following manner.

a. By computing cost of sales, this is done by removing the percentage of profit.
b. By correctly classifying information into current assets and fixed assets.

Calculation of Cost of Sales

Cost of sales = Sales - Profit

$$= 16,00,000 - \frac{25}{100} \times 16,00,000$$

= 16,00,000 - 4,00,000 = **12,00,000**

Statement showing the Working Capital Calculation

Current Assets

Debtors	:12,00,000 × $\frac{8}{52}$	= 1,84,615
	12,00,000× $\frac{12}{52}$	
Stock		= 2,76,923
		4,61,538
Less : **Current Liabilities**		
Creditors :	12,00,000 × $\frac{4}{52}$	**= 92,308**
Add: 10%	Net Working Capital	3,69,230
	contingencies	36,923
	Net Working Capital	**4,06,153**

2. **ABC Ltd., sells its product at gross profit to 20% on sales. The information extracted from Company's annual accounts for the year ended 31-3-2009.**

Sales at 3 months credit: 40,00,000

Raw materials: 12,00,000

Wages paid (15 days in arrears): 9,60,000

Manufacturing expenses (paid one month in arrears): 12,00,000

Administration expenses (paid one month in arrears): 4,80,000

Sales promotion expenses payable half year in advance: 2,00,000

The company enjoys one month credit from suppliers of raw materials and maintains two months stock of raw materials and half month finished goods stock. Cash balance is ₹ 1,00,000. Find out net working capital requirements for the company.

Solution:

Cost Sheet

Particulars	**Amount**
Raw Materials	12,00,000
(+) Wages	9,60,000
Prime Cost	21,60,000
(+) Manuf expenses	12,00,000
Works Factory Cost	33,60,000
(+) Administration Expenses	4,80,000
Cost of Production	38,40,000
(Cost of goods sold)	
(+) Sales promotion expenses	2,00,000
Cost of Sales	**40,40,000**

Calculation of NWC requirements for the company :

Current Assets :

1. Cash balance 1,00,000
2. Debtors (40,40,0000× $\frac{3}{12}$) 10,10,000

3. Prepaid sales promotion expenses	1,00,000
4. Inventory	
Raw Material (12,00,000× $\frac{2}{12}$)	2,00,000
F.G. (38,40,000× $\frac{1}{24}$)	1,60,000
Total Current Assets (A) Current Liabilities :	15,70,000
1. O/s wages (9,60,000× $\frac{1}{24}$)	80,000
2. O/s Manuf expenses (12,00,000× $\frac{1}{12}$)	1,000
3. 0/s Admin expenses (4,80,000× $\frac{1}{12}$)	40,000
4. Creditors (12,00,000× $\frac{1}{12}$)	1,00,000
Total Current Liabilities (B)	**3,20,000**
Net Working capital requirement (A-B)	12,50,000

3. **Foods Ltd., is presently operating at 60% level producing 36,000 packets of snack foods and proposes to increase the capacity utilisation in the corning year by 33 1/3% over the existing level of production.The following data has been supplied,**
    a. **Unit cost structure of the product at current level:**

Raw Material	40
Wages	20
Variable overheads	20
Fixed overhead	10
Profit	30
Selling Price	120

b. Raw materials will remain in stores for one month before being issued for production. Material will remain in process for further one month. Suppliers grant 3 months credit to the company.
c. Finished goods remain in godown for one month.
d. Debtors are allowed credit for 2 months.
e. Lag in wages and overhead payments is one month.

Prepare a projected profitability statement and the working capital requirement at the new level, assuming that a minimum cash balance of ₹ 19,500 has to be maintained.

Solution:

Proposed capacity = 36,000 + (36,000 x 1/3) = 48,000

Calculation of Working Capital

A. Investment in Inventory	₹
(i) Raw materials : 1 month	
$48,000 \times 40 \times \frac{1}{12}$	1,60,000

(ii) Work-in process : 1 month

$48,000 \times (40+20+20) \times \frac{1}{12}$ — 3,20,000

(iii) Finished Goods: 1 month

$48000 \times (40 + 20 + 20) \times \frac{1}{12}$ — 3,20,000

8,00,000

B. Investment in Debtors : (2 months)

All sales are credit sales - Assumption

$(40 + 20+10 + 20) \times 48,000 \times \frac{2}{12}$ — **7,20,000**

C. Cash Balance — **19,500**

D. Investment in Current Assets (A+B+C) — **15,39,500**

E. Current Liabilities

1. Creditors — 3 months

$(40 \times 48,000) \times \frac{3}{12}$ — 4,80,000

2. Deferred wages - 1 Month

$(48,000 \times 20) \times \frac{1}{12}$ — 80,000

3. Deferred overheads -1 month

$(48,000 \times 20) \times \frac{1}{12}$

		80,000
	Total Deferred Payment [E(I + 2+3)]	
F.		6,40,000
G.	**Net working Capital (D-F)**	8,99,500

