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CHAPTER - 1

SCOPE AND OBJECTIVES OF FINANCIAL MANAGEMENT

Thus, financial management is concerned with **efficient acquisition (financing) and allocation** (investment in assets, working capital etc.) of funds with an objective to make profit (dividend) for owners. In other words, focus of financial management is to address three major financial decision areas namely, investment, financing and dividend decisions.

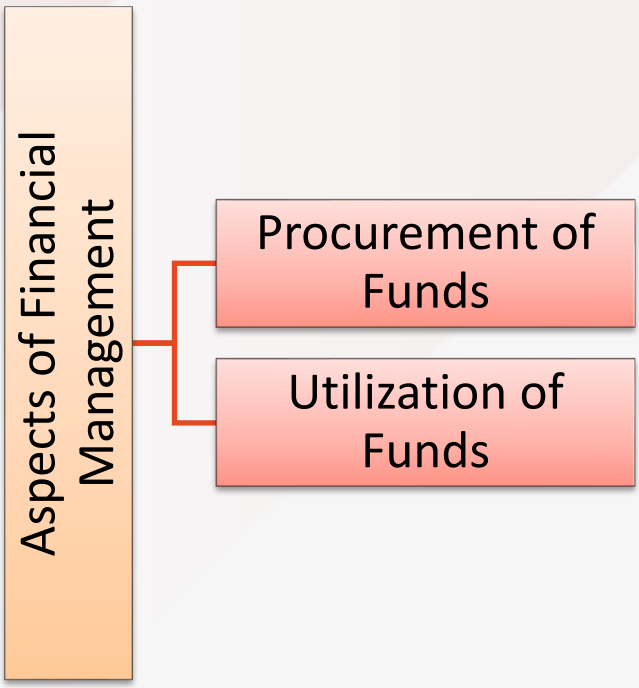
Any business enterprise requiring money and the 3 key questions being enquired into

1. Where to get the money from? **(Financing Decision)**
2. Where to invest the money? **(Investment Decision)**
3. How much to distribute amongst shareholders to keep them satisfied?

(Dividend Decision)

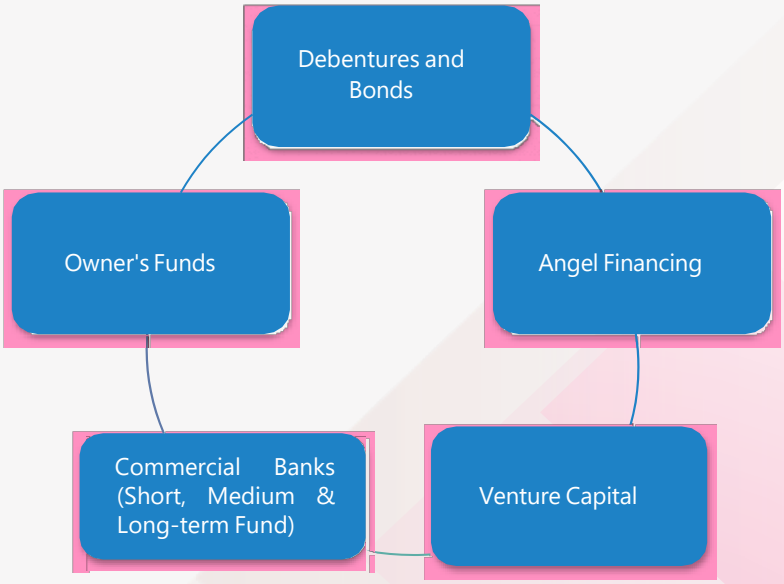
1. MEANING OF FINANCIAL MANAGEMENT

Financial management is that **managerial activity which is concerned with planning and controlling of the firm's financial resources.** There are two basic aspects of financial management viz., procurement of funds and an effective use of these funds to achieve business objectives.



1.1 Procurement of Funds

Since funds can be obtained from different sources therefore their procurement is always considered as a complex problem by business concerns. Some of the **sources for funds** for a business enterprise are:

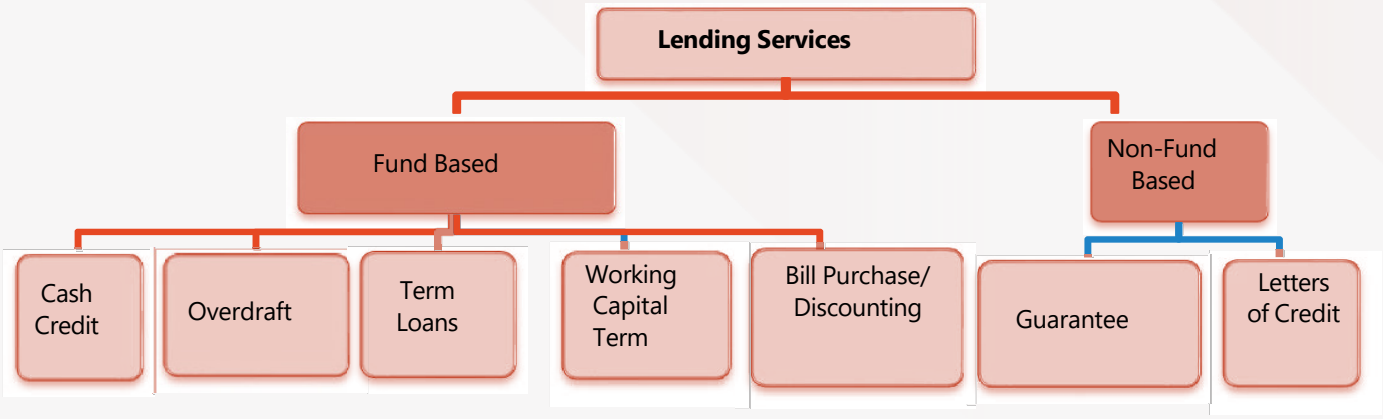


Let us discuss some of the sources of funds (discussed in detail in later chapters):

(a) **Equity:** The funds raised by the issue of equity shares are the best from the risk point of view for the firm, since there is no question of repayment of equity capital except when the firm is under liquidation.

(b) **Debentures:** Debentures as a source of funds are comparatively cheaper than the shares because of their tax advantage. The interest the company pays on a debenture is free of tax, unlike a dividend payment which is made from the taxed profits.

(c) **Funding from Banks:** Commercial Banks play an important role in funding of the business enterprises. Different lending services provided by Commercial Banks are depicted as follows:-



(d) **International Funding:** Funding today is not limited to domestic market. With liberalization and globalization a business enterprise has options to raise capital from International markets also.

(e) **Angel Financing:** Angel Financing is a form of an equity-financing where an angel investor is a wealthy individual who provides capital for start-up or expansion, in exchange for an ownership/equity in the company.

1.2 Effective Utilisation of Funds

Some of the aspects of funds utilization are:

(a) **Utilization for Fixed Assets:** The funds are to be invested in the manner so that the company can produce at its optimum level without endangering its financial solvency.

(b) **Utilization for Working Capital:** The finance manager must also keep in view the need for adequate working capital and ensure that while the firms enjoy an optimum level of working capital they do not keep too much funds blocked in inventories, book debts, cash etc.

2. EVOLUTION OF FINANCIAL MANAGEMENT

Financial management evolved gradually over the past 50 years. The evolution of Financial Management is divided into three phases.

The three stages of its evolution are:

The Traditional Phase: During this phase, Financial Management was considered necessary only during occasional events such as takeovers, mergers, expansion, liquidation, etc.

The Transitional Phase: During this phase, the day-to-day problems that financial managers faced were given importance. The general problems related to funds analysis, planning and control were given more attention in this phase.

The Modern Phase: Modern phase is still going on. The scope of Financial Management has greatly increased now. It is important to carry out financial analysis for a company. This analysis helps in decision making.

3. FINANCE FUNCTIONS/ FINANCE DECISION

Value of a firm will depend on various finance functions/decisions. It can be expressed as :

V = f (I,F,D).

The finance functions are divided into long term and short term functions/decisions

Long term Finance Function Decisions

(a) **Investment decisions (I):** These decisions relate to the selection of assets in which funds will be invested by a firm.

(b) **Financing decisions (F):** These decisions relate to acquiring the optimum finance to meet financial objectives and seeing that fixed and working

Short-term Finance Decisions/ Function

Working Capital Management (WCM): Generally short term decision are reduced to management of current asset and current liability (i.e., working capital Management)

4. IMPORTANCE OF FINANCIAL MANAGEMENT

The best way to demonstrate the importance of good financial management is to describe some of the tasks that it involves:-

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- Taking care not to over-invest in fixed assets
- Balancing cash-outflow with cash-inflows
- Ensuring that there is a sufficient level of short-term working capital
- Setting sales revenue targets that will deliver growth
- Increasing gross profit by setting the correct pricing for products or services
- Controlling the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
- Tax planning that will minimize the taxes a business has to pay

5. SCOPE OF FINANCIAL MANAGEMENT

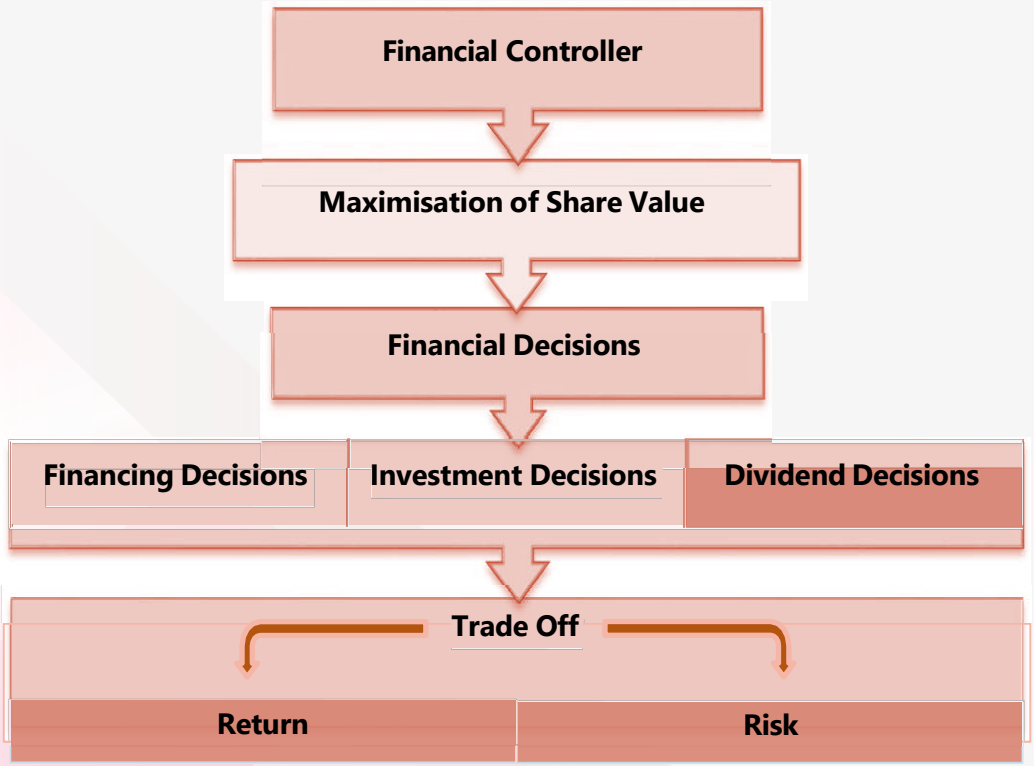
following aspects are taken up in detail under the study of financial management:

(a) **Determination** of size of the enterprise and determination of rate of growth.

(b) **Determining** the composition of assets of the enterprise.

(c) **Determining** the mix of enterprise's financing i.e. consideration of level of debt to equity, etc.

(d) **Analysis, planning and control** of financial affairs of the enterprise.



An Overview of Financial Controller

6. OBJECTIVES OF FINANCIAL MANAGEMENT

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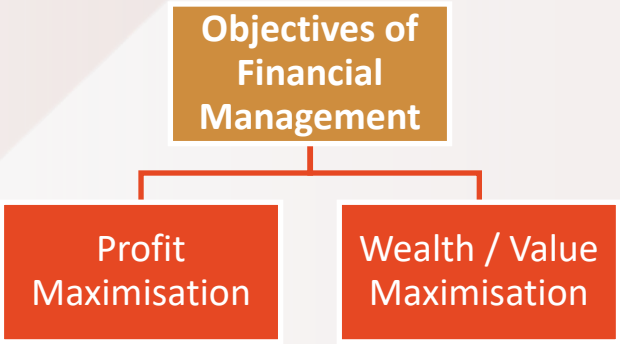
two objectives of financial management for elaborate discussion. These are:



6.1 Profit Maximisation

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation.

However, profit maximisation cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise.

Some of these have been discussed below:

(i) The term profit is vague. It does not clarify what exactly it means. It conveys a different meaning to different people.

(ii) Profit maximisation has to be attempted with a realisation of risks involved. There is a direct relationship between risk and profit.

(iii) Profit maximisation as an objective does not take into account the time pattern of returns..

(iv) Profit maximisation as an objective is too narrow. It fails to take into account the social considerations as also the obligations to various interests of workers, consumers, society, as well as ethical trade practices.

6.2 Wealth Maximisation/ Value Creation

Wealth = Present value of benefits – Present Value of Costs

The shareholder value maximization model holds that the primary goal of the firm is to maximize its market value and implies that business decisions should seek to increase the net present value of the economic profits of the firm. So, for measuring and maximising shareholders wealth finance manager should follow:

- Cash Flow approach not Accounting Profit
- Cost benefit analysis
- Application of time value of money.

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Value of a firm (V) = Number of Shares (N) × Market price of shares (MP) Or

V = Value of equity (V_e) + Value of debt (V_d)

Why Wealth Maximization Works? Before we answer this question it is important to first understand and know what other goals a business enterprise may have. Some of the other goals a business enterprise may follow are:-

- Achieving a higher growth rate
- Attaining a larger market share
- Gaining leadership in the market in terms of products and technology
- Promoting employee welfare
- Increasing customer satisfaction
- Improving community life, supporting education and research, solving societal problems, etc.

7. CONFLICTS IN PROFIT VERSUS VALUE MAXIMISATION PRINCIPLE

In any company, the management is the decision taking authority. As a normal tendency the management may pursue its own personal goals (profit maximization). But in an organization where there is a significant outside participation (shareholding, lenders etc.), the management may not be able to exclusively pursue its personal goals due to the constant supervision of the various stakeholders of the company-employees, creditors, customers, government, etc.

Every entity associated with the company will evaluate the performance of the management from the fulfilment of its own objective. The survival of the management will be threatened if the objective of any of the entities remains unfulfilled.

The wealth maximization objective is generally in accord with the interests of the various groups such as owners, employees, creditors and society, and thus, it may be consistent with the management objective of survival.

The table below highlights some of the advantages and disadvantages of both profit maximization and wealth maximization goals:-

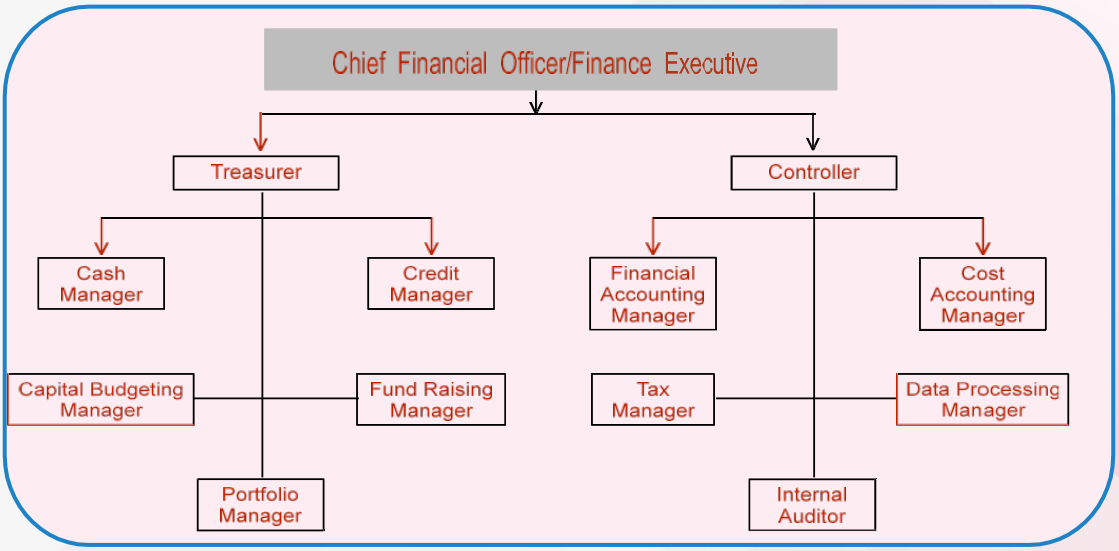
Goal	Objective	Advantages	Disadvantages
Profit Maximization	Large amount of profits	(i) Easy to calculate profits (ii) Easy to determine the link between financial decisions and profits.	(i) Emphasizes the short term gains (ii) Ignores risk or uncertainty (iii) Ignores the timing of returns (iv) Requires immediate resources.
Shareholders Wealth Maximisation	Highest market value of shares.	(i) Emphasizes the long term gains (ii) Recognises risk or uncertainty (iii) Recognises the timing of returns (iv) Considers shareholders' return.	(i) Offers no clear relationship between financial decisions and share price. (ii) Can lead to management anxiety and frustration.

8. ROLE OF FINANCE EXECUTIVE

His responsibilities include:

(a) **Financial analysis and planning:** Determining the proper amount of funds to employ in the firm, i.e. designating the size of the firm and its rate of growth.
(b) **Investment decisions:** The efficient allocation of funds to specific assets.
(c) **Financing and capital structure decisions:** Raising funds on favourable terms as possible i.e. determining the composition of liabilities.
(d) **Management of financial resources** (such as working capital).
(e) **Risk management:** Protecting assets.

The figure below shows how the finance function in a large organization may be organized.



Role of Finance Executive in today's World vis-a-vis in the past

Some of the key differences that highlight the changing role of a CFO are as follows:-

What a CFO used to do?	What a CFO now does?
Budgeting	Budgeting
Forecasting	Forecasting
Accounting	Managing M&As
Treasury (cash management)	Profitability analysis (for example, by customer or product)
Preparing internal financial reports for management	Pricing analysis
Preparing quarterly, annual filings for investors	Decisions about outsourcing
Tax filing	Overseeing the IT function
Tracking accounts payable and accounts receivable	Overseeing the HR function
Travel and entertainment expense management	Strategic planning (sometimes overseeing this function)
	Regulatory compliance
	Risk management

1. FINANCIAL DISTRESS AND INSOLVENCY

financial distress is a position where Cash inflows of a firm are inadequate to meet all its current obligations.

Now if distress continues for a long period of time, firm may have to sell its asset, even many times at a lower price. So, **insolvency basically means inability of a firm to repay various debts and is a result of continuous financial distress.**

2. RELATIONSHIP OF FINANCIAL MANAGEMENT WITH RELATED DISCIPLINES

Some of the relationships are being discussed below:

2.1 Financial Management and Accounting

The relationship between financial management and accounting are closely related to the extent that accounting is an important input in financial decision making. In other words, accounting is a necessary input into the financial management function.

2.2 Treatment of Funds

In accounting, the measurement of funds is based on the accrual principle i.e. revenue is recognised at the point of sale and not when collected and expenses are recognised when they are incurred rather than when actually paid.

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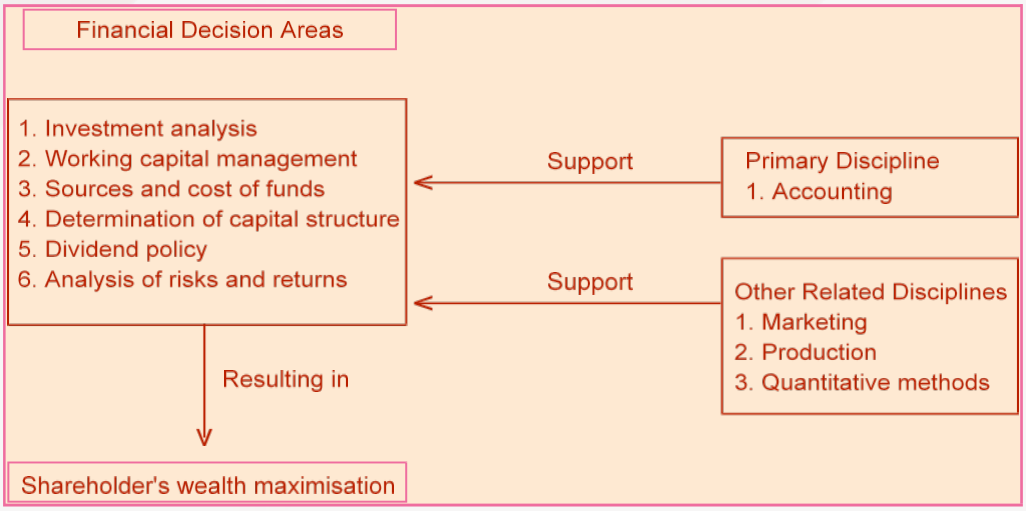
2.3 Decision-making

The purpose of accounting is to collect and present financial data of the past, present and future operations of the organization. The financial manager uses these data for financial decision making.

1.1 Financial Management and Other Related Disciplines

For its day to day decision making process, financial management also draws on other related disciplines such as marketing, production and quantitative methods apart from accounting.



Impact of Other Disciplines on Financial Management

The above figure depicts the relationship between financial management and supportive disciplines. The marketing, production and quantitative methods are, thus, only indirectly related to day to day decision making by financial managers and are supportive in nature while accounting is the primary discipline on which the financial manager draws considerably.

1. AGENCY PROBLEM AND AGENCY COST

Agency Problem

there is a principal agent relationship between managers and owners, which is known as Agency Problem, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behaviour so as to maximise shareholders wealth. Generally, Agency Costs are of four types

(i) **monitoring**

(ii) **bonding**

(iii) **opportunity**

(iv) **structuring.**

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Addressing the agency problem

However, following efforts have been made to address these issues:

- Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.
- Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.
- Effecting monitoring can be done.

CHAPTER - 2

TYPES OF FINANCING

1. FINANCIAL NEEDS AND SOURCES OF FINANCE OF A BUSINESS

Financial Needs of a Business

Business enterprises need funds to meet their different types of requirements. All the financial needs of a business may be grouped into the following three categories:

(i) **Long-term financial needs:** Such needs generally refer to those requirements of funds which are for a period exceeding 5-10 years

(ii) **Medium-term financial needs:** Such requirements refer to those funds which are required for a period exceeding one year but not exceeding 5 years.

(iii) **Short-term financial needs:** Such type of financial needs arise to finance current assets such as stock, debtors, cash etc. Investment in these assets are known as meeting of working capital requirements of the concern. The main characteristic of short-term financial needs is that they arise for a short period of time not exceeding the accounting period. i.e., one year.

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Basic Principle for Funding Various Needs

The basic principle for meeting the short-term financial needs of a concern is that such needs should be met from short term sources, and medium-term financial needs from medium term sources and long term financial needs from long term sources.

General rule for financing of different assets would take place. These rules can be changed depending on the nature of borrower i.e. depending on the borrower's level of operation Besides, the stage of development of the business and nature of business would also decide the type of borrowing. Generally, it can be as follows:

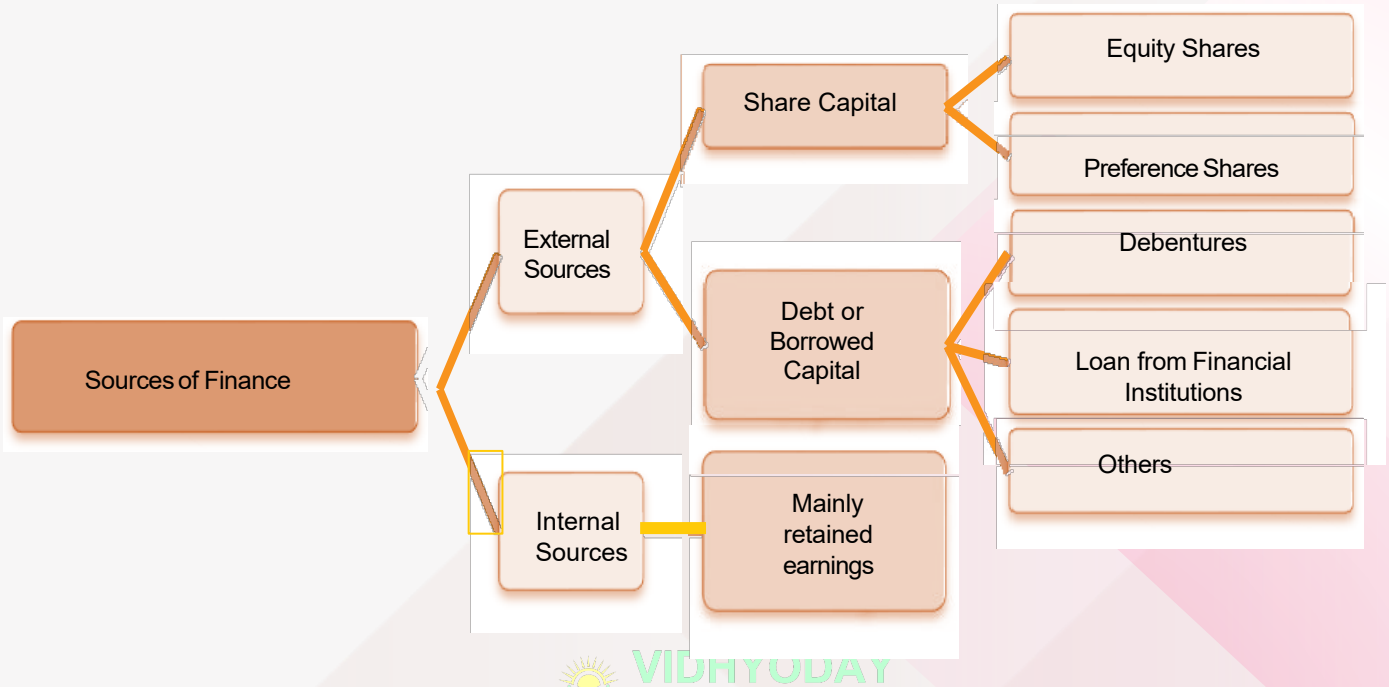
Stage	Nature of Business	Sources of Fund
Early stage	High Uncertainty	Equity; mainly Angel fund
	High to moderate Uncertainty	Equity; Venture capital; Debt
Growth Stage	Moderate to Low Uncertainty	Debt; Venture Capital; Private Equity
Stable stage	Low Uncertainty	Debt

1. CLASSIFICATION OF FINANCIAL SOURCES

There are mainly two ways of classifying various financial sources (i) Based on basic Sources (ii) Based on Maturity of repayment period.

1.1 Sources of Finance based on Basic Sources

Based on basic sources of finance, types of financing can be classified as below:



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1.1 Sources of Finance based on Maturity of Payment

Sources of finance based on maturity of payment can be classified as below:

2. LONG-TERM SOURCES OF FINANCE

There are different sources of funds available to meet long term financial needs of the business. These sources may be broadly classified into:

- **Share capital** (both equity and preference) &
- **Debt** (including debentures, long term borrowings or other debt instruments).

The different sources of long-term finance have been discussed as follows:

3.1 Owners Capital or Equity Capital

A public limited company may raise funds from promoters or from the investing public by way of owner's capital or equity capital by issuing ordinary equity shares. Some of the characteristics of Owners/Equity Share Capital are:

- It is a source of permanent capital. The holders of such share capital in the company are called equity shareholders or ordinary shareholders.
- Equity shareholders are practically owners of the company as they undertake the highest risk.
- Equity shareholders are entitled to dividends after the income claims of other stakeholders are satisfied. The dividend payable to them is an appropriation of profits and not a charge against profits.
- In the event of winding up, ordinary shareholders can exercise their claim on assets after the claims of the other suppliers of capital have been met.
- The cost of ordinary shares is usually the highest. This is due to the fact that such shareholders expect a higher rate of return (as their risk is the highest) on their investment as compared to other suppliers of long-term funds.
- Ordinary share capital also provides a security to other suppliers of funds.

Advantages of raising funds by issue of equity shares are:

(i) It is a permanent source of finance.
(ii) Equity capital increases the company's financial base and thus helps to further the borrowing powers of the company.
(iii) A company is not obliged legally to pay dividends.
(iv) A company can make further increase its share capital by initiating a right issue.

Disadvantages of raising funds by issue of equity shares are:

(i) Investors find ordinary shares riskier because of uncertain dividend payments and capital gains.

(ii) The issue of new equity shares reduces the earning per share of the existing shareholders until and unless the profits are proportionately increased.

(iii) The issue of new equity shares can also reduce the ownership and control of the existing shareholders.

3.2 Preference Share Capital

These are special kind of shares; the holders of such shares enjoy priority, both as regard to the payment of a fixed amount of dividend and also towards repayment of capital on winding up of the company.

Some of the characteristics of Preference Share Capital are as follows:

- Long-term funds from preference shares can be raised through a public issue of shares.
- Such shares are normally cumulative, i.e., the dividend payable in a year of loss gets carried over to the next year till there are adequate profits to pay the cumulative dividends.
- The rate of dividend on preference shares is normally higher than the rate of interest on debentures, loans etc.
- Most of preference shares these days carry a stipulation of period and the funds have to be repaid at the end of a stipulated period.
- Preference share capital is a hybrid form of financing which imbibes within itself some characteristics of equity capital and some attributes of debt capital.
- Cumulative Convertible Preference Shares (CCPs) may also be offered, under which the shares would carry a cumulative dividend of specified limit for a period of say three years after which the shares are converted into equity shares. These shares are attractive for projects with a long gestation period
- Preference share capital may be redeemed at a pre decided future date or at an earlier stage inter alia out of the profits of the company

Various types of Preference shares can be as below:

Sl. No.	Type of Preference Shares	Salient Features
1	Cumulative	Arrear Dividend will accumulate.
2	Non-cumulative	No right to arrear dividend.
3	Redeemable	Redemption should be done.
4	Participating	Can participate in the surplus which remains after payment to equity shareholders.
5	Non-Participating	Cannot participate in the surplus after payment of fixed rate of Dividend.
6	Convertible	Option of converting into equity Shares.

Advantages of raising funds by issue of preference shares are:

(i) No dilution in EPS on enlarged capital base

(ii) There is also the advantage of leverage as it bears a fixed charge

(iii) There is no risk of takeover as the preference shareholders do not have voting rights.

(iv) The preference dividends are fixed and pre-decided.

Disadvantages of raising funds by issue of preference shares are:

(i) preference dividend is not tax deductible and so does not provide a tax shield to the company.

(ii) Preference dividends are cumulative in nature.

Difference between Equity Shares and Preference Shares are as follows

Sl. No.	Basis of Distinction	Equity Share	Preference Share
1	Dividend payment	Equity Dividend is paid after preference dividend.	Payment of preference dividend is preferred over equity dividend.
2	Rate of dividend	Fluctuating	Fixed
3	Convertibility	Not convertible	Convertible
4	Voting rights	Equity shareholders enjoy full voting rights.	They have very limited voting rights.

3.1 Retained Earnings

Long-term funds may also be provided by accumulating the profits of the company and by ploughing them back into business. Such funds belong to the ordinary shareholders and increase the net worth of the company.

3.3 Debentures

Loans can be raised from public by issuing debentures or bonds by public limited companies. Some of the characteristics of debentures are:

- Debentures are normally issued in different denominations ranging from ₹100 to ₹ 1,000 and carry different rates of interest.
- Normally, debentures are issued on the basis of a debenture trust deed which lists the terms and conditions on which the debentures are floated.
- Debentures are basically instruments for raising long-term debt capital.

- The period of maturity normally varies from 3 to 10 years and may also increase for projects having high gestation period.
- Debentures are either secured or unsecured.
- They may or may not be listed on the stock exchange.
- The cost of capital raised through debentures is quite low since the interest payable on debentures can be charged as an expense before tax.
- From the investors' point of view, debentures offer a more attractive prospect than the preference shares since interest on debentures is payable whether or not the company makes profits.

Debentures can be divided into the following three categories based on their convertibility:

(i) **Non-convertible debentures** – These types of debentures do not have any feature of conversion and are repayable on maturity.

(ii) **Fully convertible debentures** – Such debentures are converted into equity shares as per the terms of issue in relation to price and the time of conversion.

(iii) **Partly convertible debentures** – These debentures carry features of both convertible and non-convertible debentures. The investor has the advantage of having both the features in one debenture.

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Other types of Debentures with their features are as follows:

Sl. No.	Type of Debenture	Salient Feature
1	Bearer	Transferable like negotiable instruments
2	Registered	Interest payable to registered person
3	Mortgage	Secured by a charge on Asset(s)
4	Naked or simple	Unsecured
5	Redeemable	Repaid after a certain period
6	Non-Redeemable	Not repayable

Advantages of raising finance by issue of debentures are:

(i) The cost of debentures is much lower than the cost of preference or equity capital

(ii) Debenture financing does not result in dilution of control.

(iii) In a period of rising prices, debenture issue is advantageous.

Disadvantages of debenture financing are:

(i) Debenture interest and the repayment of its principal amount is an obligatory payment.

(ii) The protective covenants associated with a debenture issue may be restrictive.

(iii) Debenture financing enhances the financial risk associated with the firm

(iv) Since debentures need to be paid at the time of maturity, a large amount of cash outflow is needed at that time.

Difference between Preference Shares and Debentures

Basis of difference	Preference shares	Debentures
Ownership	Preference Share Capital is a special kind of share	Debenture is a type of loan which can be raised from the public
Payment of Dividend/ Interest	The preference shareholders enjoy priority both as regard to the payment of a fixed amount of dividend and also towards repayment of capital in case of winding up of a company	It carries fixed percentage of interest.
Nature	Preference shares are a hybrid form of financing with some characteristic of equity shares and some attributes of Debt Capital.	Debentures are instrument for raising long term capital with a fixed period of maturity.

3.1 Bond

Bond is fixed income security created to raise fund. Bonds can be raised through Public Issue and through Private Placement.

Types of Bonds

Based on call, Bonds can be categorized as:

(i) Callable bonds, (ii) Puttable bonds

(i) **Callable bonds:** A callable bond has a call option which gives the issuer the right to redeem the bond before maturity at a predetermined price known as the call price (Generally at a premium).

(ii) **Puttable bonds:** Puttable bonds give the investor a put option (i.e. the right to sell the bond) back to the company before maturity.

Various Bonds with their salient features are as follows:

(i) Foreign Bonds

Sl. No.	Name of Bond	Salient Features
1.	Foreign Currency Convertible Bond (FCCB)	• This bond comes at a very low rate of interest. • The advantage to the issuer is that the issuer can get foreign currency at a very low cost. • The risk is that in case the bond has to be redeemed on the date of maturity, the issuer has to make the payment and at that time the issuer may not have the money. •
2.	Plain Vanilla Bond	• The issuer would pay the principal amount along with the interest rate. • This type of bond would not have any options. • This bond can be issued in the form of discounted bond or can be issued in the form of coupon bearing bond.
3.	Convertible Floating Rate Notes (FRN)	• A convertible FRN is issued by giving its holder an option to convert it into a longer term debt security with a specified coupon • It protects an investor against falling interest rate • The long- term debt security can be sold in the market and the investor can earn profit • Capital gain is not applicable to FRN
4.	Drop Lock Bond	• It is a Floating Rate Note with a normal floating rate • The floating rate bond would be automatically converted into fixed rate bond if interest rate falls below a predetermined level • The new fixed rate stays till the drop lock bond reaches its maturity • The difference between the convertible floating rate note and drop lock bond is that the former is a long option structure and the later one is a short option structure
5.	Variable Rate Demand Obligations	• A normal floating rate note with a nominal maturity • The holder of the floating rate note can sell the obligation back to the trustee at par plus accrued interest

		• It gives the investor an option to exit, so it is more liquid than the normal FRN
6.	**Yield Curve Note (YCN)**	• It is a structured debt security • Yield increases when prevailing interest rate declines • Yield decreases when prevailing interest rate increases • This is used to hedge the interest rate • This works like inverse floater
7.	**Euro Bond**	• Euro bonds are issued or traded in a country using a currency other than the one in which the bond is denominated. This means that the bond uses a certain currency, but operates outside the jurisdiction of the Central Bank that issues that currency. • Eurobonds are issued by multinational corporations, for example, a British company may issue a Eurobond in Germany, denominating it in U.S. dollars • It is important to note that the term has nothing to do with the euro, and the prefix "euro-" is used more generally to refer to deposit outside the jurisdiction of the domestic central bank
Sl. No.	Name of Bond	Salient Feature
1.	**Masala Bond**	Masala (means spice) bond is an Indian name used for Rupee denominated bond that Indian corporate borrowers can sell to investors in overseas markets. • These bonds are issued outside India but denominated in Indian Rupees. • NTPC raised ` 2,000 crore via masala bonds for its capital expenditure in the year 2016.
2.	**Municipal Bonds**	Municipal bonds are used to finance urban infrastructure are increasingly evident in India. • Ahmedabad Municipal Corporation issued a first historical Municipal Bond in Asia to raise `100 crore from the capital market for part financing a water supply project.
3.	**Government or Treasury Bonds**	Government or Treasury bonds are bonds issued by Government of India, Reserve Bank of India, any state Government or any other Government department.

3.4 Loans from Financial Institutions

(i) **Financial Institution: National**

(ii) **Financial Institution: International Institutions**

3.5 Loans from Commercial Banks

The primary role of the commercial banks is to cater to the short-term requirements of industry. Of late, however, banks have started taking an interest in long term financing of industries in several ways.

Bridge Finance: Bridge finance refers to loans taken by a company normally from commercial banks for a short period because of pending disbursement of loans sanctioned by financial institutions.

3. VENTURE CAPITAL FINANCING

3.1 Meaning of Venture Capital Financing

The venture capital **financing refers to financing of new high risky venture promoted by qualified entrepreneurs** who lack experience and funds to give shape to their ideas.

Characteristics of Venture Capital Financing

Some of the characteristics of Venture Capital financing are:

- It is basically an equity finance in new companies.
- It can be viewed as a long-term investment in growth-oriented small/medium firms.
- Apart from providing funds, the investor also provides support in form of sales strategy, business networking and management expertise, enabling the growth of the entrepreneur.

3.2 Methods of Venture Capital Financing

Some common methods of venture capital financing are as follows:

(i) **Equity financing:** The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages.

(ii) **Conditional loan:** A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans..

(iii) **Income note:** It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates.

(iv) **Participating debenture:** Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.

4. DEBT SECURITISATION

Meaning of Debt Securitisation

Securitisation is a process in which illiquid assets are pooled into marketable securities that can be sold to investors

MECHANISM OF SECURITIZATION

5.1 Creation of Pool of Assets

The process of securitization begins with creation of pool of assets by segregation of assets backed by similar type of mortgages (in the case of MBS) in terms of interest rate, risk, maturity and concentration units.

5.2 Transfer to SPV

Once assets have been pooled, they are transferred to Special Purpose Vehicle (SPV) especially created for this purpose.

5.3 Sale of Securitized Papers

SPV designs the instruments based on nature of interest, risk, tenure, pool of assets etc. These instruments can be Pass Through Security or Pay Through Certificates (PTC), (discussed later).

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5.4 Administration of assets

The administration of assets in sub-contracted back to originator which collects principal and interest from underlying assets and transfer it to SPV, which works as a servicer/ conduit typically for an agreed fee.

5.5 Recourse to Originator

Performance of securitized papers depends on the performance of underlying assets and unless specified otherwise in case of default by debtors, receivables go back to originator from SPV.

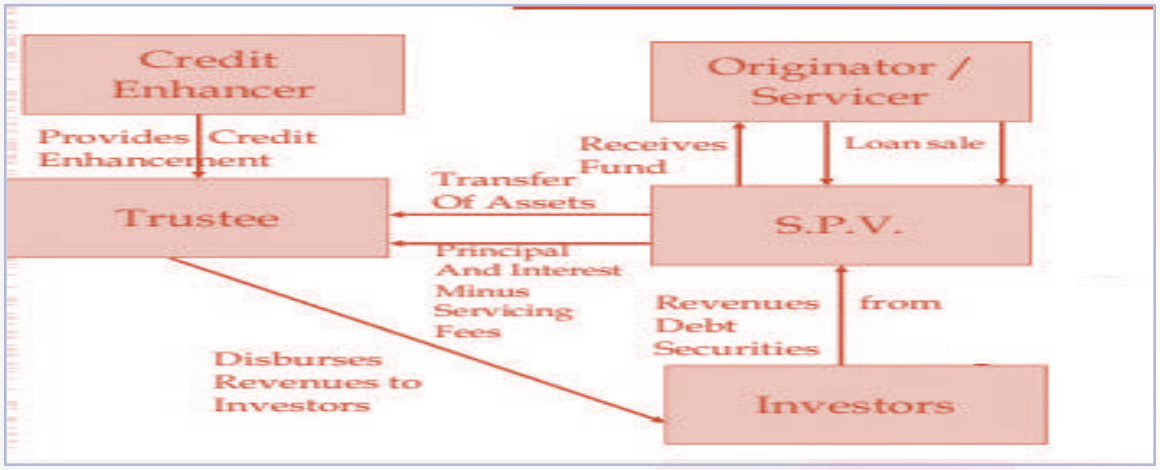
5.6 Repayment of funds

SPV will repay the funds to the investor in form of interest and principal that arises from the assets pooled.

5.7 Credit Rating to Instruments

Sometime before the sale of securitized instruments credit rating can be done to assess the risk of the issuer.

The mechanism of Securitization has been shown below in form of a diagram.



5. LEASE FINANCING

Leasing is a general contract between the owner and user of the asset over a specified period of time. The asset is purchased initially by the lessor (leasing company) and thereafter leased to the user (lessee company) which pays a specified rent at periodical intervals.

Types of Lease Contracts

Broadly lease contracts can be divided into following two categories:

(a) Operating Lease (b) Financial Lease

(a) **Operating Lease:** An operating lease is a form of lease in which the right to use the asset is given by the lessor to the lessee. However, the ownership right of the asset remains with the lessor.

(b) **Financial Lease:** In contrast to an operating lease, a financial lease is long term in nature and non-cancelable i.e. the lessee cannot terminate the lease agreement subsequently So, the period of lease is generally the full economic life of the leased asset.

	Financial Lease	Operating Lease
1.	The risk and reward incident to ownership are passed on to the lessee. The lessor only remains the legal owner of the asset.	The lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the lessor.
2.	The lessee bears the risk of obsolescence.	The lessor bears the risk of obsolescence.
3.	The lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. Therefore, the lease is non-cancellable by either party.	As the lessor does not have difficulty in leasing the same asset to other willing lessee, the lease is kept cancelable by the lessor.