Project Profitability Statement

Sales (120×48,000)	57,60,000
Less: Cost of goods sold	
- Raw material (40 x 48,000)	19,20,000
- Wages (20 x 48,000)	9,60,000
- Var. overheads (20 x 48,000)	9,60,000
- Fixed overhead (10 x 36,000)	3,60,000
Net profit	**15,60,000**

4. A proforma cost sheet of a company provides the following particulars. Material 40 %

Material	**40%**
Direct labour	**20%**
Over heads	**20%**

The following information is also available.

a. It is proposed to maintain a level of activity of 2,00,000 Units.Selling price ₹ 12 per unit.
b. Raw materials are expected to remain in stores for an average period of one month.
c. Materials will be in process on an average half - a - month
d. Finished goods are required to be in stock for an average period of one month.
e. Credit allowed to debtors is two months.
f. Credit allowed by supplier's is one month.

Estimate working capital requirements.

Solution:

Cost Sheet for a single product

Materials (12×40%)	4.8
Direct Labour (12×20%)	2.4
Overheads (12×20%)	2.4
	9.6
Profit (Bal Fig)	2.4
Selling Price	**12.0**

Statement of Working Capital requirements

Particulars	₹
Current Assets	
	80,000

Raw Materials (one month) 2,00,000× $\frac{40}{100} \times \frac{1}{12}$	
Work In Progress (half month)	
Raw Materials 2,00,000 × 12 × $\frac{40}{100} \times \frac{1/2}{12}$	40,000
Direct Labour 2,00,000× 12 × $\frac{20}{100} \times \frac{1/2}{12}$	20,000
Overheads 2,00,000× 12 × $\frac{20}{100} \times \frac{1/2}{12}$	20,000
Finished goods (one month) 2,00,000×9.6× $\frac{1}{12}$	1,60,000
Debtors (two months) 2,00,000× 12 × $\frac{2}{12}$	4,00,000
Total Current Assets	7,20,000
Less: Current Liabilities	
Creditors 2,00,000× 12 × $\frac{40}{100} \times \frac{1}{12}$	80,000
Net Working Capital	6,40,000

5. **A firm has current sales of ₹ 2,56,48,750. The firm has unutilized capacity. In order to boost its sales, it is considering a relaxation in its credit policy. The proposed terms of credit will be 60 days credit against the present policy of 45 days. As a result, the bad debts will increase from 1.5% to 2% of sales. The firm's sales are expected to increase by 10%. The variable operating costs are 72% of the sales. The firm's corporate tax rate is 35% and it requires an after tax return of 15% on its investments. Should the firm change its credit period?**

Solution:

Particulars	(₹)
Investment in debtors if credit period is 60 days(2,56,48,750×45/360)	32,06,094
Increase in investment in debtors	14,96,177
Current bad debts (2,56,48,750×1.5/100)	3,84,731
Expected bad debts (2,56,48,750×110/100x2/100)	5,64,273
Increase in bad debts	1,79,542
Calculation of incremental profit (After tax)	
Increase in sales with 60 days credit period (2,56,48,750×10/100)	25,64,875
Contribution from increased sales (25,64,875×28/100)	7,18,165
Less: Increase in bad debts	1,79,542
Increase in operating profits	5,38,623
Less: Tax @35%	1,88,518
Net increase in operating profits	3,50,105

Rate of return on increased investment in debtors $= \frac{3,50,000}{14,96,177} \times 100 = 23.40\%$

Analysis: If the credit policy is changed from 45 days to 60 days, the company will earn an additional net profit of ₹ 3,50,105 which amounts to 23.40% return on increased investment in debtors balances. The required rate of return after tax is only 15% and hence there is an incremental return of 8.40%. Therefore, it is suggested to increase the credit period to 60 days.

MODULE 6
DIVIDEND DECISIONS

Dividend decisions, as the very name suggests, refers to the decision-making mechanism of the management to declare dividends. It is crucial for the top management to determine the portion of earnings distributable as the dividend at the end of every reporting period. A company's ultimate objective is the maximization of shareholders' wealth. It must, therefore, be very vigilant about its profit-sharing policies to retain the faith of the shareholders. Dividend payout policies derive enormous importance by virtue of being a bridge between the company and shareholders for profit-sharing. Without an organized dividend policy, it would be difficult for the investors to judge the intentions of the management.