4.	The lessor enters into the transaction only as financier. He does not bear the cost of repairs, maintenance or operations.	Usually, the lessor bears cost of repairs, maintenance or operations.
5.	The lease is usually full payout, that is, the single lease repays the cost of the asset together with the interest.	The lease is usually non-payout, since the lessor expects to lease the same asset over and over again to several users.

5.1 Other Types of Leases

(a) **Sales and Lease Back:** Under this type of lease, the owner of an asset sells the asset to a party (the buyer), who in turn leases back the same asset to the owner in consideration of a lease rentals

(b) **Leveraged Lease:** Under this lease, a third party is involved besides lessor and the lessee. The lessor borrows a part of the purchase cost (say 80%) of the asset from the third party i.e., lender and asset so purchased is held as security against the loan.

(c) **Sales-aid Lease:** Under this lease contract, the lessor enters into a tie up with a manufacturer for marketing the latter's product through his own leasing operations, it is called a sales-aid lease

(d) **Close-ended and Open-ended Leases:** In the close-ended lease, the assets get transferred to the lessor at the end of lease, the risk of obsolescence, residual value etc., remain with the lessor being the legal owner of the asset

6. SHORT-TERM SOURCES OF FINANCE

There are various sources available to meet short-term needs of finance. The different sources are discussed below:

(i) **Trade Credit:** It represents credit granted by suppliers of goods, etc., as an incident of sale. The usual duration of such credit is 15 to 90 days

(ii) **Accrued Expenses and Deferred (Unearned) Income:** Accrued expenses represent liabilities which a company has to pay for the services which it has already received like wages, taxes, interest and dividends.

(iii) **Advances from Customers:** Manufacturers and contractors engaged in producing or constructing costly goods involving considerable length of manufacturing or construction time usually demand advance money from their customers at the time of accepting their orders for executing their contracts or supplying the goods. This is a cost free source of finance and really useful.

(iv) **Commercial Paper:**

1. A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note.

2. the Corporate, Primary Dealers and All India Financial Institutions have also been allowed to issue Commercial Papers. Commercial papers are issued in denominations of Rs.5 lakhs or multiples thereof
3. the interest rate is generally linked to the yield on the one-year government bond
4. All eligible issuers are required to get the credit rating from Credit Rating Information Services of India Ltd, (CRISIL), or the Investment Information and Credit Rating Agency of India Ltd (ICRA) or the Credit Analysis and Research Ltd (CARE) or the FITCH Ratings India Pvt. Ltd

(v) **Treasury Bills:** Treasury bills are a class of Central Government Securities. Treasury bills, commonly referred to as T-Bills are issued by Government of India to meet short term borrowing requirements with maturities ranging between 14 to 364 days.

(vi) **Certificates of Deposit (CD):** A certificate of deposit (CD) is basically a savings certificate with a fixed maturity date of not less than 15 days up to a maximum of one year.

(vii) **Bank Advances:** Banks receive deposits from public for different periods at varying rates of interest. Some of the facilities provided by banks are:

(a) **Short Term Loans:** In a loan account, the entire advance is disbursed at one time either in cash or by transfer to the current account of the borrower.

(b) **Overdraft:** Under this facility, customers are allowed to withdraw in excess of credit balance standing in their Current Account. A fixed limit is, therefore, granted to the borrower within which the borrower is allowed to overdraw his account.

(c) **Clean Overdrafts:** Request for clean advances are entertained only from parties which are financially sound and having reputation for their integrity.

(d) **Cash Credits:** Cash Credit is an arrangement under which a customer is allowed an advance up to certain limit against credit granted by bank

(e) **Advances against goods:,** goods are charged to the bank either by way of pledge or by way of hypothecation.

(f) **Bills Purchased/ Discounted:** Under this head, banks give advances against the security of bills which may be clean or documentary.

(viii) **Financing of Export Trade by Banks:** Exports play an important role in accelerating the economic growth of developing countries like India. Out of the several factors influencing export growth, credit is a very important factor which enables exporters in efficiently executing their export orders. The commercial banks provide short-term export finance mainly by way of pre and post-shipment credit. Export finance is granted in Rupees as well as in foreign currency.

The advances by commercial banks for export financing are in the form of:

(i) Pre-shipment finance i.e., before shipment of goods.

(ii) Post-shipment finance i.e., after shipment of goods.

(i) **Pre-Shipment Finance:** This generally takes the form of packing credit facility; packing credit is an advance extended by banks to an exporter for the purpose of buying, manufacturing, processing, packing, shipping goods to overseas buyers.

Types of Packing Credit

(a) **Clean packing credit:** This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods.

(b) **Packing credit against hypothecation of goods:** Export finance is made available on certain terms and conditions where the exporter has pledge able interest and the goods are hypothecated to the bank as security with stipulated margin.

(c) **Packing credit against pledge of goods:** Export finance is made available on certain terms and conditions where the exportable finished goods are pledged to the banks with approved clearing agents

(d) **E.C.G.C. guarantee:** Any loan given to an exporter for the manufacture, processing, purchasing, or packing of goods meant for export against a firm order qualifies for the packing credit guarantee issued by Export Credit Guarantee Corporation.

(e) **Forward exchange contract:** Another requirement of packing credit facility is that if the export bill is to be drawn in a foreign currency, the exporter should enter into a forward exchange contact with the bank, thereby avoiding risk involved in a possible change in the rate of exchange.

(ii) Post-shipment Finance: It takes the following forms:

(a) **Purchase/discounting of documentary export bills:** Finance is provided to exporters by purchasing export bills drawn payable at sight or by discounting usance export bills covering confirmed sales and backed by documents

(b) **E.C.G.C. Guarantee:** Post-shipment finance, given to an exporter by a bank through purchase, negotiation or discount of an export bill against an order, qualifies for post-shipment export credit guarantee.

(c) **Advance against export bills sent for collection:** Finance is provided by banks to exporters by way of advance against export bills forwarded through them for collection, taking into account the creditworthiness of the party, nature of goods exported, usance, standing of drawee etc.

(d) **Advance against duty draw backs, cash subsidy, etc.:** To finance export losses sustained by exporters, bank advance against duty draw-back, cash subsidy etc., receivable by them against export performance..

Other facilities extended to the exporters are as follows:

(i) On behalf of approved exporters, banks establish letters of credit on their overseas or up country suppliers.

(ii) Guarantees for waiver of excise duty, etc. due performance of contracts, bond in lieu of cash security deposit, guarantees for advance payments etc., are also issued by banks to approved clients.

(iii) To approved clients undertaking exports on deferred payment terms, banks also provide finance.

(iv) Banks also endeavour to secure for their exporter-customers status reports of their buyers and trade information on various commodities through their correspondents.

(v) Economic intelligence on various countries is also provided by banks to their exporter clients.

(ix) Inter Corporate Deposits: The companies can borrow funds for a short period, say 6 months, from other companies which have surplus liquidity. The rate of interest on inter corporate deposits varies depending upon the amount involved and the time period.

(x) Certificate of Deposit (CD): The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.

(xi) Public Deposits: Public deposits are very important source of short-term and medium term finances particularly due to credit squeeze by the Reserve Bank of India

7. OTHER SOURCES OF FINANCING

(i) **Seed Capital Assistance:** The Seed Capital Assistance scheme is designed by IDBI for professionally or technically qualified entrepreneurs and/or persons possessing relevant experience, skills and entrepreneurial traits but lack adequate financial resources. All the projects eligible for financial assistance from IDBI, directly or indirectly through refinance are eligible under the scheme.

(ii) **Internal Cash Accruals:** Existing profit-making companies which undertake an expansion/ diversification programme may be permitted to invest a part of their accumulated reserves or cash profits for creation of capital assets.

(iii) **Unsecured Loans:** Unsecured loans are typically provided by promoters to meet the promoters' contribution norm. These loans are subordinate to institutional loans

(iv) **Deferred Payment Guarantee:** Many a time suppliers of machinery provide deferred credit facility under which payment for the purchase of machinery can be made over a period of time..

(v) **Capital Incentives:** The backward area development incentives available often determine the location of a new industrial unit. These incentives usually consist of a lump sum subsidy and exemption from or deferment of sales tax and octroi duty.

(vi) **Deep Discount Bonds:** Deep Discount Bonds is a form of zero-interest bonds. These bonds are sold at a discounted value and on maturity, face value is paid to the investors.

(vii) **Secured Premium Notes:** Secured Premium Notes is issued along with a detachable warrant and is redeemable after a notified period of say 4 to 7 years. The conversion of detachable warrant into equity shares will have to be done within time period notified by the company.

(viii) **Zero Interest Fully Convertible Debentures:** These are fully convertible debentures which do not carry any interest. The debentures are compulsorily and automatically converted after a specified period of time and holders thereof are entitled to new equity shares of the company at predetermined price.

(ix) **Zero Coupon Bonds:** A Zero Coupon Bond does not carry any interest but it is sold by the issuing company at a discount.

(x) **Option Bonds:** These are cumulative and non-cumulative bonds where interest is payable on maturity or periodically. Redemption premium is also offered to attract investors.

(xi) **Inflation Bonds:** Inflation Bonds are the bonds in which interest rate is adjusted for inflation.

(xii) **Floating Rate Bonds:** This as the name suggests is bond where the interest rate is not fixed and is allowed to float depending upon the market conditions.

8. INTERNATIONAL FINANCING

The sources of external financing include:

(i) **Commercial Banks:** Like domestic loans, commercial banks all over the world extend Foreign Currency (FC) loans also for international operations. These banks also provide to overdraw over and above the loan amount.

(ii) **Development Banks:** Development banks offer long & medium term loans including FC loans. Many agencies at the national level offer a number of concessions to foreign companies to invest within their country and to finance exports from their countries e.g. EXIM Bank of USA.

(iii) **Discounting of Trade Bills:** This is used as a short-term financing method. It is used widely in Europe and Asian countries to finance both domestic and international business.

(iv) **International Agencies:** A number of international agencies have emerged over the years to finance international trade & business. The more notable among them include The International Finance Corporation (IFC), The International Bank for Reconstruction and Development (IBRD), The Asian Development Bank (ADB), The International Monetary Fund (IMF), etc.

(v) **International Capital Markets:** Today, modern organisations including MNC's depend upon sizeable borrowings in Rupees as well as Foreign Currency (FC). In order to cater to the needs of such organisations, international capital markets have sprung all over the globe such as in London.

In international capital market, the availability of FC is available under the four main systems viz:

- Euro-currency market
- Export credit facilities
- Bonds issues
- Financial Institutions

(vi) **Financial Instruments:** Some of the various financial instruments dealt with in the international market are briefly described below:

(a) **External Commercial Borrowings (ECB):** ECBs refer to commercial loans (in the form of bank loans, buyers credit, suppliers credit, securitised instruments (e.g. floating rate notes and fixed rate bonds) availed from non-resident lenders with minimum average maturity of 3 years.

External Commercial Borrowings can be accessed under two routes viz

(i) Automatic route and

(ii) Approval route..

(b) **Euro Bonds:** Euro bonds are debt instruments which are not denominated in the currency of the country in which they are issued

e.g. a Yen note floated in Germany.

(c) **Foreign Bonds:** These are debt instruments issued by foreign corporations or foreign governments. Such bonds are exposed to default risk, especially the corporate bonds.

(d) **Fully Hedged Bonds:** As mentioned above, in foreign bonds, the risk of currency fluctuations exists. Fully hedged bonds eliminate the risk by selling in forward markets the entire stream of principal and interest payments.

(e) **Medium Term Notes (MTN):** Certain issuers need frequent financing through the Bond route including that of the Euro bond. However, it may be costly and ineffective to go in for frequent issues. Instead, investors can follow the MTN programme. Under this programme, several lots of bonds can be issued, all having different features e.g. different coupon rates, different currencies etc. The timing of each lot can be decided keeping in mind the future market opportunities.

(f) **Floating Rate Notes (FRN):** These are issued up to seven years maturity. Interest rates are adjusted to reflect the prevailing exchange rates. They provide cheaper money than foreign loans.

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(g) **Euro Commercial Papers (ECP):** ECPs are short term money market instruments. They have maturity period of less than one year. They are usually designated in US Dollars.

(h) **Foreign Currency Option (FC):** A FC Option is the right (and not the obligation) to buy or sell, foreign currency at a certain specified price on or before a specified date. It provides a hedge against financial and economic risks.

(i) **Foreign Currency Futures:** FC Futures are obligations (and not the right) to buy or sell a specified foreign currency in the present for settlement at a future date.

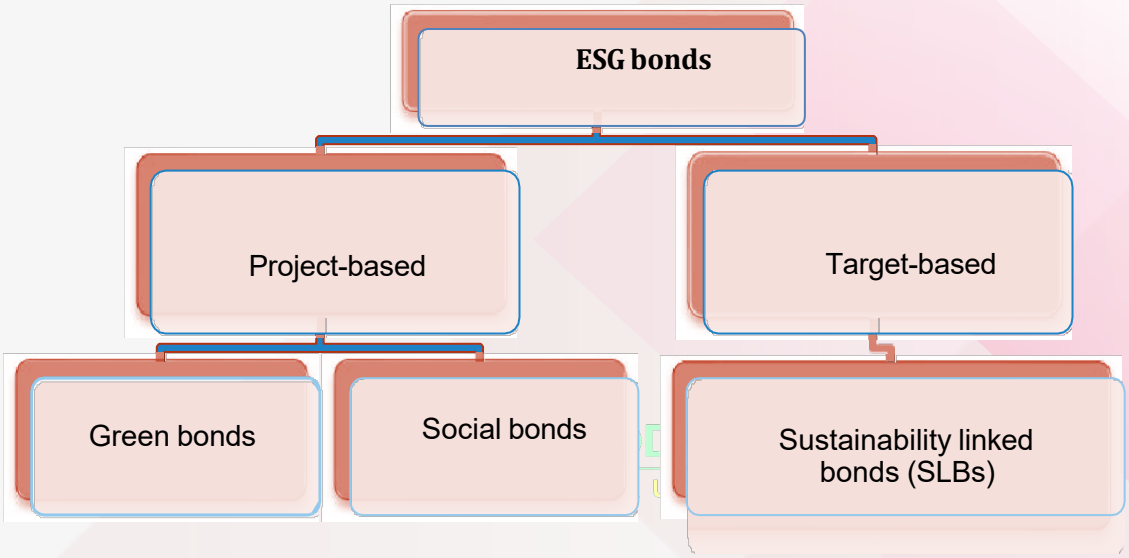
(j) **Foreign Euro Bonds:** In domestic capital markets of various countries the Bonds issues referred to above are known by different names such as Yankee Bonds in the US, Swiss Frances in Switzerland, Samurai Bonds in Tokyo and Bulldogs in UK.

(k) **Euro Convertible Bonds:** A convertible bond is a debt instrument which gives the holders of the bond an option to convert the bonds into a pre-determined number of equity shares of the company.

(l) **Euro Convertible Zero Bonds:** These bonds are structured as a convertible bond. No interest is payable on the bonds. But conversion of bonds takes place on maturity at a pre- determined price

(m) **Euro Bonds with Equity Warrants:** These bonds carry a coupon rate determined by market rates. The warrants are detachable. Pure bonds are traded at a discount..

(n) **Environmental, Social and Governance-linked bonds (ESG):** These bonds carry a responsibility of the issuer company to prioritize optimal environmental, social and governance (ESG) factors. Investing in ESG bonds is considered as socially responsible investing



- **Green bonds:** These are the most popular ESG bonds that are issued by a financial, non-financial or public institution, where the bond proceeds are used to finance "green projects". Green projects are aimed at positive environmental and/or climate impact including the cultivation of eco- friendly technology. India is the second-largest green bond market. For example: Ghaziabad Municipal Corporation (GMC) becomes the first Municipal Corporation to raise Rs 150 crore from Green Bond in the Year 2021.

- **Social bonds:** These bonds finance the socially impactful projects. The projects here are related to the social concerns such as Human rights, Equality, animal welfare etc.

- **Sustainability-linked bonds (SLBs):** These bonds are combination of green bonds and social bonds. Proceeds of SLBs are not meant for a specific project but for general corporate purpose to achieve Key Performance Indicator (KPIs).

(vii) **Euro Issues by Indian Companies:** Indian companies are permitted to raise foreign currency resources through issue of ordinary equity shares through Global Depository Receipts (GDRs)/ American Depository Receipts (ADRs) and / or issue of Foreign Currency Convertible Bonds (FCCB) to foreign investors i.e. institutional investors or individuals (including NRIs) residing abroad.

(a) **American Depository Receipts (ADRs):** These are securities offered by non-US companies who want to list on any of the US exchange. Each ADR represents a certain number of a company's regular shares. ADRs allow US investors to buy shares of these companies without the costs of investing directly in a foreign stock exchange.

(b) **Global Depository Receipts (GDRs):** These are negotiable certificates held in the bank of one country representing a specific number of shares of a stock traded on the exchange of another country. These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

(c) **Indian Depository Receipts (IDRs):** The concept of the depository receipt mechanism which is used to raise funds in foreign currency has been applied in the Indian Capital Market through the issue of Indian Depository Receipts (IDRs).

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9. CONTEMPORARY SOURCES OF FUNDING

(i) **Crowd funding:** In simple terms, crowdfunding means raising money for an individual or organisation from a group of people to fund a project, typically via internet (social media and crowdfunding websites). It generally involves collecting funds from family, friends, strangers, corporates and many more in exchange of equity (known as Equity funding), loans (known as P2P lending) or nothing at all (i.e. donation).

(ii) **Equity funding:** Equity crowdfunding is a mechanism where investor invests money in an organisation and receive securities of that organisation in return. Every investor would be entitled to a stake in the organisation depending on their investment..

(iii) **Peer-to-Peer (P2P) lending:** It is that category of crowdfunding where lenders match with the borrowers in order to provide unsecured loans through online platform. The fund raised are paid back by the borrowers with interest, though this kind of lending involves certain risk of defaults (just as the banks bear in the case of conventional method of lending).

(iv) **Start-up funding:** A start-up company being newly formed needs fund before starting any project. However, as a start-up, it is difficult to manage loans from bank, leaving crowdfunding as one of the sources of finance. Through crowdfunding, a start-up company can raise money from large group of people.

(v) **Donation-based Crowdfunding:** It is a source of finance where large group of people donate money as a charity for some cause with no expectation of any ownership or debt

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CHAPTER - 3

TIME VALUE OF MONEY

Let's start a discussion on Time Value of Money by taking a very simple scenario. If you are offered the choice between having Rs. 1,00,000 today or having Rs. 1,00,000 at a future date, you will usually prefer to have Rs. 1,00,000 now. Similarly if you have a choice between paying Rs. 1,00,000 now or paying the same Rs. 1,00,000 at future date, you will usually prefer to pay Rs. 1,00,000 later. It is simple common sense. In the first case by accepting Rs 1,00,000 early, you can simply put the money in Bank and earn some interest. Similarly in the second case by deferring the payment, you can earn interest by keeping the money in the bank.

Therefore the time gap allowed helps us to make some money. This incremental gain is Time Value of Money.

Time value of money results from the concept of interest. So it now time to discuss Interest.

Simple Interest:-

It may be defined as Interest that is calculated as a simple percentage of the ORIGINAL PRINCIPAL AMOUNT.

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SI = Po (i)(n)

Where,

S I= Simple Interest

Po= Original Principal

i = Interest rate per time period

n = No. of time period

FV = Po + SI

Where,

FV = Future Value

Compound Interest:-

Interest that is calculated on total of previously earned interest and the original principal amount.

Future Value of Single Cash Flow:-

$FV = PV (1+r)^n$

Where,

PV = present value

r = rate of interest per period

$(1+r)^n$= future value interest factor / future value factor

Future Value of an Annuity:-

An annuity is a stream of constant cash flows occurring at a regular interval of time. Examples- RD, Pension etc.

$$\frac{A\left[\left(1+r\right)^n-1\right]}{r}$$

Where,

FVA = future value of annuity

A = constant periodic amount

r = rate of interest per period

n = duration of annuity

[(1+r)n – 1 = future value annuity factor

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Present Value of Single Cash Flow:-

$PV = FV \times 1/(1+r)^n$

Present Value of Annuity:-

$PVA = A\ [\ 1 - 1/(1+r)^n\ ]$

---

r

Deferred Annuity:-

Deferred Annuity is an annuity which begins late.

$$= \frac{A\left[1-\frac{1}{(1+r)^n}\right]}{r} \times \frac{1}{(1+r)^n}$$

Where,

m= deferment period

Annuity Due:-

Annuity due means an annuity in which installments accrue at the beginning of the period.

PV of Annuity Due

$$= \frac{A\left[1-\frac{1}{(1+r)^n}\right]}{r}(1+r)$$

Effective Interest Rate:-

$ER = [\,1 + NR/m\,]^m - 1$

Where,

ER= effective rate

NR= nominal rate

m = no. of times interest is compounded in a year.

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PRACTICAL QUESTIONS

Simple Interest

Q1: If you invest Rs. 10,000 in a bank at a simple interest of 7% p.a. what will be the amount at the end of three years ?

Q2: Find the rate of interest, if the amount owed after 6 months is Rs. 1,050, borrowed amount being Rs. 1,000.

Future Value of a Single Cash Flow

Q3: If you invest Rs.10,000 today at a compound interest rate of 10%, what will be its future value after 5 years ?