Moreover, the dividend policies of an organization have a significant bearing on the market value of stocks. Dividends must be distributed in line with the industry standards. The shareholders will otherwise perceive this variability negatively. It casts a suspicion on the financial health and motives of the management (signaling effect). In aggregate, an inefficient dividend decision mechanism would adversely impact the valuation of the company.

Objects of Dividend Decisions

Cash Requirement

The financial manager must take into account the capital fund requirements while framing a dividend policy. Generous distribution of dividends in capital-intensive periods may put the company in financial distress.

Evaluation of Price Sensitivity

Companies chosen by investors for its regularity of dividend must have a more stringent dividend policy than others. It becomes essential for such companies to take effective dividend decisions for maintaining stock prices.

Stage of Growth

Dividend decision must be in line with the stage of the company- infancy, growth, maturity & decline. Each stage undergoes different conditions and therefore calls for different dividend decisions.

Good Dividend Policy

There does not exist a single dividend decision process that works for every organization. A decision suitable for one company may prove fatal for another company. For example, businesses with a consistent order book such as telecom and banking are expected to pay regular dividends. It may impact the stock prices if they do not pay dividends regularly. To the contrary, sectors of pharmaceutical and technology are highly research oriented. Huge cash expenses are required to further their operations. Therefore they cannot afford to pay a regular dividend. Investors of such stocks earn income mainly through capital appreciation. In essence, there are a lot of factors affecting dividend policy or decision.

We can refer to following renowned theories on Dividend Policy:

- → Modigliani- Miller Theory on Dividend Policy
- → Gordon's Theory on Dividend Policy
- → Walter's Theory on Dividend Policy

Types of Dividend Decision

There are various types of dividends and dividend decisions.

Stable Dividends

- → Same amounts of dividends are paid out every year irrespective of the profitability.
- → Shareholders remain immune to fluctuations and volatility faced by the company.
- → Only long-standing and established companies with steady cash flows can afford to follow this policy
- → Investors that buy into these companies have a low risk appetite. They also do not get to participate in the profits of the company.

Constant Dividends

- → Dividends are paid at a fixed percentage of the profits.
- → The brunt of recession is as much borne as much they reap benefits of the boom.
- → This policy is suitable for companies in their infancy stage as well as those prone to volatility.
- → Investors of these companies are risk-taking. They prefer to swing with the company in its earnings

Alternate Dividend Decisions

A company may not always issue the dividend in cash. A stock dividend is a significant option with the management for recourse to non-cash options. It is a handy tool to which management may resort to when it wants to balance both, shortage of cash and shareholder expectations. Such decisions are only made in exceptional circumstances.

Theory of relevance and Theory of Irrelevance

Dividend and market price of shares are interrelated. However, there are two schools of thought: while one school of thought opines that dividend has an impact on the value of the firm, another school argues that the amount of dividend paid has no effect on the valuation of firm.

Relevance of Dividend

Walter and Gordon suggested that shareholders prefer current dividends and hence a positive relationship exists between dividend and market value. The logic put behind this argument is that investors are generally risk-averse and that they prefer current dividend, attaching lesser importance to future dividend funds or capital gains.

i. Walter Valuation Model:

Prof James E. Walter developed the model on the assumption that dividend policy has a significant impact on the value of the firm.

As per Walter, the value of the share is determined by two sources of income:

(i) Present value of constant stream of dividend $\left(\frac{D}{k}\right)$ and

(ii) Present value of infinite series of capital gains, $\frac{\left|\frac{r(E-D)}{k}\right|}{k}$, where $\left|\frac{r(E-D)}{k}\right|$ is the capital gain.

Here, D = Dividend per share,
k = Cost of capital,
E = Earnings per share,
r = Internal rate of return, and
P = Market price per share.

Now,
$$P = \frac{D}{k} + \frac{\left|\frac{r(E-D)}{k}\right|}{k}$$
$$= \frac{D + \frac{r}{k}(E-D)}{k}$$

Walter's Model shows the clear relationship between the return on investments or internal rate of return (r) and the cost of capital (K). The choice of

an appropriate dividend policy affects the overall value of the firm. The efficiency of dividend policy can be shown through a relationship between returns and the cost.

- → If r>K, the firm should retain the earnings because it possesses better investment opportunities and can gain more than what the shareholder can by reinvesting. The firms with more returns than a cost are called the "Growth firms" and have a zero payout ratio.
- → If r<K, the firm should pay all its earnings to the shareholders in the form of dividends, because they have better investment opportunities than a firm. Here the payout ratio is 100%.
- → If r=K, the firm's dividend policy has no effect on the firm's value. Here the firm is indifferent towards how much is to be retained and how much is to be distributed among the shareholders. The payout ratio can vary from zero to 100%.

Assumptions of the Walter Model

The Walter Model is based on the following assumptions:

- **a.** All investment is financed through retained earnings and external sources of finance are not used.
- **b.** The firm has an indefinite life.
- **c.** All earnings are either distributed or internally invested.
- **d.** The business risk of the firm remains constant, i.e. r and k remain constant.

Criticism of the Walter Model

The Walter Model explains the relationship between dividend and value of the firm. However, some of the assumptions are unrealistic.

The Walter Model can be criticized on the following grounds:

a. One of the assumptions that total investment of the firm is financed exclusively through retained earnings and no external financing is used is quite unrealistic.
b. Here it is assumed that the cost of capital remains constant which reflects that the risk of the firm also remains constant. This model ignores the effect of risk on the value of the firm.
c. The model also assumes that the rate of return is constant. This is also not possible as change in investment also changes the rate of return.

Irrelevance of Dividend:

As per Irrelevance Theory of Dividend, the market price of shares is not affected by dividend policy. Payment of dividend does not change the wealth of the existing shareholders because payment of dividend decreases cash balance and their share price falls by that amount. Franco Modigliani and Merton Miller, two Nobel-laureates developed this model in 1961.

i. Modigliani-Miller (M-M) Hypothesis:

Modigliani and Miller argued that the value of a firm is solely determined by the earning capacity of a firm's assets and the split of earnings between dividend and retained earnings does not affect the shareholders' wealth. They suggested that in a perfect financial market, the value of a firm is unaffected by the distribution of dividends. They also argued that values of shares are affected by the future earnings and the risk of its investment.

Assumptions of the M-M Hypothesis:

M-M Hypothesis is based on the following assumptions:

a. Capital markets are perfect. Both managers and investors have access to the same information concerning future prospects.
b. Financial leverage does not affect the cost of capital.
c. There is no floatation cost or transaction cost.
d. Earnings are perpetual and future earnings are known and definite.
e. There is no corporate tax.
f. The firm has a rigid investment policy.

As per M-M Hypothesis, future earnings are known and definite, and cost of capital is constant. Total return is equal to the sum total of dividend income and capital gain/loss. The rate of return (r) can be written as

$$r = \frac{\text{Dividend} + \text{Capital } \frac{\text{Gains}}{\text{Loss}}}{\text{Share price}}$$

$$= \frac{D_1 + (P_1 - P_0)}{P_0}$$

Modigliani and Miller argued that r should be equal for all shares otherwise low-yielding securities will be traded for high-yielding ones thereby reducing the price of low-yielding ones and increasing the price of the high-yielding ones. This switch-over continues till the differential in rate of returns becomes equal.

Criticism of the M-M Hypothesis:

The assumptions on which M-M Hypothesis is developed are not realistic and do not hold in reality. Both investors and firms have to pay income tax. Investors rarely have access to the same information as managers. The absence of transaction or floatation cost is also not possible in real life situations.

Gordon's Model

The Gordon's Model, given by Myron Gordon, also supports the doctrine that dividends are relevant to the share prices of a firm. Here the Dividend Capitalization Model is used to study the effects of dividend policy on a stock price of the firm.

Gordon's Model assumes that the investors are risk averse i.e. not willing to take risks and prefers certain returns to uncertain returns. Therefore, they put a premium on a certain return and a discount on the uncertain returns. The investors prefer current dividends to avoid risk; here the risk is the possibility of not getting the returns from the investments.

But in case, the company retains the earnings; then the investors can expect a dividend in future. But the future dividends are uncertain with respect to the amount as well as the time; i.e. how much and when the dividends will be received. Thus, an investor would discount the future dividends, i.e. puts less importance on it as compared to the current dividends.

According to Gordon's Model, the market value of the share is equal to the present value of future dividends. It is represented as:

P = [E (1-b)] / Ke-br

Where,

P = price of a share

E = Earnings per share

b = retention ratio

1-b = proportion of earnings distributed as dividends

Ke = capitalization rate

Br = growth rate

Assumptions of Gordon's Model

1. The firm is an all-equity firm; only the retained earnings are used to finance the investments, no external source of financing is used.
2. The rate of return (r) and cost of capital (K) are constant.
3. The life of a firm is indefinite.
4. Retention ratio once decided remains constant.
5. Growth rate is constant (g = br)
6. Cost of Capital is greater than br

Criticism of Gordon's Model

1. It is assumed that firm's investment opportunities are financed only through the retained earnings and no external financing viz. Debt or equity is raised. Thus, the investment policy or the dividend policy or both can be sub-optimal.
2. The Gordon's Model is only applicable to all equity firms. It is assumed that the rate of returns is constant, but, however, it decreases with more and more investments.
3. It is assumed that the cost of capital (K) remains constant but, however, it is not realistic in the real life situations, as it ignores the business risk, which has a direct impact on the firm's value.