Q4: How much time will it take to double the fixed deposit of Rs. 50,000, if the rate of interest is 12 % p.a.

Q5: Determine the compound interest for an investment of Rs. 7,500 at 6% compounded half yearly for 6 years.

Given that $(1+r)^n$ for i=0.03 and n=12 is 1.42576

Q6: Rs. 2,000 is invested at annual rate of interest of 10%. What is the amount after two year if the compounding is done :

(a) Annually (b) Semi Annually (c) Monthly (d) Daily

Q7: What annual rate of interest compounded annually doubles an investment in 7 years ?

Given that 21/7 = 1.104090

Present Value of Single Cash Flow

Q8: SRK has deposited Rs. 55,650 in a bank, which is paying 15 percent rate of interest on a ten year time deposit. Calculate the amount at the end of ten years?

Q9: Find out the present value of Rs. 10,000 to be required after five years if the interest rate be 9%.

Q10: (Capital Budgeting Basic) What is the total present value of the following earnings (discounting rate = 12 %):-

Year	Earnings
0	1000
1	2000
2	3000
3	4000

Q11: A company offers a fixed deposit scheme whereby Rs. 10,000 matures to 12,625 after two years, on a half-yearly compounding basis. If the company wishes to amend the scheme by compounding interest every quarter. What will be the revised maturity value?

Future Value of Annuity

Q12: Find out the amount of an annuity if payment of Rs. 500 is made annually for 7 years at interest rate of 14% compounded annually.

Q13: Rs. 200 is invested at the end of each month in an account paying interest 6% per year compounded monthly. What is the amount of this annuity after 10th payment? Given that (1.005)10 = 1.0511

Q14: If you are investing Rs. 80,000 every year at rate of interest 14% p.a. How long it will take time to become Rs.10,00,000?

Q15: Your annual saving is Rs.5,000 and you want Rs. 40,000 after five year. At what rate of interest you should invest your saving to achieve your desired amount?

Present Value of Annuity

Q16: Find out the present value of a 4 year annuity of Rs. 20,000 discounted at 10 percent?

Q17: Y bought a TV costing Rs.3,000 and agreeing to make equal annual payment for 4 years. How much would be each payment if the interest on unpaid amount be 14% compounded annually?

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Q18: M.S. Dhoni has taken a 20 months car loan of Rs. 6,00,000.The rate of interest is 12 percent p.a. What will be the amount of monthly loan amortization?

Q19: Find the missing figures of the following annuity:-

1. (a) Amount= 10,000,	(b) i= 10%	(c) n=5years	(d) PVA = ?
2. (a) Amount= 15,000	(b) i= ?	(c) n=5years	(d)PVA= 54,072
3. (a) Amount = 20,000	(b) i= 15%	(c) n=?	(d) PVA= 45,665
4. (a) Amount =?	(b) i= 8%	(c) n=7years	(d) PVA= 26,032

Perpetuity

Q20: Find out the present value of perpetuity of Rs. 3,000 @ 10 % p.a.

Q21: Assuming that the discount rate is 7% p.a., how much would you pay to receive Rs. 50, growing at 5% annually, forever?

Deferred Annuity

Q22: Find out the present value of 5 annual installment of Rs. 5,000, beginning from the end of year 3, if the rate of interest is 13 percent.

Annuity Due

Q23: A Private Finance Co. is giving a machinery on rental basis @ 50,000 p.a., payable in advance for upcoming 10 years. Company is charging interest @ 18%, what is the present value of the offer?

Effective Rate of Return

Q24: Find the effective rate of interest in the following cases:-

a) Nominal rate of interest is 15%, compounded quarterly.

b) Nominal rate of interest is 12%, compounded half yearly.

c) Nominal rate of interest is 10%, compounded Monthly.

Advanced

Q25: Mr. X has made a real estate investment for Rs. 12,000 which he expects will have a maturity value equivalent to interest at 12% compounded monthly for 5 years. If most saving institutions currently pay 8% compounded quarterly on a five year term, what is the least amount for which Mr. X should sell his property?

Given that $(1+i)^n$ = 1.81669670 for i=1% and n=60, $(1+i)^{-n}$= 0.67297133 for i=2% and n= 20

Q26: Z plans to receive an annuity of Rs. 5,000 semi-annually for 10 years after he retires in 18 years. Money is worth 9% compounded semi-annually.

a) How much amount is required to finance the annuity?

b) What amount of single deposit made now would provide the funds for the annuity?

c) How much will Mr. Z receive from the annuity?

Q27: A person opened an account on April,2009 with a deposit of Rs. 800. The account paid 6% interest compounded quarterly. On October 1, 2009, he closed the account and added enough additional money to invest in a 6-month time deposit for Rs. 1,000 earning 6% compounded monthly.

a) How much additional amount did the person invest on October 1?

b) What was the maturity value of his time deposit on April 1, 2010?

c) How much total interest was earned?

CHAPTER - 4

CAPITAL BUDGETING

Investment decision is concerned with **optimum utilization of fund to maximize the wealth of the organization** and in turn the wealth of its shareholders. investment decisions are very popularly known as Capital Budgeting, which means applying the principles of budgeting for capital investment.

In simple terms, Capital Budgeting involves:

- Identification of investment projects that are strategic to business' overall objectives;
- Estimating and evaluating post-tax incremental cash flows for each of the investment proposals; and
- Selection of an investment proposal that maximizes the return to the investors.

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PURPOSE OF CAPITAL BUDGETING

(i) **Substantial Investment** : Investment decisions are related with fulfillment of long-term objectives and existence of an organization. To invest in a project(s), a substantial capital investment is required.

(ii) **Long time period:** The capital budgeting decision has its effect over a long period of time. These decisions not only affect the future benefits and costs of the firm but also influence the rate and direction of growth of the firm.

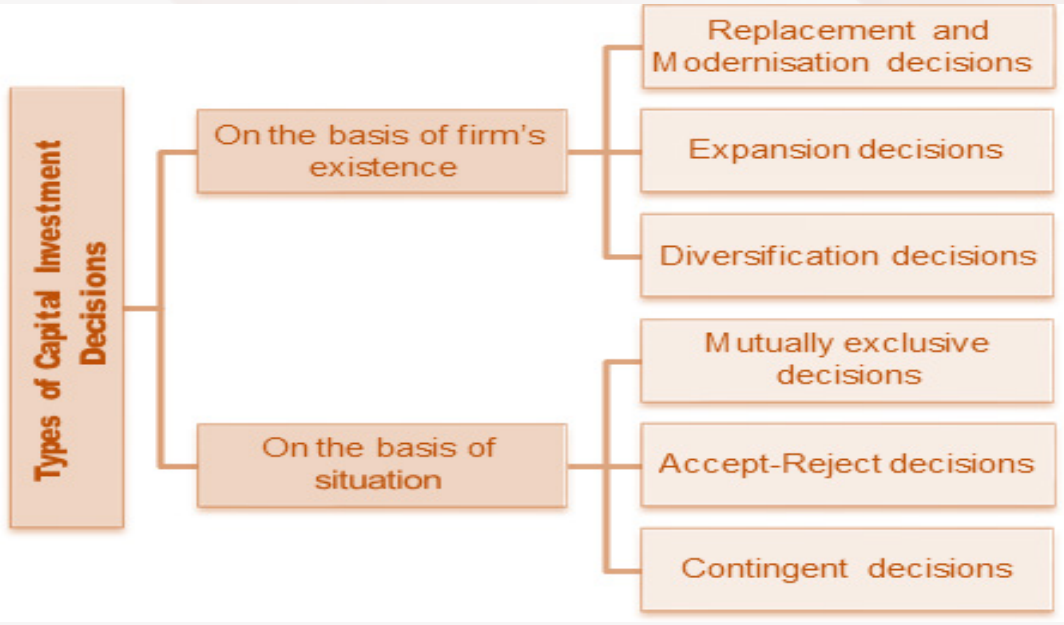
(iii) **Irreversibility:** Most of the investment decisions are irreversible. Once the decision is implemented, it is very difficult and reasonably and economically not possible to reverse the decision.

(iv) **Complex decisions:** The capital investment decision involves an assessment of future events, which in fact is difficult to predict.

CAPITAL BUDGETING PROCESS

1. **Planning:** The capital budgeting process begins with the identification of potential investment opportunities.
2. **Evaluation:** This phase involves the determination of proposal and its investments, inflows and outflows.
3. **Selection:** the organisation will choose among the projects which maximises the shareholders' wealth.
4. **Implementation:** When the final selection is made, the firm must acquire the necessary funds, purchase the assets, and begin the implementation of the project.
5. **Control:** The progress of the project is monitored with the aid of feedback reports.
6. **Review:** When a project terminates, or even before, the organisation should review the entire project to explain its success or failure

TYPES OF CAPITAL INVESTMENT DECISIONS



On the basis of firm's existence

(i) **Replacement and Modernisation decisions:** The replacement and modernisation decisions aims to improve operating efficiency and reduce cost. Both replacement and modernisation decisions are called as cost reduction decisions.

(ii) **Expansion decisions:** Existing successful firms may experience growth in demand of their product line..

(iii) **Diversification decisions:** These decisions require evaluation of proposals to diversify into new product lines, new markets etc.

Both expansion and diversification decisions are called revenue expansion decisions.

On the basis of situations

(i) **Mutually exclusive decisions:** The decisions are said to be mutually exclusive if two or more alternative proposals are such that the acceptance of one proposal will exclude the acceptance of the other alternative proposals

(ii) **Accept-Reject decisions:** The accept-reject decisions occur when proposals are independent and do not compete with each other. The firm may accept or reject a proposal on the basis of a minimum return on the required investment

(iii) **Contingent decisions:** The contingent decisions are made when the proposals are dependable proposals. The investment in one proposal requires investment in one or more other proposals

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Steps of Capital Budgeting Procedure

1. Estimation of Cash flows over the entire life for each of the projects under consideration.
2. Evaluate each of the alternative, using different decision criteria.
3. Determining the minimum required rate of return (i.e., WACC) to be used as discount rate.

ESTIMATION OF PROJECT CASH FLOWS

The cash flows are estimated on the basis of inputs provided by various departments such as Production department, Finance department, Marketing department, etc. The project cash flow stream consists of cash outflows and cash inflows. The costs are denoted as "cash outflows" whereas the benefits are denoted as "cash inflows".

An investment decision implies the choice of an objective, an appraisal technique and the project's life. The objective and technique must be related to definite period of time. The life of the project may be determined by taking into consideration the following factors:

(i) Technological obsolescence;

(ii) Physical deterioration; and

(iii) Decline in demand for the product

BASIC PRINCIPLES FOR MEASURING PROJECT CASH FLOWS

1 Block of Assets and Depreciation

"Block of Assets", which means a group of assets falling within a particular class of assets. This class of assets can be building, machinery, furniture etc. in respect of which depreciation is charged at samerate. The treatment of tax depends on the fact whether block of asset consist of one asset or several assets.

2 Exclusion of Financing Costs Principle

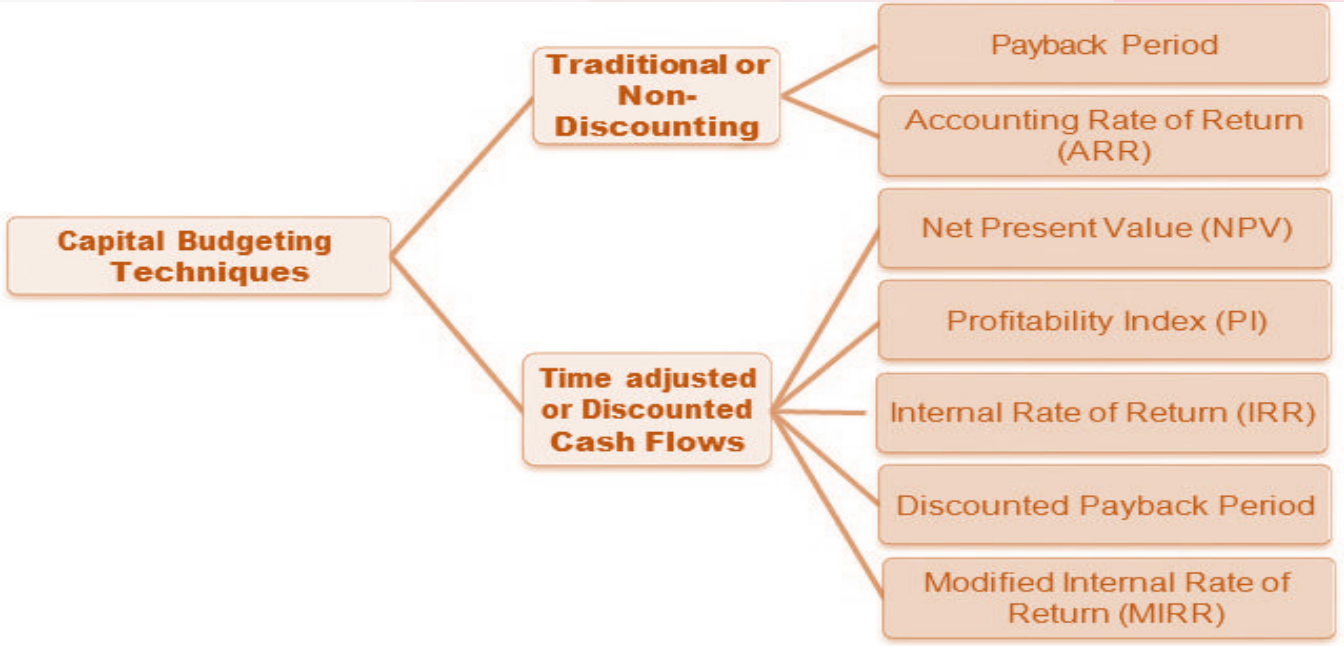
When cash flows relating to long-term funds are being defined, financing costs of long- term funds (interest on long-term debt and equity dividend) should be excluded from the analysis

The **exclusion** of financing costs principle means that:

(i) T**he interest on long-term debt** is ignored while computing profits and taxes.

(ii) **The expected dividends** are deemed irrelevant in cash flow analysis.

CAPITAL BUDGETING TECHNIQUES



1. Payback Period

Time required to recover the initial cash-outflow is called pay-back period. The payback period of an investment is the length of time required for the cumulative total net cash flows from the investment to equal the total initial cash outlays

Summary of Advantages & Disadvantages

Advantages of Payback period

- It is easy to compute.
- provides a quick estimate of the time
- serve as an estimate of a project's risk;

Limitations of Payback period

- It ignores the time value of money.
- ignores cash flows after the payback period.
- ignoring long-term projects.

2. Accounting (Book) Rate of Return (ARR) or Average Rate of Return(ARR)

The accounting rate of return of an investment measures the **average annual net income** of the project (incremental income) as a percentage of the investment.

Advantages of ARR

- uses readily available data.
- evaluate performance
- considers all net incomes over the entire life of the project

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Limitations of ARR

- ignores the time value of money
- choice of accounting procedures
- ignores cash flows;
- ignores the fact that a project can require commitments of working capital

3. Net Present Value Technique (NPV)

The net present value technique is a discounted cash flow method that considers the time value of money in evaluating capital investments.

Advantages of NPV

- NPV method takes into account the time value of money.
- The whole stream of cash flows is considered.
- seen as the addition to the wealth of shareholders.
- The NPV uses the discounted cash flows

Limitations of NPV

- difficult calculations.
- accuracy of NPV depends on accurate estimation
- It ignores the difference in initial outflows,

4. Internal Rate of Return Method (IRR)

IRR Definition: Internal rate of return for an investment proposal is the discount rate that equates the present value of the expected cash inflows with the initial cash outflow.

Advantages of IRR

- This method makes use of the concept of time value of money.
- All the cash flows in the project are considered.
- IRR is easier to use
- helps in achieving the objective

Limitations of IRR

- process is tedious
- creates a peculiar situation
- It ignores a firm's ability to re-invest in portfolio of different rates.
- decisions based only on IRR criterion may not be correct.

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5. Modified Internal Rate of Return (MIRR)

The MIRR is obtained by assuming a single outflow in the zeroth year and the terminal cash inflow as mentioned above. The discount rate which equates the present value of the terminal cash inflow to the zero year outflow is called the MIRR.

1.1 Profitability Index/Desirability Factor/Present Value Index Method (PI)

Advantages of PI

- The method also uses the concept of time value of money.
- it is a relative measure of a project's profitability.

Limitations of PI

- Profitability index fails as a guide in resolving capital rationing where projects are indivisible.
- single project is excluded.

- project with a lower profitability index selected may generate cash flows in such a way that another project can be taken up one or two years later

The Profitability Index approach thus **cannot be used indiscriminately**

Comparison of Net Present Value and Internal Rate of Return Methods

Similarity

- Both the net present value (NPV) and the internal rate of return (IRR) methods are discounted cash flow methods which consider the time value of money.
- Both the techniques consider all cash flows over the expected useful life of the investment.

Different conclusion in the following scenarios

Scenario 1 – Scale or Size Disparity

Being IRR a relative measure and NPV an absolute measure

Scenario 2 – Time Disparity in Cash Flows

It might be possible that overall cash flows may be more or less same in the projects but there may be disparity in their flows i.e. larger part of cash inflows may be occurred in the beginning or end of the project

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Scenario 3 – Disparity in life of Proposals (Unequal Lives)

Conflict in ranking may also arise if we are comparing two projects (especially mutually exclusive) having unequal lives

SUMMARY OF DECISION CRITERIA OF CAPITAL BUDGETING TECHNIQUES

Techniques		For Independent Project	For Mutually Exclusive Projects
Non-Discounted	Pay Back	(i) When Payback period ≤ Maximum Acceptable Payback period: Accepted (ii) When Payback period > Maximum Acceptable Payback period: Rejected	Project with least Payback period should be selected
	Accounting Rate of Return (ARR)	(i) When ARR≥ Minimum Acceptable Rate of Return: Accepted (ii) When ARR < Minimum Acceptable Rate of Return: Rejected	Project with the maximum ARR should be selected.
Discounted	Net Present Value (NPV)	(i) When NPV≥ 0: Accepted (ii) When NPV< 0: Rejected	Project with the highest positive NPV should be selected
	Profitability Index (PI)	(i) When PI ≥ 1: Accepted (ii) When PI < 1: Rejected	When Net Present Value is same project with Highest PI should be selected
	Internal Rate of Return (IRR)	(i) When IRR≥K: Accepted (ii) When IRR <K: Rejected	Project with the maximum IRR should be selected

Question 1: ABC Ltd. is evaluating the purchase of a new project with a depreciable base of Rs. 1,00,000; expected economic life of 4 years and change in earnings before taxes and depreciation of Rs. 45,000 in year 1, Rs.30,000 in year 2, Rs. 25,000 in year 3 and Rs. 35,000 in year 4. Assume strait-line depreciation and 20% tax rate. You are required to compute relevant cash flows.

Accounting/Average Rateof Return (ARR)

Question 2: ABC Ltd. provide you the following information:

Purchase price of Machine	Rs.80,000
Installation Charges	Rs.20,000
Estimated salvage value at the end of useful life	Rs.40,000
Useful Life	4 years
Working capital required	Rs.10,000
Annual Earnings before Dep. & Tax	Rs.65,000
Tax Rate	30%

Calculate ARR if the method of Dep. Is (a) SLM (b) WDV (WDV rate 20%).

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Question 3: XYZ Ltd. provides you the following information:

Purchase price of each Machine	Rs.6,00,000
Working Capital	Rs.3,00,000
Useful Life	5 Years
Estimated Salvage Value	Rs.1,00,000
Method of Dep.	SLM
Tax Rate	30%

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Earning before Dep. & tax:

Machine	Year 1	Year 2	Year 3	Year 4	Year 5
Machine X	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Machine Y	-	1,00,000	2,00,000	3,00,000	12,00,000
Machine Z	5,00,000	4,00,000	3,00,000	2,00,000	-

Which of the above Machines should be purchased on the basis of ARR Method?

Payback Period

Question 4: Calculate pay-back period in the following cases:

Particulars	Project A	Project B	Project C
Initial cash outflow	Rs. 4,00,000	Rs. 3,50,000	Rs. 2,80,000
Annual CFAT	Rs.1,00,000	Rs.1,00,000	Rs.1,00,000
Life of Project	5 Years	5 Years	5 Years

Question 5: Calculate Payback period from the following information:-

- Initial outflow is Rs.1,00,000
- Annual CFAT:

Year 1	Year 2	Year 3	Year 4	Year 5
40,000	30,000	50,000	40,000	45,000

Discounted Payback Period

Question 6: Calculate discounted payback period from the following information:

- Initial Outflow is Rs. 1,50,000
- Annual CFAT is Rs. 50,000 for 5 years
- Discounting rate 10%

Question 7: Calculate discounted payback period from the information provided in Question 5; Discounting rate is 10%.

Net Present Value

Question 8: Mr. Santa purchased a Machine of Rs.12,00,000. Expected Earning from the machine is as follows:

Year 1	Year 2	Year 3	Year 4	Year 5
3,00,000	3,25,000	3,50,000	4,00,000	5,00,000

Find out Net Present Value. (discounting rate 10%)

a) What if, when the tax rate is 30% in Question no. 8.

b) What if in Q.8, when the tax rate is 30% ; Salvage value 2,00,000; Useful life is 5 years; Dep. Method SLM.

c) What if in Q.8, when the tax rate is 30%; Estimated salvage value 2,00,000, Actual salvage value 1,00,000; useful life is 5 years; SLM Dep.

d) What if in Q.8, when the tax rate is 30%; Estimated salvage value 2,00,000, Actual salvage value 1,00,000; useful life is 5 years; SLM Dep.; working capital required 1,00,000 at the beginning of the year.

Question 9: A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of Rs.50lacs per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of Rs.30lacs before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

The machine required for carrying out the processing will cost Rs.200lacs to be financed by a loan repayable in four equal installments commencing from the end of year 1. The interest is 16% per annum. At the end of the 4th year, the machine can be sold for Rs.20lacs and the cost of dismantling and removal will be Rs.15lacs.

Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

(Rs. in lacs)

Year	1	2	3	4
-Sales	322	322	418	418
-Material consumption	30	40	85	85
-Wages	75	75	85	100
-Other expenses	40	45	54	70
-Factory overheads	55	60	110	145
-Depreciation(as per income tax rules)	50	38	28	21

Initial stock of material required before commencement of the processing operations is Rs.20lacs at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be Rs.55lacs and the stock at the end of year 4 will be nil. The storage of materials will utilize space which would otherwise have been rented out for Rs.10lacs per annum. Labour costs include wages of 40 workers, whose transfer to the process will reduce idle time payments of Rs.15lacs in the year 1 and Rs.10lacs in the year 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of Rs.30lacs per annum payable on this venture. The company's tax rate is 50%.

Present value factors for four years are as under:

Year	1	2	3	4
Present value factors	0.870	0.756	0.658	0.572

Advise the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

Question 10: X Ltd. an existing profit making company, is planning to introduce a new product with a projected life of 8 years. Initial equipment cost will be Rs,120lacs and additional equipment costing Rs. 10lacs will be needed at the beginning of third year. At the end of the 8th year, the original equipment will have resale value equivalent to the cost of removal, but the additional equipment will be sold for Rs.1lac. Working capital of Rs.15lacs will be needed. The 100% capacity of the plant is of 400000 units per annum, but the production and sale volume expected are as under:

Year	Capacity in percentage
1	20
2	30
3-5	75
6-8	50

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A sale price of Rs.100 per unit with a profit volume ratio of 60% is likely to be obtained. Fixed operating cash cost are likely to be Rs.16lacs per annum. In addition to this the advertisement expenditure will have to be incurred as under:

Year	1	2	3-5	6-8
Expenditure(in lacs, each year)	30	15	10	4

The company is subject to 50% tax, straight line method of depreciation, (permissible for tax purposes also) and taking 12% as appropriate after tax cost of capital, should the project be accepted?

Question 11: A Company is considering the proposal taking up a new project which requires an investment of Rs.400lacs on machinery and other assets. The project is expected to yield the following earnings (before depreciation and taxes) over the next five years:

Year	Earnings(in lacs)

1	160
2	160
3	180
4	180
5	150

The cost of raising the additional capital is 12% and assets have to be depreciated at 20% on 'Written Down Value' basis. The scrap value at the end of the five years' period may be taken as zero. Income tax applicable to the company is 50%.

You are required to calculate the net present value of the project and advise the management to take appropriate decision. Also calculate the internal rate of return of the project.

Note: Present value of Rs.1 at different rates of interest are as under:

Year	PVF@10%	PVF@12%	PVF@14%	PVF@16%
1	0.91	0.89	0.88	0.86
2	0.83	0.80	0.77	0.74
3	0.75	0.71	0.67	0.64
4	0.68	0.64	0.59	0.55
5	0.62	0.57	0.52	0.48

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Question 12: ABC Company Ltd. has been producing a chemical product by using machine Z for the last two years. Now the management of the company is thinking to replace this machine either by X or Y machine. The following details are furnished to you:

(in Rs.)

	Z	X	Y	
-Book value	1,00,000	-	-	
-Resale value now	1,10,000	-	-	
-Purchase price		1,80,000	2,00,000	
-Annual fixed cost (including depreciation)	92,000	1,08,000	1,32,000	
-Variable running cost(including labour)per unit	3	1.5	2.5	
-Production per hour	8	8	12	
You are also provided the following details:				
-Selling price per unit				20
-Cost of materials per unit				10
-Annual operating hours				2000

Working life of each of the three machines (as from now) is 5 years. Salvage value of machine Z is Rs.10,000, X is Rs.15,000 and Y is 18,000

The company charges depreciation using straight line method. It is anticipated that an additional cost of Rs.8,000 per annum would be incurred on special advertising to sell the extra output of machine Y. Assume tax rate of 50% and cost of capital 10%. The present value of Rs.1 to be received at the end of the year at 10% is as under:

Year	1	2	3	4	5
Present value	0.909	0.826	0.751	0.683	0.621

Required: Using NPV method, you are required to analyse the feasibility of the proposal and make recommendations.

Question 13:

a) Company X is forced to choose between two machines A and B. The two machines are designed differently, but have identical capacity and do exactly the same job. Machine A costs Rs.150000 and will last for 3 years. It costs Rs.40000 per year to run. Machine B is an 'economy' model costing only Rs.100000 but will last only 2 years and costs Rs.60000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore tax. Opportunity cost of capital is 10%. Which machine company X should buy?

b) Company Y is operating an elderly machine that is expected to produce a net cash inflow of Rs.40000 in the coming year and Rs.40000 next year. Current salvage value is Rs.80000 and next year's value is Rs.70000. The machine can be replaced now with a new machine, which costs Rs.150000, but is much more efficient and will provide a cash inflow of Rs.80000 a year for 3 years. Company Y wants to know whether it should replace the equipment now or wait a year with the clear understanding that the new machine is the best of the available alternatives and that it in turn be replaced at the optimal point. Ignore tax. Take opportunity cost of capital as 10%. Advice with reasons.

Question 14: MNP limited is thinking of replacing its existing machine by a new machine which would cost Rs.60lacs. The company's current production is 80000 units, and is expected to increase to 100000 units, if the new machine is bought. The selling price of the product would remain unchanged at Rs.200 per unit. The following is the cost of producing one unit of product using both the existing and new machine:

Unit cost (in Rs.)

	Existing machine (80000 units)	New machine (100000 units)	Difference
Material	75.0	63.75	(11.25)
Wages & salaries	51.25	37.50	(13.75)
Supervision	20.0	25.0	5.0
Repair & maintenance	11.25	7.50	(3.75)
Power & Fuel	15.50	14.25	(1.25)
Depreciation	0.25	5.0	4.75
Allocated Corporate Overhead	10.0	12.50	2.50

The existing machine has an accounting book value of Rs.100000, and it has been fully depreciated for tax purpose. It is estimated that machine will be useful for 5 years. The supplier of the new machine has offered to accept the old machine for Rs.250000. However, the market price of old machine today is Rs.150000 and it is expected to be Rs.35000 after 5 years. The new machine has a life of 5 years and a salvage value of Rs.250000 at the end of its economic life. Assume corporate income tax rate at 40%, and depreciation is charged on straight line basis for income tax purpose. Further assume that book profit is treated as ordinary income for tax purpose. The opportunity cost of capital of the company is 15%.

Required:

1. Estimate the net present value of the replacement decision.

2. Estimate the internal rate of return of the replacement decision.

3. Should company go ahead with the replacement decision? Suggest.

Year	1	2	3	4	5
$PVIF_{0.15,t}$	0.8696	0.7561	0.6575	0.5718	0.4972
$PVIF_{0.20,t}$	0.8333	0.6944	0.5787	0.4823	0.4019
$PVIF_{0.25,t}$	0.8000	0.6400	0.5120	0.4096	0.3277
$PVIF_{0.30,t}$	0.7692	0.5917	0.4552	0.3501	0.2693
$PVIF_{0.35,t}$	0.7407	0.5487	0.4064	0.3011	0.2230

Question 15: WX Ltd. has a machine which has been in operation for 3 years. Its remaining estimated useful life is 8 years with no salvage value in the end. Its current market value is Rs.200000. The company is considering a proposal to purchase a new model of machine to replace the existing machine. The relevant informations are as follows:

	Existing Machine	New Machine
Cost of machine	Rs.330000	Rs.1000000
Estimated life	11 Years	8 Years
Salvage value	Nil	Rs.40000
Annual output	30000 units	75000 units
Selling price per unit	Rs.15	Rs.15
Annual operating hours	3000	3000
Material cost per unit	Rs.4	Rs.4
Labour cost per hour	Rs.40	Rs.70
Indirect cash cost per annum	Rs.50000	Rs.65000

The company follow the straight line method of depreciation. The corporate tax rate is 30% and WX Ltd. does not make any investment, if it yields less than 12%. Present value of annuity of Rs.1 at 12% rate of discount for 8 years is 4.968. present value of Rs.1 at 12% rate of discount, received at the end of 8th year is 0.404. Ignore capital gain tax. Advise WX Ltd. whether the existing machine should be replaced or not.

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Project with Unequal Life

Question 16: As Finance adviser, advise the company about selection of the following mutually exclusive projects by:

a) Common Time Horizon Method

b) Equivalent Net Present Value Method

Particulars	Project A	Project B
Initial outflow	1,00,000	1,50,000
Life of the project	6 years	3 years
Annual Cash Inflow		
Year 1	20,000	60,000
Year 2	30,000	75,000
Year 3	25,000	60,000
Year 4	40,000	-
Year 5	20,000	-
Year 6	25,000	-

(discounting rate = 10%)

The cash flows of two mutually exclusive projects are as under:

Question 17: (in Rs.)

Time	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Project 'P'	(-)40000	13000	8000	14000	12000	11000	15000
Project 'J'	(-)20000	7000	13000	12000	-	-	-

Required:

1. Estimate the net present value of the project 'P' and 'J' using 15% as the hurdle rate.
2. Estimate the internal rate of return of the Project 'P' and 'J'.
3. Why there is a conflict in the project choice by using NPV and IRR criterion?
4. Which criteria you will use in such situation ? Estimate the value at that criterion. Make a project choice.

The present value interest factor values at different rates of discount are as under:

Rate of discount	T_0	T_1	T_2	T_3	T_4	T_5	T_6
0.15	1.00	0.8696	0.7561	0.6575	0.5718	0.4972	0.4323
0.18	1.00	0.8475	0.7182	0.6086	0.5158	0.4371	0.3704
0.20	1.00	0.8333	0.6944	0.5787	0.4823	0.4019	0.3349
0.24	1.00	0.8065	0.6504	0.5245	0.4230	0.3411	0.2751
0.26	1.00	0.7937	0.6299	0.4999	0.3968	0.3149	0.2499

Internal Rate of Return

Question 18: A company processes to install a machine involving a capital cost of Rs.360000. The life of the machine is 5 years and its salvage value at the end of the life is nil. The machine will produce the net operating income after depreciation of Rs.68000 per annum. The company's tax rate is 45%.

The net present value factors for 5 years are as under:

Discounted rate	14	15	16	17	18
Cumulative factor	3.43	3.35	3.27	3.20	3.13

You are required to calculate the internal rate of return of the proposal.

Profitability Index

Question 19: A company has to make a choice between two projects namely A and B. The initial capital outlay of two projects are Rs.135000 and Rs.240000 respectively for A and B.

There will be no scrap value at the end of the life of both the projects. The opportunity cost of capital of the company is 16%. The annual income are as under:

Year	Project A	Project B	Discounting factor @16%
1	-	60000	0.862
2	30000	84000	0.743
3	132000	96000	0.641
4	84000	102000	0.552
5	84000	90000	0.476

You are required to calculate for each project:

1. Discounted payback period
2. Profitability index
3. Net present value

Question 20: S Ltd. has Rs.1000000 allocated for capital budgeting purposes. The following proposals and associated profitability indexes have been determined:

Project	Amount	Profitability index
1	300000	1.22
2	150000	0.95
3	350000	1.20
4	450000	1.18
5	200000	1.20
6	400000	1.05

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Which of the above investments should be undertaken? Assume that projects are divisible and there is no alternative use of the money allocated for capital budgeting.

Question 21: S Ltd. has Rs.1000000 allocated for capital budgeting purposes. The following proposals and associated profitability indexes have been determined:

Project	Amount	Profitability index
1	300000	1.22
2	150000	0.95
3	350000	1.20
4	450000	1.18
5	200000	1.20
6	400000	1.05

Which of the above investments should be undertaken? Assume that projects are indivisible and there is no alternative use of the money allocated for capital budgeting.

Project NPV Vs. Equity NPV

Question 22: Ad-hoc Ltd. provides you the following information:

- Total cost of plant (life 4 years) Rs.300 Lakhs.
- Plant is to be financed by 12% Debts and Equity so as to maintain Debt-Equity Ratio of 2:1.Debts is to be repaid in four equal installments beginning from the end of first year.
- Annual earnings before interest, Dep. And tax: Rs.200 lakhs
- Tax rate 50%
- Cost of capital 9%
- Method of Dep. : SLM

Calculate

a) Project NPV;

b) Equity NPV

PRACTICE QUESTIONS

Question 1: Consider the following mutually exclusive projects:

Project	Cash flows				
	C_0	C_1	C_2	C_3	C_4
A	(-)10000	6000	2000	2000	12000
B	(-)10000	2500	2500	5000	7500
C	(-)3500	1500	2500	500	5000
D	(-)3000	0	0	3000	6000

Required:

1. Calculate the payback period for each project.
2. If the standard payback period is 2 years, which project will you select? Will your answer differ, if standard payback period is 3 years?
3. If the cost of capital is 10%, compute the discounted payback period for each project. Which projects will you recommend, if standard discounted payback period is (a) 2 years; (b) 3 years?
4. Compute NPV of each project. Which project will you recommend on the NPV criterion? The cost of capital is 10%. What will be the appropriate choice criteria in this case? The PV factor at 10% are:

Year	1	2	3	4
PVF@10%	0.9091	0.8264	0.7513	0.6830

Question 2: Given below are the data on a capital project 'M':

Annual cost saving : Rs.60000

Useful life : 4 Years

Internal rate of return : 15%

Profitability index : 1.064

Salvage value : 0

You are required to calculate for this project 'M':

1. Cost of capital
2. Payback period
3. Cost of project
4. Net present value

Question 3: A Ltd. is considering the purchase of a machine which will perform some operations which are at present performed by workers. Machines X and Y are alternatives models. The following details are available:

(in Rs.)

	Machine X	Machine Y
Cost of machine	150000	240000
Estimated life of machine	5 years	6 years
Estimated cost of maintenance (p.a.)	7000	11000
Estimated cost of indirect material (p.a.)	6000	8000
Estimated savings in scrap (p.a.)	10000	15000
Estimated cost of supervision (p.a.)	12000	16000
Estimated savings in wages (p.a.)	90000	120000

Depreciation will be charged on straight line basis. The tax rate is 30%. Evaluate the alternatives according to:

1. Average of return method, and
2. Present value index method assuming cost of capital being 10%.

(The present value of Rs.1 @10%p.a. for 5 years is 3.79 and for 6 years is 4.354)

Question 4: An investment of Rs.136000 yields the following cash inflows (profits before depreciation but after tax). Determine internal rate of return and modified internal rate of return. Discounting rate is 10%.

Year	1	2	3	4	5
Cash inflows	30000	40000	60000	30000	20000

Question 5: XYZ Ltd. is considering a new investment project about which the following information is available:

1. The total outlay on the project will be Rs.100lacs. This consists of Rs.60lacs on plant and equipment and Rs.40lacs on gross working capital. The entire outlay will be incurred at the beginning of the project.
2. The project will be financed with Rs.40lacs of equity capital; Rs.30lacs of long term debt (in the form of debenture); Rs.20lacs short term borrowings, and Rs.10lacs of trade credit. This means that Rs.70lacs of long term finds (equity + long term debt) will be applied towards plant and equipment (Rs.60lacs) and working capital margin (Rs.10lacs) – working capital margin is defined as the contribution of long term funds towards working capital. The interest rate on debentures will be 15% and the interest rate on short term borrowings will be 18%.
3. The life of the project is expected to be five years and the plant and equipment would fetch a salvage value of Rs.20lacs. The liquidation value of working capital will be equal to Rs.10lacs.
4. The project will increase the revenues of the firm by Rs.80lacs per year. The increase in operating expenses on account of the project will be Rs.35lacs per year. (this includes all items of expenses other than depreciation, interest and taxes). The effective tax rate will be 50%.
5. Plant and equipment will be depreciated at the rate of 331/3% per year as per the written down value method. So, the depreciation charges will be:

(Rs. in lacs)

1st year	20.0
2nd year	13.3
3rd year	8.9
4th year	5.9
5th year	4.0

Given the above details, you are required to work out the post tax, incremental cash flows relating to long term funds.

Question 6: Happy Singh Taxiwala is a long established tour operator providing high quality transport to their clients. It currently owns and runs 250 cars and has turnover of Rs.100lacs p.a.

The current system of allocating jobs to drivers is very insufficient. Happy Singh is considering the implementation of a new computerized tracking system called 'Banta'. This will make the allocation of jobs far more efficient.

You are as accounting technician, for an accounting firm, has been appointed to advice Happy Singh to decide whether 'Banta' should be implemented. The project

is being appraised over five years.

The costs and benefits of the new system are as follows:

1. The Central Tracking System costs Rs.2100000 to implement. This amount will be payable in three equal installments-One immediately, the second in one years' time and third in two years' time.
2. Depreciation on the new system will be provided at Rs.420000 p.a.
3. Staff will need to be trained how to use the new system. This will cost Happy Singh Rs.425000 in the first year.
4. If 'Banta' is implemented, revenues will rise to an estimate Rs.110lacs this year, thereafter increasing by 5% per annum (Compounded). Even if 'Banta' is not implemented, revenue will increase by an estimate Rs.200000 per annum, from their current level of Rs.100lacs per annum.
5. Despite increased revenues, 'Banta' will still make overall savings in terms of vehicle running cost. These costs are estimated at 1% of the post 'Banta' revenues each year (i.e. the Rs.110lacs revenue rising by 5% thereafter, as referred to in (4) above.
6. Six new staff operatives will be recruited to manage the 'Banta' system. Their wages will cost the company Rs.120000 per annum in the first year, Rs.200000 in the second year, thereafter increasing by 5% per annum (i.e. compounded).
7. Happy Singh will have to take out an annual maintenance contract for 'Banta' system. This will cost Rs.75000 per annum.
8. Interest on money borrowed to finance the project will cost Rs.150000 per annum.
9. Happy Singh Taxiwala's cost of capital is 10% per annum. Required:
   a) Calculate the Net Present Value of the new 'Banta' system nearest to Rs.'000.
   b) Calculate the simple payback period of the project and interpret the result.
   c) Calculate the discounted payback period for the project and interpret the result.

Question 7: Lockwood limited wants to replace its old machine with a new automatic machine. Two models A and B are available at the same cost of Rs.5lacs each. Salvage value of the old machine is Rs.1lac. The utilities of the existing machine can be used if the company purchases A. additional cost of utilities to be purchased in that case are Rs.1lac. if the company purchases B then all the existing utilities will have to be replaced with new utilities costing Rs.2lacs. The salvage value of the old utilities will be Rs.0.20lac. The earnings after taxation are expected to be:

Year	Cash inflows of A (in Rs.)	Cash inflows of B (in Rs.)	PVF@15%
1	100000	200000	0.87
2	150000	210000	0.76
3	180000	180000	0.66
4	200000	170000	0.57
5	170000	40000	0.50
Salvage value at the end of year 5	50000	60000	

The targeted return on capital is 15%. You are required to (1) Compute, for the two machines separately, net present value, discounted payback period and desirability factor and (2) Advice which of the machines is to be selected?

Question 8: Elite Cooker Company is evaluating three investment situations: (1) produce a new line of aluminum skillets, (2) expand its existing cooker line to include several new sizes, and (3) develop a new, higher-quality line of cookers. If only the project in question is undertaken, the expected present values and the amounts of investment required are:

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(in Rs.)

Project	Investment required	Present value of future cash flows
1	200000	290000
2	115000	185000
3	270000	400000

if projects 1 and 2 are jointly undertaken, there will be no economies; the investments required and present values will simply be the sum of the parts. With project 1 and 3, economies are possible in investment because one of the machines acquired can be used in both production processes. The total investment required for projects 1 and 3 combined is Rs.440000. If projects 2 and 3 are undertaken, there are economies to be achieved in marketing and producing the products but not in investment. The expected present value of future cash flows for projects 2 and 3 is Rs.620000. If all three projects are undertaken simultaneously, the economies noted will still hold. However, a Rs.125000 extension on the plant will be necessary, as space is not available for all three projects. Which project or projects should be chosen?

Question 9: Cello limited is considering buying a new machine which would have a useful economic life of five years, a cost of Rs.125000 and a scrap value of Rs.30000, with 80% of the cost being payable at the start of the project and 20% at the end of the first year. The machine would produce 50000 units per annum of a new project with an estimated selling price of Rs.3 per unit. Direct costs will be Rs.1.75 per unit and annual fixed costs, including depreciation calculated on a straight line basis, would be Rs.40000 per annum.

In the first year and second year, special sales promotion expenditure, not included in the above costs, would be incurred, amounting to Rs.10000 and Rs.15000 respectively.

Evaluate the projects using the NPV method of investment appraisal, assuming the company's cost of capital to be 10%.