Thus, Gordon's model posits that the dividend plays an important role in determining the share price of the firm.

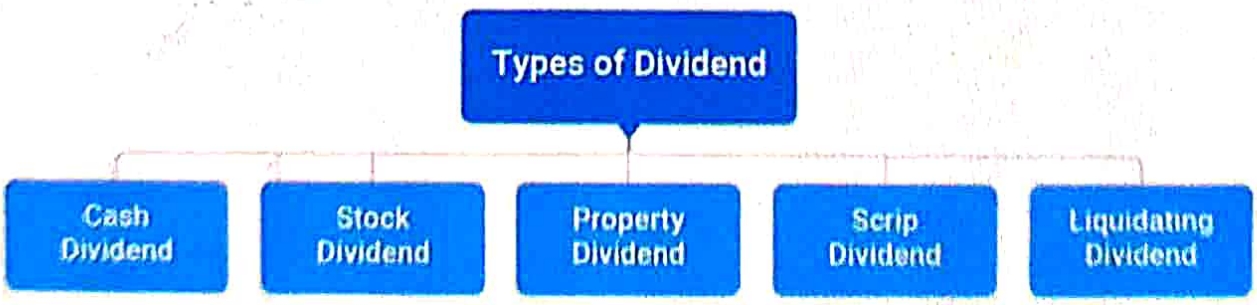
Types of Dividend

Typically any company is engaged in the value generation for customers in the form of products and services. For the efforts of the company, it charges a small proportion of additional money known as profit. If any generates profits then it could either reinvest profits into the business or it could give the capital to its investors in the form of dividend.

Dividends are given so as :

1. To increase the faith of retail investors in the company.
2. To send a signal to investors about companies optimism towards future earnings.

While doing so, the company may choose different ways of paying out dividends. A company can also decide the frequency of paying out the dividend, meaning it can give it annually, monthly or quarterly. This is solely dependent on the dividend policy of the company.



1) **Cash Dividend:**Cash dividend is the most popular form of dividend payout. In this, the company issues the dividend to all shareholders where the money is deposited in the bank accounts of shareholders as per the holdings of the investors. Usually there is a predefined process for the dividend declaration.
2) **Stock dividend:**If any company issues additional shares to common shareholders without any consideration then the action becomes stock dividend. If the company issues less than 25% of the previously issued stocks then it will be treated as the stock dividend. If the issuance of new shares is more than 25% of the last issue shares then it is treated as the stock split.
3) **Property dividend:**Any company can issue any non-monetary dividend to its shareholders. The issued property dividend would be recorded against the current market price of the asset distributed. As the market price of the asset is expected to be either above or below the book value therefore it would either incur profit or loss and accordingly would be entered in the books. This interpretation of the distributed asset may force businesses to intentionally issue the property dividend to manipulate the taxable income.
4) **Scrip dividend**:When any company doesn't have enough funds to pay dividend then it may choose to pay dividend in the form of promissory note to pay the shareholders at a later date. This essentially creates a note payable.
5) **Liquidating dividend**:When the board of the company thinks of returning the original capital invested by the shareholders then it is known as the liquidating dividend. This may happen due to the fact the company intends to wrap up the business.

Financial and Legal Aspects of Dividend policy

Legal Aspects: The dividend policy of the firm has to be evolved within the legal framework and restrictions. The directors are not legally compelled to declare dividends. Forge the Indian Companies Act provides that dividend shall be declared or paid only out of the current profits or past profits after providing for depreciation. However, the central government is empowered to allow any company to pay a dividend for any financial year out of the profits of the company without providing for depreciation. The central Government is empowered to allow any company to pay a dividend for any financial year out of the profits of the company without providing for depreciation. The central government shall give such relief only when it Is in the public interest. The dividend should be paid in cash, but a company is not prohibited to capitalise profits or reserves for the purpose of summing fully paid bonus shares.

The legal rules act as boundaries within which a company can operate in terms of paying dividends. Acting within these boundaries, a company will have to consider many financial variables and constraints in deciding the amount of earnings to be distributed as dividends.

Financial Aspects: It Is not only the desires of the shareholders but also future financial requirements of the company that have to be taken into consideration. While making a dividend decision. The management of a concern has to reconcile the conflicting interests of shareholders and those of the company's financial needs. If a company has highly profitable investment opportunities it can convince the shareholders of the need for limitation of dividend to increase the future earnings and stabilize its financial position. But when profitable investment opportunities do not exist, then the company may not be justified in retaining substantial part of Its current earnings. Thus a concern having few internal investment opportunities should follow a high payout ratio as compared to one having more profitable investment opportunities.