Question 10: YoYo Honey Singh Company purchased a machine 3 years ago at a cost of Rs. 10,000. The machine has a life of 8 years at the time of purchase. It has been depreciated at 15% on declining balance. The company is thinking of replacing it with a new machine costing Rs.20,000 with an expected 5 year life. The profit before depreciation is estimated to increase by Rs.4445 a year. Now the new as well as old machine will be depreciated at 25% on decline balance. The salvage value of the new machine is anticipated as Rs.500. The market value of old machine today is Rs.11,500. It is estimated to have zero salvage value after 5 years. The income tax rate may be assumed as 55%. Find out the cash flow of replacement decision given that the two machines belongs to same block of assets and there is no other asset in the same block of asset. Discounting rate is 10%

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CHAPTER - 5

COST OF CAPITAL

MEANING OF COST OF CAPITAL

Cost of capital is the return expected by the providers of capital (i.e. shareholders, lenders and the debt-holders) to the business as a compensation for their contribution to the total capital.

When an entity (corporate or others) procured finances from either source as listed above, it has to pay some additional amount of money besides the principal amount. The additional money paid to these financiers may be either one off payment or regular payment at specified intervals. This additional money paid is said to be the cost of using the capital and it is called the cost of capital.

SIGNIFICANCE OF COST OF CAPITAL

1. Evaluation of investment options:

The estimated benefits (future cash flows) from available investment opportunities (business or project) are converted into the present value of benefits by discounting them with the relevantcost of capital.

2. Financing Decision:

When a finance manager has to choose one of the two sources of finance, he can simplycompare their cost and choose the source which has lower cost

3. Designing of optimum credit policy:

While appraising the credit period to be allowed to the customers, the cost of allowing credit period is compared against the benefit/ profit earned by providing credit to customer of segment of customers.

The risk to which a security is exposed, can be classified into two groups:

(i) **Unsystematic Risk:** This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.

(ii) **Systematic Risk:** It is the macro-economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.

Cost of Debt

Question 1: Five years ago, Sona Limited issued 12 per cent irredeemable debentures at Rs.103, a Rs. 3 premium to their par value of Rs. 100. The current market price of these debentures is Rs. 94. If the company pays corporate tax at a rate of 35 per cent what is its current cost of debenture capital

Question 2: A company issued 10,000, 10% debentures ofRs.100 each on 1.4.2010 to be matured on 1.4.2015. The company wants to know the current cost of its existing debt and the market price of the debentures is Rs. 80. Compute the cost of existing debentures.

Question 3: A Company issues Rs. 10,00,000 12% debentures of Rs. 100 each. The debentures are redeemable after the expiry of fixed period of 7 years. The Company is in 35% tax bracket.

Required:

(i) Calculate the cost of debt after tax, if debentures are issued at

a) Par

b) 10% Discount

c) 10% Premium.

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(ii) If brokerage is paid at 2%, what will be the cost of debentures, if issue is at par?

Question 4: AD-HOC Ltd. has issued special type of debt instrument of Rs.100 each. It is repayable in two equal annual installments of Rs.53 each at the end of year 1 and year 2. Interest rate is 12%p.a. corporate tax is 35% and surcharge@10%. Find out the cost of debt.

Cost of Preference Shares

Question 5: If Reliance Energy is issuing preferred stock atRs.100 per share, with a stated dividend of Rs.12, and a floatation cost of 3% then, what is the cost of preference share?

Question 6: XYZ Z & Co. issues 2,000 10% preference shares ofRs.100 each atRs.95 each. Calculate the cost of preference shares if shares are to be redeemed at the end of 10th year.

Cost of Equity

Question 7: A company has paid dividend of Re. 1 per share (of face value ofRs.10 each) last year.

Calculate the cost of equity if the market price of share is Rs. 55. What if, when dividend is expected to grow @ 10% next year.

Question 8: Find out the cost of equity in the following cases:

1. Earning per share Rs. 8, Market price per share Rs.60.
2. Earning available to equity shareholders Rs.15,00,000, Market capitalization Rs.90,00,000

Question 9: Calculate the cost of equity from the following data using realized yield approach:

Year	1	2	3	4	5
Dividend per share	1.00	1.00	1.20	1.25	1.15
Price per share (at the beginning)	9.00	9.75	11.50	11.00	10.60

Question 10: Calculate the cost of equity capital of H Ltd., whose risk free rate of return equals 10%.

The firm's beta equals 1.75 and the return on the market portfolio equals to 15%.

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Cost of Retained Earnings

Question 11: ABC Company provides the following details:

D0 = Rs. 4.19 P0 = Rs. 50 G = 5%

Calculate the cost of retained earnings based on DCF method.

Question 12: ABC Company provides the following details:

Rf = 7% b = 1.20 RM - Rf = 6%

Calculate the cost of retained earnings based on CAPM method.

Weighted Average Cost of Capital (WACC)

Question 13: Calculate weighted average cost of capital from the following information:-

Source	Proportion	After-tax cost
Equity Capital	0.50	18%
Retained Earning	0.20	18%
Debt	0.30	6.5%

Question 14: Calculate WACC from the following information:-

- 10% Debt- 100 lakhs
- Equity capital- 150 lakhs (Ke= 15%)
- Preference Capital-50 lakhs (kp=12%)
- Tax rate-30%

Question 15: Calculate the WACC using the following data by using:

a) Book value weights

b) Market value weights

The capital structure of the company is as under:

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

The market prices of these securities are:

Debenture Rs. 105 per debenture Preference Rs. 110 per preference share Equity Rs. 24 each.

Additional information:

1. Rs. 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10 year maturity.
2. Rs. 100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and10 year maturity.
3. Equity shares has Rs. 4 floatation cost and market price Rs. 24 per share.

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

Corporate tax 50%.

Question 16: Determine the cost of capital of Best Luck Limited using the book value (BV)and market value (MV) weights from the following information:

Sources	Book Value (Rs.)	Market Value (Rs.)
Equity shares	1,20,00,000	2,00,00,000
Retained earnings	30,00,000	—
Preference shares	9,00,000	10,40,000
Debentures	36,00,000	33,75,000

Additional information :

(i) Equity : Equity shares are quoted at Rs. 130 per share and a new issue priced at 125 per share will be fully subscribed; flotation costs will be Rs. 5 per share.

(ii) Dividend : During the previous 5 years, dividends have steadily increased from

(iii) 10.60 to Rs. 14.19 per share. Dividend at the end of the current year is expected to be Rs. 15 per share.

(iv) Preference shares : 15% Preference shares with face value of Rs. 100 would realise Rs. 105 per share.

(v) Debentures : The company proposes to issue 11- year 15% debentures but the yield on debentures of similar maturity and risk class is 16% ; flotation cost is 2%.

(vi) Tax : Corporate tax rate is 35%. Ignore dividend tax..

Marginal Cost of Capital

Question 17: The following is the capital structure of Simons Company Ltd. as on 31.12.1998:

	Rs
Equity shares : 10,000 shares (of Rs. 100 each)	10,00,000
10% Preference Shares (of Rs. 100 each)	4,00,000
12% Debentures	6,00,000
	20,00,000

The market price of the company's share is Rs. 110 and it is expected that a dividend of Rs. 10 per share would be declared for the year 1998. The dividend growth rate is 6%:

(i) If the company is in the 50% tax bracket, compute the weighted average cost of capital.

(ii) Assuming that in order to finance an expansion plan, the company intends to borrow a fund of Rs.10 lakhs bearing 14% rate of interest, what will be the company's revised weighted average cost of capital? This financing decision is expected to increase dividend from Rs. 10 to 12 per share. However, The market price of equity share is expected to decline from Rs. 110 to Rs.105 per share. **(REVISED)**

Question 18: JKL Ltd. has the following book-value capital structure as on March 31, 2003.

	Rs
Equity share capital (2,00,000 shares)	40,00,000
11.5% preference shares	10,00,000
10% debentures	30,00,000
	80,00,000

The equity share of the company sells for Rs. 20. It is expected that the company will pay next year a dividend of Rs. 2 per equity share, which is expected to grow at 5% p.a. forever. Assume a 35% corporate tax rate.

Required:

(i) Compute weighted average cost of capital (WACC) of the company based on the existing capital structure.

(ii) Compute the new WACC, if the company raises an additional Rs. 20 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to Rs. 2.40 and leave the growth rate unchanged, but the price of equity share will fall to Rs. 16 per share.

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Question 19: ABC Ltd. has the following capital structure which is considered to beoptimum as on 31st March, 2010.

	Rs
14% debentures	30,000
11% Preference shares	10,000
Equity (10,000 shares)	1,60,000
	2,00,000

The company share has a market price of Rs. 23.60. Next year dividend per share is 50% of year 2010 EPS. The following is the trend of EPS for the preceding 10 years which is expected to continue in future.

Year	EPS (Rs.)	Year	EPS Rs.)
2001	1.00	2006	1.61
2002	1.10	2007	1.77
2003	1.21	2008	1.95
2004	1.33	2009	2.15
2005	1.46	2010	2.36

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

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

a) Calculate after tax:

(i) Cost of new debt

(ii) Cost of new preference shares

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

b) Calculate marginal cost of capital when no new shares are issued.

c) How much can be spent for capital investment before new ordinary shares must be sold. Assuming that retained earnings for next year's investment are 50 percent of 2010.

d) What will the marginal cost of capital when the funds exceeds the amount calculated in (c), assuming new equity is issued at Rs. 20 per share?

Question 20: Gamma Limited has in issue 5,00,000Rs.1 ordinary shares whose current ex-dividend market price is Rs. 1.50 per share. The company has just paid a dividend of 27 paise per share, and dividends are expected to continue at this level for some time. If the company has no debt capital, what is the weighted average cost of capital?

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Question 21: Masco Limited wishes to raise additional finance ofRs.10 lakhs for meeting its investment plans. It has Rs. 2,10,000 in the form of retained earnings available for investment purposes. Further details are as following:

(1)	Debt / equity mix	30%/70%
(2)	Cost of debt	
	UptoRs. 1,80,000	10% (before tax)
	Beyond Rs. 1,80,000	16% (before tax)
(3)	Earnings per share	Rs. 4
(4)	Dividend pay out	50% of earnings
(5)	Expected growth rate in dividend	10%
(6)	Current market price per share	Rs. 44
(7)	Tax rate	50%

You are required:

a) To determine the pattern for raising the additional finance.

b) To determine the post-tax average cost of additional debt.

c) To determine the cost of retained earnings and cost of equity, and

d) Compute the overall weighted average after tax cost of additional finance.

Question 22: XYZ Ltd. has the following book value capital structure:

Equity Capital (in shares of Rs. 10 each, fully paid up- at par)	Rs. 15 crores
11%Preference Capital (in shares of Rs. 100 each, fullypaid up- at par)	Rs. 1 crore
Retained Earnings	Rs.20 crores
13.5% Debentures (of Rs. 100 each)	Rs. 10 crores
15% Term Loans	Rs. 12.5 crores

The next expected dividend on equity shares per share is Rs. 3.60; the dividend per share is expected to grow at the rate of 7%. The market price per share is Rs. 40.

Preference stock, redeemable after ten years, is currently selling at Rs. 75 per share. Debentures, redeemable after six years, are selling at Rs. 80 per debenture.

The Income tax rate for the company is 40%.

Required

a) book value proportions; and

b) market value proportions.

c) Define the weighted marginal cost of capital schedule for the company, if it raises Rs. 10 crores next year, given the following information:

(i) the amount will be raised by equity and debt in equal proportions;

(ii) the company expects to retain Rs. 1.5 crores earnings next year;

(iii) the additional issue of equity shares will result in the net price per share being fixed at Rs. 32;

(iv) the debt capital raised by way of term loans will cost 15% for the first Rs. 2.5 crores and 16% for the next Rs. 2.5 crores

CHAPTER - 6

CAPITAL STRUCTURE AND CAPITAL STRUCTURE THEORIES

MEANING OF CAPITAL STRUCTURE

Capital Structure refers to the combination of debt and equity which a company uses to finance its long-term operations.

It is the permanent financing of the company representing long-term sources of capital i.e. owner's equity and long-term debts but excludes current liabilities.

On the other hand, Financial Structure is the entire left-hand side of the balance sheet which represents all the long-term and short-term sources of capital.

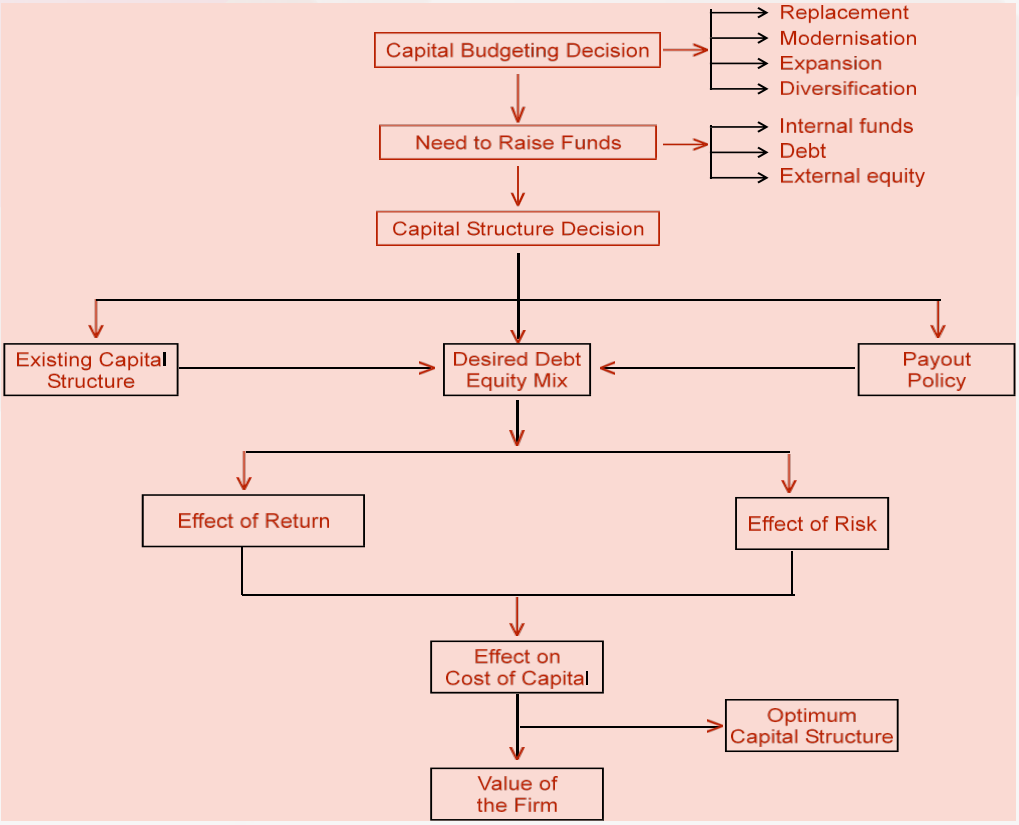
Thus, capital structure is only a part of financial structure.

The source and quantum of capital is decided keeping in mind the following factors:

i. **Control:** Capital structure should be designed in such a manner that existing shareholders continue to hold majority stake.

ii. **Risk:** Capital structure should be designed in such a manner that financial risk of a company does not increase beyond tolerable limit.

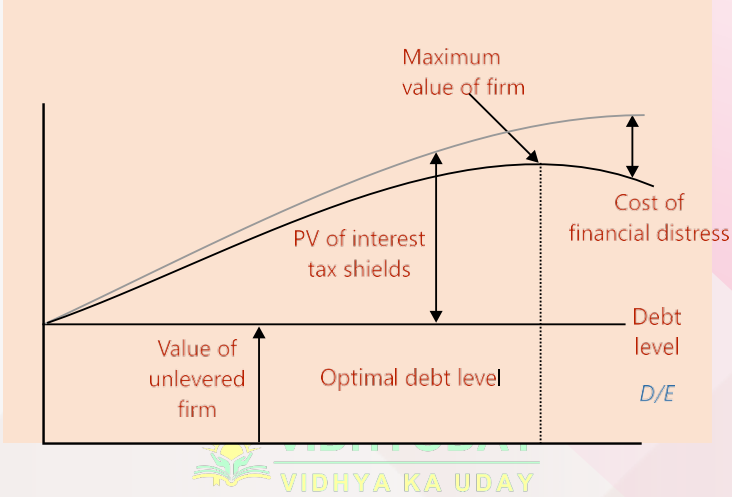
iii. **Cost:** Overall cost of capital remains minimum.



2.1 The Trade-off Theory

The trade-off theory of capital structure refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. Trade-off theory of capital structure basically entails offsetting the costs of debt against the benefits of debt.

It states that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt and non- bankruptcy costs (e.g. staff leaving, suppliers demanding disadvantageous payment terms, bondholder/ stockholder infighting, etc).



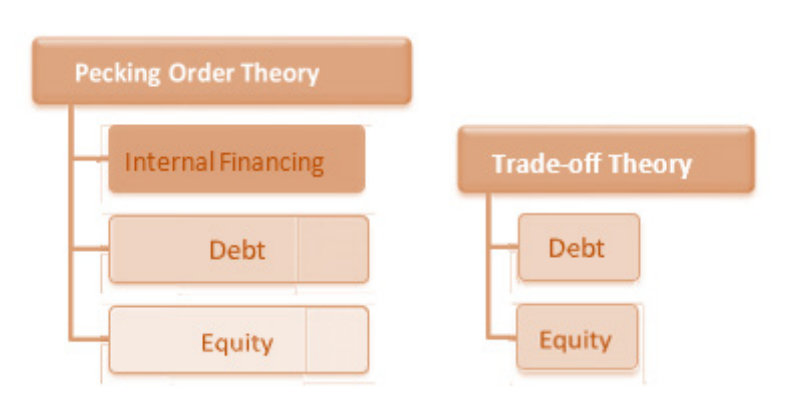
2.2 Pecking Order Theory

This theory is based on Asymmetric information, which refers to a situation in which different parties have different information. In a firm, managers will have better information than investors. This theory states that firms prefer to issue debt when they are positive about future earnings. Equity is issued when they are doubtful and internal finance is insufficient.

Pecking order theory suggests that managers may use various sourcesfor raising of fund in the following order:

1. Managers first choice is to use internal finance.
2. In absence of internal finance, they can use secured debt, unsecured debt, hybrid debt etc.
3. Managers may issue new equity shares as a last option.

Financial Hierarchy



1. FACTORS DETERMINING CAPITALSTRUC- TURE

1.1 Choice of source of funds

A firm has the choice to raise funds for financing its investment proposals from different sources in different proportions. It can:

(a) Exclusively use debt (in case of existing company), or

(b) Exclusively use equity capital, or

(c) Exclusively use preference share capital (in case of existing company), or

(d) Use a combination of debt and equity in different proportions, or

(e) Use a combination of debt, equity and preference capital in different proportions, or

(f) Use a combination of debt and preference capital in different proportion (in case of existing company).

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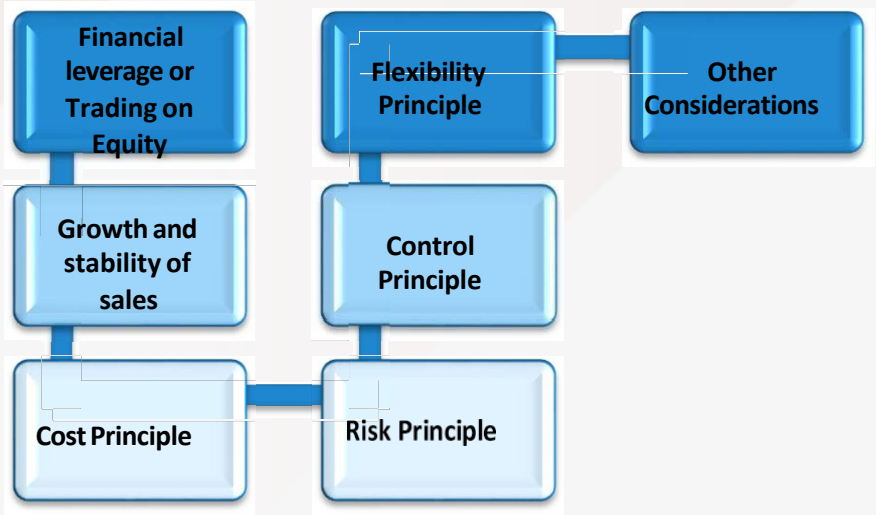
1.2 Factors affecting capital structure



Financial leverage or Trading on Equity: The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity.

Growth and stability of sales: The capital structure of a firm is highly influenced by the growth and stability of its sales. If the sales of a firm are expected to remain fairly stable, it can raise a higher level of debt.

Cost Principle: According to this principle, an ideal pattern or capital structure is one that minimizes cost of capital structure and maximizes earnings per share (EPS). For e.g. Debt capital is cheaper than equity capital from the point of its cost and interest being deductible for income tax purpose, whereas no such deduction is allowed for dividends.

Risk Principle: According to this principle, reliance is placed more on common equity for financing capital requirements than excessive use of debt.

Control Principle: While designing a capital structure, the finance manager may also keep in mind that existing management control and ownership remains undisturbed

Flexibility Principle: By flexibility, it means that the management chooses such a combination of sources of financing which it finds easier to adjust according to changes in need of funds in future too

Other Considerations: Besides above principles, other factors such as nature of industry, timing of issue and competition in the industry should also be considered

2. OPTIMAL CAPITAL STRUCTURE

Objective of financial management is to maximize wealth. Therefore, one should choose a capital structure which maximizes wealth. For this purpose, following analysis should be done:

1. **EBIT-EPS-MPS analysis:** Chose a capital structure which maximizes market price per share. For that, start with same EBIT for all capital structures and calculate EPS. Thereafter, either multiply EPS by price earning ratio or divide it by cost of equity to arrive at MPS.
2. **Indifference Point analysis:** In above analysis, we have considered value at a given EBIT only. What will happen if EBIT changes? Will it change your decision also? To answer this question, you can do indifference point analysis.
3. **Financial Break-Even Point (BEP) analysis:** With change in capital structure, financial risk also changes. Though this risk has already been considered in PE ratio or in cost of equity in point one above, but one may calculate and consider it separately also by calculating Financial BEP.