Payout ratio of dividend

The ratio of dividend to earnings is known as payout ratio. Some companies may follow a policy of constant payout ratio i.e. paying a fixed percentage of net earnings every year. With this policy the amount of dividend will fluctuate In direct proportion to earnings. If a company adopts a 40% payout ratio, then 40% of every rupee of net earnings will be paid out. This policy is related to a company's ability to pay dividends. If the company incurs losses, no dividends shall be paid regardless of the desires of shareholders. Internal financing with retained earnings is automatic when this policy is followed. At any given payout ratio, the amount of dividends and the additions to retained earnings increases with increasing earnings and decreases with decreasing earnings. This policy does not put any pressure on a company's liquidity since dividends are distributed only when the company has profits.

Factors influencing the dividend policy of a company

Dividend policy refers to the policy of management concerning the quantum of profit to be distributed to shareholders as returns on their investments.

Many factors influence a dividend policy. A few of them have been listed below:

1. **Stable earnings:** This is a primary factor that influences dividend decision if the earnings of a company are stable the predictions about the future profits can be made easily thereby the regularity of dividends can be ensured. Whereas companies whose earnings are unstable cannot ensure regularity in dividends.
2. **Financing policy of the company:** If the company finances all its expenses from its earnings then the dividend paid to the shareholders are less, whereas if the company finances all its expenses by borrowing money from outside the dividends to the shareholders will be high. The

internal financial policy of the company also influences the dividend policy of the company.

3. **Liquidity of funds:** This is an important consideration which plays an important role In framing dividend policy. If a firm is liquid, it is in a position to generate necessary cash to pay dividend to its shareholders and vice versa.
4. **Dividend Policy of Competitive concerns:** This is another important factor that influences the dividend decision of a company. Only higher dividends attract the shareholders, low dividends de-motivate the shareholders for investment. If companies promise higher dividends, they can experience huge demand for its shares.
5. **Past Dividend Rates:** The dividend rate may be decided on the basis of dividends declared in the previous years. Company should maintain stability in its dividend rates.
6. **Ability to Borrow:** This is another factor that influences dividend policy. This factor refers to the ability of the company to borrow funds for paying dividends. Only large and reputed firms have the capacity of borrowing and paying the dividends at times when there are no profits when compared to small and unprofitable companies.
7. **Growth needs of the firm:** if companies have expanded considerably they do need finance for expansion purpose, whereas companies having expansion programs should finance the expenses from profits and thereby dividend paid are less.
8. **Legal requirements:** The companies have to meet the legal requirements for the purpose of declaring the dividends. The government of India restricts the percentage of dividend to be distributed to the equity shareholders, because the amount of funds deployed into the economy in the form of dividend should not create inflationary situations.

9. **Tax position of shareholders:** The tax position of the shareholders directly affects the dividend policy. The reason being, higher tax liability of the shareholders does not encourage the company to declare the high percentage, because the major portion of the profits would go only towards the payment of taxes. Hence the tax position of the shareholders will also influence the dividend policy.
10. **Policy of control:** It refers to the desire of the existing shareholders to return the control of the companies and it helps in sharing a higher percentage of profits. Therefore, they insist the management to keep the dividend in the form of retained earnings. Hence the percentage of retained earnings will also influence the dividend decision.

Bonus Shares

Bonus shares are additional shares given to the current shareholders without any additional cost, based upon the number of shares that a shareholder owns. These are the company's accumulated earnings which are not given out in the form of dividends, but are converted into free shares. The basic principle behind bonus shares is that the total number of shares increases with a constant ratio of number of shares held to the number of shares outstanding.

Companies issue bonus shares to encourage retail participation and increase their equity base. When the price per share of a company is high, it becomes difficult for new investors to buy shares of that particular company. Increase in the number of shares reduces the price per share. But the overall capital remains the same even if bonus shares are declared.

An issue of bonus share represents a distribution of shares in addition to the cash dividend to the existing shareholders. This has the effect no of increasing the number of outstanding shares of the company. The shares are distributed proportionately. Thus, a shareholder retains his proportionate

ownership of the company. The declaration of bonus shares will increase the paid-up share capital and reduce the reserves and surplus of the company. The total network is not affected by bonus issues. Infact, a bonus issue represents a recapitalisation of the owner's equity portion. It is merely an accounting transfer from reserves and surplus to paid-up capital. The issue of bonus shares does not affect the wealth of the shareholders. The earnings per share and market price per share will fall proportionately to the bonus issue.