3. OVER-CAPITALISATION AND UNDER-CAPIT- ALISATION

3.1 Over-Capitalisation

It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest

Causes of Over-Capitalisation:

Over-capitalisation arises due to following reasons:

(i) Raising more money through issue of shares or debentures than company can employ profitably.

(ii) Borrowing huge amount at higher rate than rate at which company can earn.

(iii) Excessive payment for the acquisition of fictitious assets such as goodwill etc.

(iv) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.

(v) Wrong estimation of earnings and capitalisation.

Consequences of Over-Capitalisation:

Over-capitalisation results in thefollowing consequences:

(i) Considerable reduction in the rate of dividend and interest payments.

(ii) Reduction in the market price of shares.

(iii) Resorting to "window dressing".

(iv) Some companies may opt for reorganization. However, sometimesthe matter gets worse and the company may go into liquidation

Remedies for Over-Capitalisation: Following steps may be adopted to avoid the negative consequences of over-capitalisation:

(i) Company should go for thorough reorganization.

(ii) Buyback of shares.

(iii) Reduction in claims of debenture-holders and creditors.

(iv) Value of shares may also be reduced. This will result in sufficient funds for the company to carry out replacement of assets.

3.2 Under-Capitalisation

It is just reverse of over-capitalisation. It is a state, when its actual capitalisation is lower than its proper capitalisation as warranted by its earning capacity. This situation normally happens with companies which have insufficient capital but large secret reserves in the form of considerable appreciation in the values of the fixed assets not brought into the books.

Consequences of Under-Capitalisation: Under-capitalisation results in the following consequences:

(i) The dividend rate will be higher in comparison to similarly situated companies.

(ii) Market value of shares will be higher than value of shares of other similar companies because their earning rate being considerably more than the prevailing rate on such securities.

(iii) Real value of shares will be higher than their book value.

Effects of Under-Capitalisation: Under-capitalisation has the following effects:

(i) It encourages acute competition. High profitability encourages new entrepreneurs to come into same type of business.

(ii) High rate of dividend encourages the workers' union to demand high wages.

(iii) Normally common people (consumers) start feeling that they are being exploited.

(iv) Management may resort to manipulation of share values.

(v) Invite more government control and regulation on the company andhigher taxation also.

Remedies for Under-Capitalisation: Following steps may be adopted toavoid the negative consequences of under-capitalization:

(i) The shares of the company should be split up. This will reduce dividendper share, though EPS shall remain unchanged.

(ii) Issue of Bonus Shares is the most appropriate measure as this willreduce both dividend per share and the average rate of earning.

(iii) By revising upward the par value of shares in exchange of theexisting shares held by them.

Question 1: Best of Luck Ltd., a profit making company, has a paid-up capital ofRs.100 lakhs consisting of 10 lakhs ordinary shares of Rs. 10 each. Currently, it is earning an annual pre- tax profit of Rs. 60 lakhs. The company's shares are listed and are quoted in the range of Rs. 50 to Rs. 80. The management wants to diversify production and has approved a project which will cost Rs. 50 lakhs and which is expected to yield a pre-tax income of Rs. 40 lakhs per annum. To raise this additional capital, the following options are under consideration of the management:

a) To issue equity capital for the entire additional amount. It is expected that the new shares (face value of Rs. 10) can be sold at a premium of Rs. 15.

b) To issue 16% non-convertible debentures of Rs. 100 each for the entire amount.

c) To issue equity capital for Rs. 25 lakhs (face value of Rs. 10) and 16% non-convertible debentures for the balance amount. In this case, the company can issue shares at a premium of Rs. 40 each.

You are required to advise the management as to how the additional capital can be raised, keeping in mind that the management wants to maximise the earnings per share to maintain its goodwill. The company is paying income tax at 50%.

Question 2: Shahji Steels Limited requiresRs.25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of Rs. 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project - by raising debt of Rs. 2,50,000 or Rs. 10,00,000 or Rs. 15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at Rs. 150, but is expected to decline to Rs. 125 in case the funds are borrowed in excess of Rs. 10,00,000. The funds can be borrowed at the rate of 10 percent upto Rs. 2,50,000, at 15 percent over Rs. 2,50,000 and upto Rs. 10,00,000 and at 20 percent over Rs. 10,00,000. The tax rate applicable to the company is 50percent. Which form of financing should the company choose?

Question 3: two alternatives in financing the project cost.

Alternative (a): 100% equity finance

Alternative (b): Debt-equity ratio 2:1

The rate of interest payable on the debts is 18% p.a. The corporate tax rate is 40%. Calculate the indifference point between the two alternative methods of financing. Total capital requirement = 60000

Question 4: Ganpati Limited is considering three financing plans. The key information is as follows:

a) Total investment to be raised Rs. 2,00,000

b) Plans of Financing Proportion:

Plans	Equity	Debt	Preference Shares
A	100%	-	-
B	50%	50%	-
C	50%	-	50%

c) Cost of debt 8%
Cost of preference shares 8%
d) Tax rate 50%
Equity shares of the face value of Rs. 10 each will be issued at a premium of Rs. 10 per share.
Expected EBIT is Rs. 80,000.
You are required to determine for each plan: - Earnings per share (EPS)
The financial break-even point.
Indicate if any of the plans dominate and compute the EBIT range among the plans for indifference.

Question 5: Touchscreen Limited needsRs.10,00,000 for expansion. The expansion isexpected to yield an annual EBIT of Rs. 1,60,000. In choosing a financial plan, Touchscreen Limited has an objective of maximizing earnings per share. It is considering the possibility of issuing equity shares and raising debt of Rs. 1,00,000 or Rs. 4,00,000 or Rs. 6,00,000. The current market price per share is Rs. 25 and is expected to drop to Rs. 20 if the funds are borrowed in excess of Rs. 5,00,000. Funds can be borrowed at the rates indicated below:

a) upto Rs. 1,00,000 at 8%;

b) over Rs. 1,00,000 up to Rs. 5,00,000 at 12%;

c) over Rs. 5,00,000 at 18%.

Assume a tax rate of 50 per cent. Determine the EPS for the three financing alternatives.

Question 6: Yoyo Limited presently hasRs.36,00,000 in debt outstanding bearing an interest rate of 10 per cent. It wishes to finance a Rs. 40,00,000 expansion programme and is considering three alternatives: additional debt at 12 per cent interest, preferred stock with an 11 per cent dividend, and the sale of common stock at Rs. 16 per share. The company presently has 8,00,000 shares of common stock outstanding and is in a 40 per cent tax bracket.

a) If earnings before interest and taxes are presently Rs. 15,00,000, what would be earnings per share for the three alternatives, assuming no immediate increase in profitability?

b) Develop an indifference chart for these alternatives. What are the approximate indifference points? To check one of these points, what is the indifference point mathematically between debt and common?

Which alternative do you prefer? How much would EBIT need to increase before the next alternative would be best

CAPITAL STRUCTURE THEORIES

Net Income Approach (NI)

Question 1: From the following data, determine the total market value and overall cost f capital of the companies, ABC Ltd . & XYZ Ltd. belonging to the same equivalent risk class under the Net Income Approach.

	ABC Ltd.	XYZ Ltd.
EBIT	225000	225000
Interest @ 15%	75000	

Equity capitalization rate for purely equity company is 20%.

Question 2: A Ltd. is going to start a new project of Rs.200 crores. It has the following options to raise money :

1. 14% Debt of Rs. 150 crores
2. 14% Debt of Rs. 100 crores
3. 14% Debt of Rs. 50 crores

And the rest of the capital by issuing equity shares of Rs.10 each at par. Expected EBIT is Rs.36 crores and expectation of equity share holders is 20%p.a. you are required to calculate total market value of the company in all the above situations. Which one is the optimal capital structure ?

Net Operating Income Approach (NOI)

Question 3: From the following information find out the total market value and ke under Net Operating Income approach :

	Company L	Company U
EBIT	650000	650000
Interest (15%)	270000	Nil

Equity capitalization rate of pure equity stream company is 18%. Which of the above companies have an optimal capital structure under NOI approach.

Question 4: (NI& NOI with tax) Company X and Company Y are in the same risk class and are identical in every respect except that company x uses debt, while company Y does not. The levered firm has Rs.18,00,000 debentures, carrying10% rate of interest . ROI is 20% for both the firms. Total assets are Rs.30,00,000. Income tax rate is 35%. Capitalization rate for pure equity stream company is 15%. You are required to

Compute the value and overall cost of capital of Company X and Company Y using NI approach :

a) With no corporate tax assumption

b) With corporate tax

Compute the value and cost of equity of Co. X and Co. Y using NOI approach:

a) With no corporate tax assumption

b) With corporate tax

Modigliani & Miller Approach (M& M)

Question 5: the following data regarding two companies belonging to the same equivalent risk class:

	Company A	Company B
No. of Equity shares	180000	270000
FV of Equity shares	10	10
Equity capitalization rate	10%	10%
6% Debentures	9,00,000	NIL
Profit before interest	324000	324000

Dividend payout ratio is 100%. You are required to explain how under M & M Approach, an investor holding 15% of shares in Co. A will be better off in switching his holding to Co. B.

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Question 6: The following is the data regarding two Company X and Company Y belonging to the same equivalent risk class:

Number of ordinary shares	90000	150000
Market price per share	1.2	1.0
6% Debenture	60000	Nil
Profit Before interest	18000	18000

All profit after debenture interest are distributed as dividends.

Explain how under M & M approach, an investor holding 10% of shares in Company X will be better off in switching his holding to Company Y.

Question 7: The following particulars are available for two companies operating identical business:

	Co. U	Co. L
EBIT	2,50,000	2,50,000
Less: interest (12%)	NIL	36,000
EAESH	2,50,000	2,14,000
Value of firm:		
Value of Equity	10,00,000	6,00,000
Value of Debt	NIL	3,00,000
Total Value	10,00,000	9,00,000

Traditional Approach

Question 8: In considering the most desirable capital structure of a company, the following estimates of the cost of debt and equity capital (before tax) has been made at various levels of Debt-Equity mix.

Case	Debt Amount	Equity Amount	Cost of Debt	Cost of Equity
1	-	5,00,000	10	12
2	50,000	4,50,000	10	12
3	1,00,000	4,00,000	10	12.5
4	1,50,000	3,50,000	11	13
5	2,00,000	3,00,000	12	14
6	2,50,000	2,50,000	13	16
7	3,00,000	2,00,000	14	20

Required: Suggest the optimal Debt-Equity Mix for the company assuming tax rate of 40%.

PRACTICE QUESTIONS

Question 1: Rupa Company's EBIT isRs.5,00,000. The company has 10%, 20 lakhdebentures. The equity capitalization rate i.e. Ke is 16%.

You are required to calculate:

(i) Market value of equity and value of firm

(ii) Overall cost of capital

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Question 2: Amita Ltd's operating income isRs.5,00,000. The firm's cost of debt is 10% and currently the firm employs Rs. 15,00,000 of debt. The overall cost of capital of the firm is 15%.

You are required to determine:

(i) Total value of the firm.

(ii) Cost of equity.

Question 3: There are two firms N and M, having same earnings before interest and taxes i.e. EBIT of Rs. 20,000. Firm M is levered company having a debt of Rs. 1,00,000 @ 7% rate of interest. The cost of equity of N company is 10% and of M company is 11.50%.

Find out how arbitrage process will be carried on?

Question 4: There are two firms U and L having same NOI of Rs. 20,000 except that the firm L is a levered firm having a debt of Rs. 1,00,000 @ 7% and cost of equity of U & L are 10% and 18% respectively.

Show how arbitrage process will work.

Question 5: One-third of the total market value of Sanghmani Limited consists of loan stock, which has a cost of 10 per cent. Another company, Samsui Limited, is identical in every respect to Sanghmani Limited, except that its capital structure is all-equity, and its cost of equity is 16 per cent. According to Modigliani and Miller, if we ignored taxation and tax relief on debt capital, what would be the cost of equity of Sanghmani Limited?

Question 6: Alpha Limited and Beta Limited are identical except for capital structures. Alpha has 50 per cent debt and 50 per cent equity, whereas Beta has 20 per cent debt and 80 per cent equity. (All percentages are in market-value terms). The borrowing rate for both companies is 8 per cent in a no-tax world, and capital markets are assumed to be perfect.

a)

(i) If you own 2 per cent of the stock of Alpha, what is your return if the company has net operating income of Rs. 3,60,000 and the overall capitalisation rate of the company, K0 is 18 per cent?

(ii) What is the implied required rate of return on equity?

b) Beta has the same net operating income as Alpha.

(i) What is the implied required equity return of Beta?

(ii) Why does it differ from that of Alpha?

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Question 7: Zion Company has earnings before interest and taxes ofRs.30,00,000 and a 40 percent tax rate. Its required rate of return on equity in the absence of borrowing is 18 per cent.

a) In the absence of personal taxes, what is the value of the company in an MM world

(i) with no leverage?

(ii) with Rs. 40,00,000 in debt?

(iii) with Rs. 70,00,000 in debt?

b) Personal as well as corporate taxes now exist. The marginal personal tax rate on common stock income is 25 per cent, and the marginal personal tax rate on debt income is 30 per cent. Determine the value of the company for each of the three debt alternatives in part (a). Why do your answers differ?

Question 8: There are two firms Company A and B having net operating income ofRs.15,00,000 each. Company B is a levered company whereas Company A is all equity company. Debt employed by Company B is of Rs. 7,00,000 @ 11%. The tax rate applicable to both the companies is 25%. Calculate earnings available for equity and debt for both the firms

CHAPTER - 7

DEBTORS MANAGEMENT

ASPECTS OF MANAGEMENT OF DEBTORS

There are basically three aspects of management of receivables

Credit Policy: A balanced credit policy should be determined for effective management of receivables. Decision of Credit standards, Credit terms and collection efforts is included in Credit policy.

Credit Analysis: This requires the finance manager to determine as to how risky it is to advance creditto a particular party.

Control of Receivable: This requires finance manager to follow up debtors and decide about asuitable credit collection policy.

FACTORS DETERMINING CREDIT POLICY

The credit policy is an important factor determining both the quantity and the quality of accounts receivables. Various factors determine the size of the investment a company makes in accounts receivables. They are, for instance:

(i) The effect of credit on the volume of sales;

(ii) Credit terms;

(iii) Cash discount;

(iv) Policies and practices of the firm for selecting credit customers;

(v) Paying practices and habits of the customers;

(vi) The firm's policy and practice of collection; and

(vii) The degree of operating efficiency in the billing, record keeping and adjustment function, other costs such as interest, collection costs and bad debts etc., would also have an impact on the size of the investment in receivables.

FACTORS UNDER THE CONTROL OF THE FINANCE MANAGER

The finance manager has operating responsibility for the management of the investment in receivables. His involvement includes:-

(a) Supervising the administration of credit;

(b) Contribute to top management decisions relating to the best credit policies of the firm;

(c) Deciding the criteria for selection of credit applications; and

(d) Speed up the conversion of receivables into cash by aggressive collection policy.

15. FINANCING RECEIVABLES

15.1 Pledging and Factoring

Pledging of accounts receivables and Factoring have emerged as the important sources of financing of accounts receivables now-a-days.

Pledging: This refers to the use of a firm's receivable to secure a short term loan. After cash, a firm's receivables can be termed as its most liquid assets and this serve as prime collateral for a secured loan.

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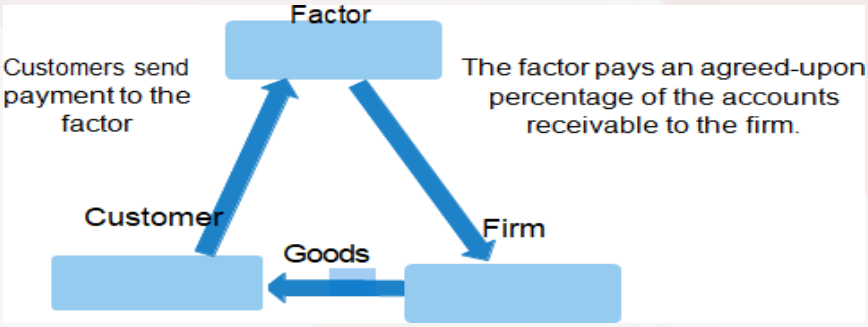
Factoring: Factoring is a relatively new concept in financing of accounts receivables. This refers tooutright sale of accounts receivables toa factor or a financial agency. A factor is a firm that acquires the receivables of other firms.



Factoring arrangement can be either on a recourse basis or on a non-recourse basis:

- **Recourse:** In case factor is unable to collect the amount from receivables then, factor can turn back the same to the organization for resolution (which generally is by replacing those receivables with new receivables)

- **Non-Recourse:** The factor bears the ultimate risk of loss in case of default and hence in such cases they charge higher commission.

FORFAITING

Meaning of Forfaiting

'Forfait' is a French term which means "relinquish a right". Forfaiting is an arrangement of bill discounting in which a financial institution or bank buys the trade bills (invoices) or trade receivables from exporters of goods or services, where the exporter relinquish his right to receive payment from importer.

Functions of Forfaiting

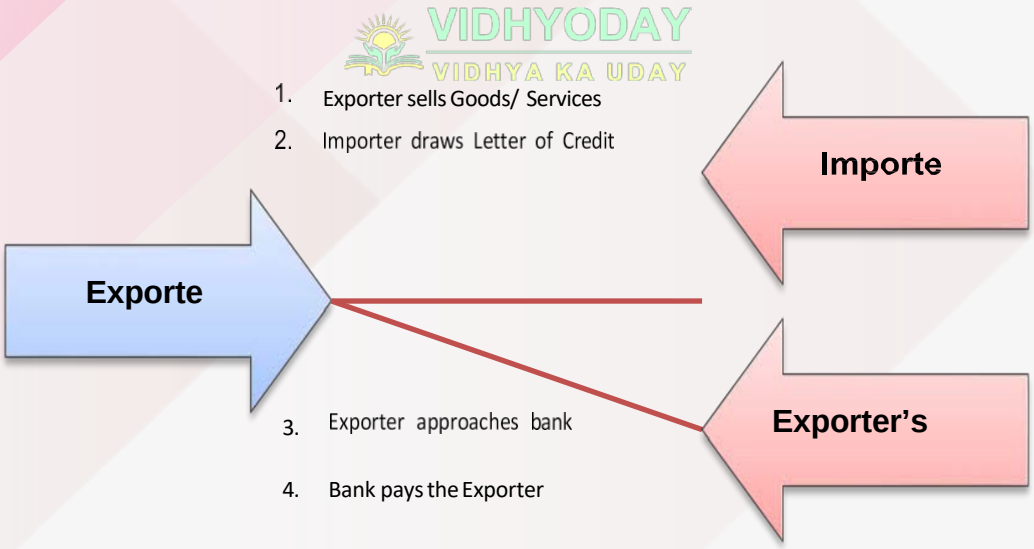
The functionality can be understood in the following manner:

(i) Exporter sells goods or services to an overseas buyer.

(ii) The overseas buyers i.e. the importer on the basis trade bills and import documents draws a letter of credit (or other negotiable instruments) through its bank (known as importer's bank).

(iii) The exporter on receiving the letter of credit(or other negotiable instruments) approaches to its bank (known as exporter's bank).

(iv) The exporter's bank buys the letter of credit (or other negotiable instruments) 'without recourse basis' and provides the exporter the payment for the bill.