A Share split/stock split is a method to increase the number of outstanding shares through a proportional reduction in the par value of the share. A share split affects only the par value and the number of outstanding shares; the shareholders total funds remain unaltered. The earnings per share will be diluted and the market. Price per share will fall proportionately with a share split.

The following are reasons for splitting of a firm's ordinary shares:

- → To make trading in shares attractive
- → To signal the possibility of higher profits in the future
- → To give higher dividends to shareholders.

Bonus issue or stock dividend

Stock dividends are the dividend paid to the shareholders In kind. The company follows a practice of transferring a portion of its surplus to the capital accounts. The funds accumulated are capitalised and offered to the existing shareholders in the form of additional shares. The number of shares held by each shareholder increases with the Issue of extra shares by the company. These are various objectives of issuing stock dividend namely:

1. **Cash outflow restrained:** The cash doesn't go out of the organisation because the profits are not distributed but are capitalised and issued in the form of additional shares to the existing shareholders.
2. **Lower rate of dividend:** With the Increase in the share capital additional burden of dividend is reduced. According to a study it was observed that as many as one third of the companies issuing bonus shares did not increase the total quantum of dividend on the enlarged capital, a significant number of them even reducing the total dividend distribution.
3. **Growth and expansion:** The company by capitalising Its profits can restrain cash outflow and utilise the funds to Implement its growth and expansion plans.

Advantages of stock dividend to the issuing company:

1. Widen the market for its shares: A company by issuing bonus shares can widen the market for its shares by Issuing extra shares to the old shareholders, the old shareholder rnay sell the extra share received to the outsiders and hence, the market for Its shares get widened.
2. Growth and expansion: The company by capitalising Its profits can restrain cash outflow and mobilise the fund to meet Its growth and expansion programmes.
3. The cost of issue is minimum.
4. It proves to be a remedy for under capitalisation: As the companies whose share capital is less can now Issue extra shares and increase the share capital as a result of which the rate of dividend which was high will come down.
5. It satisfies the shareholders and Inturn Its effect Is seen In Its market value of shares.
6. The credit standing of the company In the market increases If the company Issued bonus shares.

Advantages of stock dividend to the shareholders:

1. It increases the income of the shareholders as they will get an extra dividend on extra shares held by them.
2. The marketability of the shares will also increase.
3. The demand for the shares goes up as many people are interested to buy the shares of the company that issue bonus shares

Disadvantages of stock dividend to the issuing company

1. If the company issues bonus shares it is obliged to Issued additional dividend for the additional shares Issued and this has to commensurate with the earning capacity.
2. It prevents the new Investors from becoming the shareholders of the company.
3. The control over the management of the company is not diluted and the present management may misuse its position.

Disadvantages of stock dividend to the shareholders

1. The rate of dividend on enlarged capital comes down as a result of which the shareholders may receive a little less than before.
2. The shareholders desirous of receiving cash dividends may get disappointed.

Ex: Retired people, consecutive investors, and widows would prefer regular dividends in the form of cash. Such offers by the company may disappoint them.

ADVANTAGES OF BONUS SHARES

- → There is no need for investors to pay any tax on receiving bonus shares.
- → It is beneficial for the long-term shareholders of the company who want to increase their investment.
- → Bonus shares enhance the faith of the investors in the operations of the company because the cash is used by the company for business growth.
- → When the company declares a dividend in the future, the investor will receive a higher dividend because now he holds a larger number of shares in the company due to bonus shares.
- → Bonus shares give a positive sign to the market that the company is committed towards a long term growth story.
- → Bonus shares increase the outstanding shares which in turn enhances the liquidity of the stock.
- → The perception of the company's size increases with the increase in the issued share capital.

Since there are many advantages of bonus shares, let us now learn the conditions for the issue of bonus shares.

Stock Split

A stock split is when a company divides the existing shares of its stock into multiple new shares to boost the stock's liquidity. Although the number of shares outstanding increases by a specific multiple, the total dollar value of the shares remains the same compared to pre-split amounts, because the split does not add any real value.

- → A stock split is when a company divides the existing shares of its stock into multiple new shares to boost the stock's liquidity.
- → Although the number of shares outstanding increases by a specific multiple, the total dollar value of the shares remains the same compared to pre-split amounts, because the split does not add any real value.
- → The most common split ratios are 2-for-1 or 3-for-1, which means that the stockholder will have two or three shares, respectively, for every share held earlier.
- → Reverse stock splits are effectively the opposite transaction, where a company divides, instead of multiplies, the number of shares that stockholders own, raising the market price accordingly.

PRACTICAL PROBLEMS

1. **From the following information supplied to you determine the theoretical market value of equity shares as per Walter's model.**

Earnings of the company	**₹ 5,00,000**
Dividend paid	**₹ 3,00,000**
Number of shares outstanding	**₹ 1,00,000**
Rate of return on investment	**₹ 15%**
Cost of equity	**₹ 12.5%**

Are you satisfied with the current dividend policy? If not, what should be the optimal dividend payout ratio in this case?

Solution:

As per Walter's model, market price of the share is

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

Where,

P = Market Price Per share,

D = Dividend Per share

r = Internal rate of return,

E = Earnings per share

Ke = Cost of equity capital

Earnings per share (E) = $\frac{\text{Total Earnings}}{\text{No. of Shares}} = \frac{5,00,000}{1,00,000}$ = Rs. 5

Dividend per share (D) = $\frac{\text{Amount of dividend paid}}{\text{No. of shares}} = \frac{3,00,000}{1,00,000}$ = Rs. 3

r = 15% - Given

Ke = 12.5% - Given

$$P = \frac{3}{0.125} + \frac{0.15(5-3)/0.125}{0.125}$$

$$P = \frac{3}{0.125} + \frac{\frac{0.15(2)}{0.125}}{0.125}$$

At present, the dividend payout ratio is 60% $\left(\frac{3,00,000}{1,00,000} \times 100\right)$

Since this is a growth firm having Internal rate of return (r) > cost of capital (Ke), i.e. (15%) > Ke (12.5%), the firm's payout ratio of dividend of 60% is not optimal as per Walter's model. The market price of the company's share shall be maximum if it retains 100% of the profits and dividend payout ratio is zero. This can be proved as below:

$$P = \frac{D}{Ke} + \frac{r(E-D)/Ke}{Ke} = \frac{0}{0.125} + \frac{0.15(5-0)/0.125}{0.125}$$

$$P = \frac{0}{0.125} + \frac{6}{0.125} = \text{Rs. } 48$$

Thus, can the firm increase the market price of the share upto ₹ 48 by increasing the retention ratio to 100% the optimal payout ratio for the firm is zero.

2. **The following information is available in respect of a firm:**

Earning per share **₹ 20**

Rate of Capitalisation **10%**

Calculate the market price of the company's quoted shares under Walter's Model if the Dividend Pay-out Ratio is 0, 25%, 50%, 75% and 100%, if it can earn a return of a) 15% b) 10% and c) 5%.

Solution:

Walter's Model:

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

Where, P= Market Price per share D= Dividend Per share E= Earnings per share r= Internal rate of return K= Cost of capital

Effect of Dividend Payouts on value of share under different situations.

Internal Rate of Return	Capitalisation of Earnings	0%	Dividend Payout Ratio			
			25%	50%	75%	100%

15%	10%	$\frac{0+(20-0)\times}{0.10}$	$\frac{5+(20-5)\times \frac{0.15}{0.10}}{0.10}$	$\frac{10+(20-10)\times}{0.10}$	$\frac{15+(20-15)\times \frac{0.}{0.}}{0.10}$	$\frac{20+(20-20)\times}{0.10}$
		= ₹ 300	= ₹ 275	= ₹ 250	= ₹ 225	= ₹ 200
10%	10%	$\frac{0+(20-0)\times}{0.10}$	$\frac{5+(20-5)\times \frac{0.10}{0.10}}{0.10}$	$\frac{10+(20-10)\times}{0.10}$	$\frac{15+(20-15)\times \frac{0.}{0.}}{0.10}$	$\frac{20+(20-20)\times}{0.10}$
		= ₹ 200	= ₹ 200	= ₹ 200	= ₹ 200	= ₹200
5%	10%	$\frac{0+(20-0)\times}{0.10}$	$\frac{5+(20-5)\times \frac{0.5}{0.10}}{0.10}$	$\frac{10+(20-10)\times}{0.10}$	$\frac{15+(20-15)\times \frac{0}{0.}}{0.10}$	$\frac{20+(20-20)\times}{0.10}$
		= ₹ 100	= ₹ 125	= ₹ 150	= ₹175	= ₹ 200

Hence, the market price of company shares under Walter's Model Is:

When IRR= 15% (r>k)

Dividend Payout Ratio	Market Value of Shares
0	₹ 300
25%	₹ 275
50%	₹ 250
75%	₹ 225
100%	₹ 200

When IRR= 10% (r=k)

Dividend Payout Ratio	Market Value of Shares
0	₹ 200

25%	₹ 200
50%	₹ 200
75%	₹ 200
100%	₹ 200

When IR= 5% (r<k)

Dividend Payout Ratio	Market Value of Shares
0	₹ 100
25%	₹ 125
50%	₹ 150
75%	₹ 175
100%	₹ 200