Features of Forfaiting

The Salient features of forfaiting are:

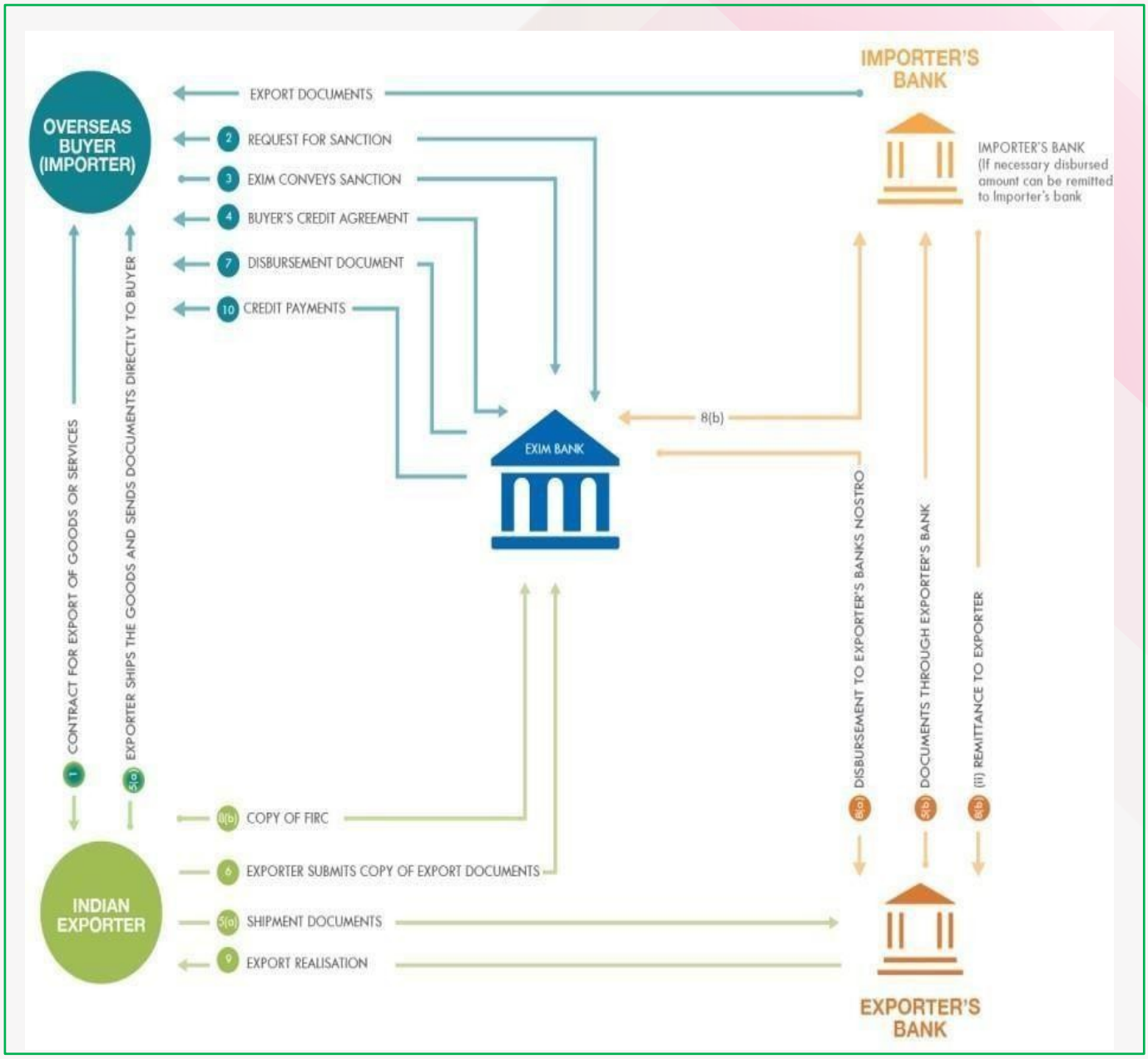
- It motivates exporters to explore new geographies as payment is assured.
- An overseas buyer (importer) can import goods and services on deferred payment terms.
- The exporter enjoys reduced transaction costs and complexities of international trade transactions.

- The exporter gets to compete in the international market and can continue to put his working capital to good use to scale up operations.
- While importers avail of forfaiting facility from international financial institutions in order to finance their imports at competitive rates.

Example of Forfaiting:

Exim Bank of India's 'Buyer's Credit' is an example of forfaiting arrangement. Buyer's Credit programme facilitates exports for SMEs by providing credit to overseas buyer to import goods from India. It is offering financing of capital goods or services on deferred payment terms and provides non-recourse finance to Indian exporters by converting deferred credit contract into cash contract. It extends advance payments to Indian exporters on behalf of the overseas buyer.

The following is a diagrammatic illustration of Exim's Buyer's Credit:



INNOVATIONS IN RECEIVABLE MANAGEMENT

1. **Re-engineering Receivable Process:** In some of the organizations real cost reductions and performance improvements have been achieved by re- engineering in accounts receivable process. Re-engineering is a fundamental re-think and re-design of business processes by incorporating modern business approaches.

   The following aspects provide an opportunity to improve the management of accounts receivables:

   - **Centralisation:** Centralisation of high nature transactions of accounts receivables and payable is one of the practices for better efficiency. This focuses attention on specialized groups for speedy recovery.

   - **Alternative Payment Strategies:** Alternative payment strategies in addition to traditional practices result into efficiencies in the management of accounts receivables.

     (i) **Direct debit:** I.e., authorization for the transfer of funds from the purchaser's bank account.

     (ii) **Integrated Voice Response (IVR):** This system uses human operators and a computer-based system to allow customers to make payment over phone

     (iii) **Collection by a third party:** The payment can be collected by an authorized external firm.

     (iv) **Lock Box Processing:** Under this system an outsourced partner captures cheques and invoice data and transmits the file to the client firm for processing in that firm's systems.

     (v) **Payments via Internet using fund transfer methods** like RTGS, NEFT, IPMS UPIs, App based payment like Paytm, Phone Pe, etc.

   - **Customer Orientation:** Where individual customers or a group of customers have some strategic importance to the firm a case study approach may be followed to developgood customer relations

2. **Evaluation of Risk:** Risk evaluation is a major component in the establishment of an effective control mechanism. Once risks have been properly assessed controls can be introduced to either contain therisk to an acceptable level or to eliminate them entirely

3. **Evaluation of Risk:** Risk evaluation is a major component in the establishment of an effective control mechanism. Once risks have been properly assessed controls can be introduced to either contain therisk to an acceptable level or to eliminate them entirely

   - E-commerce refers to the use of computer and electronic telecommunication technologies,
   - Automated Accounts Receivable Management Systems: Now-a- days all the big companies develop and maintain automated receivable management systems.

4. **Receivable Collection Practices:** The aim of debtors' collection should be to reduce, monitor and control the accounts receivable at the same time maintain customer goodwill.

   The following are major receivable collection procedures and practices:

   (i) Issue of Invoice.

   (ii) Open account or open-end credit.

   (i) Credit terms or time limits.

   (ii) Periodic statements and follow ups.

   (iii) Use of payment incentives and penalties.

   (iv) Record keeping and Continuous Audit.

   (v) Export Factoring: Factors provide comprehensive credit management, loss protection collection services and provision of working capital to the firms exporting internationally.

   (vi) Business Process Outsourcing: This refers to a strategic business tool whereby an outside agency takes over the entire responsibility for managing a business process like collections in this case.

5. **Use of Financial tools/techniques:** The finance manager while managing accounts receivables uses a number of financial tools and techniques. Some of them have been described hereby as follows:

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   - **Credit analysis:** While determining the credit terms, the firm has to evaluate individual customers in respect of their credit worthiness and thepossibility of bad debts.
   - **Credit Granting:** Decision tree analysis: The decision whether to grant credit or not is a decision involving costs and benefits.
   - **Control of receivables:** Another aspect of management of debtors is the control of receivables. Merely setting of standards and framing a credit policy is not sufficient; it is, equally important to control receivables by constant monitoring and follow ups.
   - **Collection policy:** Efficient and timely collection of debtors ensures that the bad debt losses are reduced to the minimum and the average collection period is shorter. If a firm spends more resources on collection of debts, it is likely to have smaller bad debts.

     It is important that clear-cut procedures regarding credit collection are set up. Such procedures must answer questions like the following:

     a) How long should a debtor balance be allowed to exist before collection process is started?

b) What should be the procedure of follow up with defaulting customer? How reminders are to be sent and how should and at what frequency, each successive reminder be drafted?

c) Should there be collection machinery whereby personal calls by company's representatives are made?

d) What should be the procedure for dealing with doubtful accounts? Is legal action to be instituted or some escalation matrix to be followed? How should account be handled?

MONITORING OF RECEIVABLES

Various steps that constitute constant monitoring are:

(i) Computation of average age of receivables: It involves computation of average collection period.

(ii) Ageing Schedule: When receivables are analysed according to their age, the process is known as preparing the ageing schedules of receivables.

(iii) Debt Collection Programme:

(a) Monitoring the state of receivables.

(b) Intimation to customers when due date approaches.

(c) E-mail and telephonic advice to customers on thedue date.

(d) Reminding the legal recourse on overdue A/cs and follow escalation matrix if available.

(e) Legal action on overdue A/cs

Question 1: Calculate the Average Collection Period in each of the following cases:

Credit Policy	Customers avails cash discount
2/10, net 30 days	25%
3/15, net 40 days	20%
1/20, net 50 days	30%

Question 2: Calculate Debtors turnover ratio in each of the following cases:

a) Credit sales 50 lakhs p.a., Current level of receivables(debtors) is 5 lakhs.

b) Average collection period is 45 days.

c) Average collection period is 2 months.

Question 3: Calculate average collection period in each of the following alternative cases: (assume 360 days in year)

Case A: Debtors turnover ratio is 6.

Case B: Current level of receivables Rs.60 crores, current annual credit sales Rs. 600 crores.

Case C: Average level of receivables Rs. 1,00,000, Average net credit sales per day Rs. 2,500.

Case D: Credit terms are 2/10, net 30, 25% of the credit customers avails cash discount facility.

Question 4: Calculate the opportunity cost of investment in receivable in each of the following alternative cases: (assume 360 days in a year)

Case A: Total sales Rs. 62,50,000, cash sales 20% of the total sales, variable cost 85% of sales, fixed cost Rs. 3,12,000, bad debts 5 %, Average collection period 90 days, required rate of return 12%.

Case B: Total sales Rs. 125 lakhs, cash sales 25% of credit sales, bad debts 5%, selling price per unit Rs. 500, average cost per unit Rs. 450, Debtors turnover ratio 4, required rate of return 12%.

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Question 5: A trader whose current sales are in the region of 6 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:-

Credit policy	Increase in collection period	Increase in sales	Present default anticipated
A	10 Days	Rs. 30,000	1.5%
B	20 Days	Rs. 48,000	2%
C	30 Days	Rs. 75,000	3%
D	45 Days	Rs. 90,000	4%

The selling price per unit is Rs. 3. Average cost per unit is Rs. 2.25 and variable cost per unit is Rs. 2.

The current bad debts loss is 1%. Required return on additional investment is 20%. Assume a 360 days year.

Which of the above policies would you recommend for adoption?

Question 6: XYZ Corporation is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of Rs. 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is Rs. 1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable cost are 70% of the selling price. Given the following information, which is the better option?

	Present Policy	Policy Option I	Policy Option II
Annual credit sales	50,00,000	60,00,000	67,50,000
Accounts Receivable turnover ratio	4 times	3 times	2.4 times
Bad debts losses	1,50,000	3,00,000	4,50,000

Question 7: As a part of the strategy to increase sales and profits, the sales manager of a company proposes to sell goods to group of new customers with 10% risk of non-payment. This group would require one and a half months credit and is likely to increase sales by Rs. 1,00,000 p.a. Production and selling exp. amount to 80% of sales and the income tax rate is 50%. The company's minimum required rate of return (after tax) is 25%.

Should the sales manager's proposal be accepted?

Also find the degree of risk of non-payment that the company should be willing to assume if the required rate of return (after tax) were (i) 30% (ii) 40% and (iii) 60%

Question 8: Slow Payers are regular customer of Goods Dealers Ltd, Calcutta and have approached the seller for execution of a credit facility for enabling them to purchase goods from Goods Dealers Ltd. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges in regard to Slow Payers:

	Pattern
At the end of 30 day	15% of the bill
At the end of 60 days	34% of the bill
At the end of 90 days	30% of the bill
At the end of 100 days	20% of the bill
Non-recovery	1% of the bill

Slow Payers want to enter into a firm commitment for purchase of goods of Rs. 15 lakhs in 2005, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is Rs. 150 on which a profit of Rs. 5 per unit is expected to be made. It is anticipated by Goods dealers Ltd. that taking up of this contract would mean an extra recurring expenditure of Rs. 5,000 p.a. If the opportunity cost of fund in the hands of Goods Dealers Ltd. is 24% p.a., would you as the finance manager of the seller

recommend the grant of credit to Slow Payers? Working should be part of your answer. Assume year of 360 days.

Question 9: A Factoring firm has credit sales of Rs. 360 lakhs and its average collection period is 30 days. The financial controller estimates, bad debts losses are around 2% of credit sales.The firm spends Rs. 1,40,000 annually on debtors administration. This cost comprises of telephonic and fax bills along with salaries of staff members. These are the avoidable costs. A Factoring firm has offered to buy the firm's receivables. The factor will charge 1% commission and will pay and advance against receivables on an interest @15% p.a. after withholding 10% as reserve. What should the firm do?

Question 10: Mosaic Limited has current sales of Rs. 1.5 Lakh per year. Cost of sales is´75 percent of sales and bad debts are one percent of the sales. Cost of sale comprises 80 percent variable costs and 20 percent fixed cost, while the company's required rate od return is 12 percent. Mosaic Limited currently allows customers 30 days credit, but is considering increasing this to 60 days credit in order to increase sales.

It has been estimated that this change in policy will increase sales by 15 percent, while bad debts will increase from one percent to four percent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged.

Should Mosaic Limited introduce the proposed policy?

Question 11: The Megatherm Corporation has just acquired a large account. As a result, it needs an additional Rs. 70,000 in working capital immediately. It has been determined that there are three feasible sources of fund:

a) Trade credit: The company buys about Rs. 50,000 of materials per month on terms of 3/30 net 90. Discounts are taken.

b) Bank loan: The firm's bank will lend Rs. 1,00,000 at 13%. A 10 per cent compensating balance will be required, which otherwise would not be maintained by the company.

c) A factor will buy the company's receivables (Rs. 1,00,000 per month), which have a collection period of 60 days. The factor will advance up to 75% of the face value of the receivables at 12% on an annual basis. The factor will also charge a 2 per cent fee on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad-debt expenses of Rs. 1,500 per month.

On the basis of annual percentage cost, which alternative should the company select?

Question 12: The Dolce Company purchases raw materials on terms of 2/10 net 30. A review of the company's records by the owner, Mr. Gupta, revealed that payments are usually made 15 days after purchases are received. When asked why the firm did not take advantage of its discounts, the accountant, Mr. Ram, replied that its cost only 2 per cent for these fund, whereas bank loan would cost the company 12 per cent.

a) What mistake is Ram making?

b) What is the real cost of not taking advantage of the discount?

c) If the firm could not borrow from the bank and was forced to resort to use of trade credit funds, what suggestion might be made to Ram that would reduce the annual interest cost?

Question 13: The credit manager of XYZ Ltd is reappraising the company's credit policy. The company sells the products on terms of net 30. Cost of goods sold is 85% of sales and fixed cost are further 5% of sales. XYZ classifies its customers on a scale of 1 to 4. During the past five years, the experience was as under:

Classification	Default as a percentage of sales	Average collection period in days for non-defaulting accounts
1	0	45
2	2	42
3	10	40
4	20	80

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The average rate of interest is 15%. What conclusions do you draw about the company's credit policy? What other factors should be taken into account before changing the present policy? Discuss.

Question 14: A firm is considering offering 30-days credit to its customers. The firm likes to charge them an annualized rate of 24%. The firm wants to structure the credit in terms of a cash discount for immediate payment. How much would the discount rate have to be?

Question 15: PTC Ltd. received on order for supply of a product from X Ltd. for Rs. 10 lakhs. Cost of sales is 80% of sales. It has been estimated that the probability of non-recovery in case X Ltd. is bankrupt is:

a) 25%,

b) 15 %,

c) 20%

On the basis of above information determine whether PCT Ltd. should accept the order

PRACTICE QUESTIONS

Question 1: The present credit terms of Creation Ltd. are 1/10, net 30. Its annual sales are Rs.80 lakhs, its average collection period is 20 days, its variable cost and average total costs to sales are 0.85 and 0.95 respectively and its cost of capital is 10%. The proportion of sales on which customers currently take discount is 0.5. Creation Ltd. is considering relaxing its discount terms to 2/10,net 30. Such relaxation is expected to increase sales by Rs.5 lakhs, reduce the average collection period to 14 days and increase the proportion of discount sale to 0.8. What will be the effect of relaxing the discount policy on company's profit? Take an year as of 360 days.

Question 2: Gel Corporation presently gives credit terms of 'net 30 days'. It has Rs.600 lakhs in credit sales and its average collection period is 45 days. To stimulate sales, the company may give credit terms of 'net 60 days' with sales expected to increase by 15%. After the change, the average collection period is expected to be 75 days with no difference in payment habits between old and net of customers. Variable costs are Rs.0.8 for every Re.1 of sales; and the company's before tax required rate of return on investment in receivable is 20%. Assume 360 days in a year. Should the company extend its credit period?

Question 3: Peacock Ltd. has been engaged in manufacturing of textiles. It has a current sale of Rs.30 lakhs p.a. The cost of sale is 75% of sales and bad debts are 1% of sales. The cost of sales comprises 80% variable and 20% fixed cost, while the company's required rate of return is 12%. The company currently allows customers 30 days credit, but is now considering increasing this to 60 days credit in order to attract more customers.

It has been estimated that this change in policy will increase sales by 15%, while bad debts will increase from 1% to 4%. It is expected that the policy change will not result in any increase fixed cost, creditors and stock level.

Should Peacock Ltd. introduce proposed policy?

Question 4: ABC Ltd. currently has sales of Rs.30,00,000 with an average collection period of two months. At present, no discounts are offered to the customers. The management of the company is thinking to allow a discount of 2% on cash sales which will result as under:

(i) The average collection period would reduce to one month.

(ii) 50% of customers would take advantage of 2% discount.

The company would normally require a 25% return on its investment. Advise the management whether to extend the discount on cash sales.

CHAPTER - 8

CASH MANAGEMENT

MEANING

Treasury management encompasses planning, organizing & controlling the funds & working capital of an enterprise in order to ensure best use of funds, maintain liquidity, reduce overall cost of funds and mitigating operational & financial risk

The treasury management mainly deals with:-

- Working capital management; and
- Financial risk management (It includes forex and interest rate management).

The key goals of treasury management are:-

- Maximize the return on the available cash;
- Minimize interest cost on borrowings;
- Mobilise as much cash as possible for corporate ventures for maximum returns; and
- Effective dealing in forex, money and commodity markets to reduce risks

  arising because of fluctuating exchange rates, interest rates and prices which can in turn affect the profitability of the organization.

FUNCTIONS OF TREASURY DEPARTMENT

1. **Cash Management:** It involves efficient cash collection process and managing payment of cash both inside the organisation and to third parties.
2. **Currency Management:** The treasury department manages the foreign currency risk exposure of the company.
3. **Fund Management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs.
4. **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respect to interest rates, foreign exchange rates etc. and act as the initial point of contact with them..
5. **Corporate Finance:** Treasury department is involved with both acquisition and divestment activities within the group.

MANAGEMENT OF CASH

Management of cash is an important function of the finance manager. It is concerned with the managing of:

(i) Cash flows into and out of the firm;

(ii) Cash flows within the firm; and

(iii) Cash balances held by the firm at a point of time by financing deficit or investing surplus cash.

The main objectives of cash management for a business are:-

- Provide adequate cash to each of its units as per requirements;
- No funds are blocked in idle cash; and
- The surplus cash (if any) should be invested in order to maximize returns for the business.

The Need for Cash

- Transaction need: Cash facilitates the meeting of the day-to-day expenses and other debt payments.
- Speculative needs: Cash may be held in order to take advantage of profitable opportunities that may present themselves and which may be lost for want of ready cash/settlement.
- Precautionary needs: Cash may be held to act as for providing safety against unexpected events.

Cash Planning

Cash Planning is a technique to plan and control the use of cash. This protects the financial conditions of the firm by developing a projected cash statement from a forecast of expected cash inflows and outflows for a given period.

Managing Cash Collection and Disbursements

To achieve this cash management, efficiency will have to be brought in by proper control of cash collection and disbursement.

The twin objectives in managing the cash flows should be:-

- Accelerate cash collections as much as possible; and
- Decelerate or delay cash disbursements within permissible time frame

Accelerating Cash Collections

Different Kinds of Float with reference to Management of Cash The term float is used to refer to the periods that affect cash as it moves through the different stages of the collection process. Four kinds of float with reference to management of cash are:

- **Billing float:** An invoice is the formal document that a seller prepares and sends to the purchaser as the payment request for goods sold or services provided. The time between the sale and the mailing of the invoice is known as billing float.
- **Mail float:** This is the time when a cheque is being carried by post office, messenger service or other means of delivery.
- **Cheque processing float:** This is the time required for the seller to sort, record and deposit the cheque after it has been received by the company.
- **Banking processing float:** This is the time from the deposit of the cheque to the crediting of funds in the sellers' account.

There are multiple ways in which a firm can attempt to reduce or eliminate any or all types of floats above. For instance:

- A firm can conserve cash and reduce its requirements for cash balances if it can speed up its cash collections by issuing invoices quickly (reducing / eliminating billing float);
- By reducing the time lag between a customer pays bill and the cheque is collected (reducing / eliminating mail float);
- Making funds become available for the firm's use (reducing / eliminating processing floats).

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A firm can also use decentralized collection system known as concentration banking and lock box system to speed up cash collection and reduce float time.

- **Concentration Banking :** In concentration banking, the company establishes a number of strategic collection centers in different regions instead of a single collection center at the head office
- **Lock Box System:** Another means to accelerate the flow of funds is a lock box system. While concentration banking, remittances are received by a collection center and deposited in the bank after processing. The purpose of lock box system is to eliminate the time between the receipts of remittances by the company and deposited in the bank.

Controlling Payments

An effective control over payments can also cause faster turnover of cash. This is possible only by making payments on the due date, making excessive use of draft (bill of exchange) instead of cheques.

CASH MANAGEMENT MODELS

In recent years several types of mathematical models have been developed which helps to determine the optimum cash balance to be carried by a business organization.

The purpose of all these models is to ensure that cash does not remain idle unnecessarily and at the same time the firm is not confronted with a situation of cash shortage.

All these models can be put in two categories:

Inventory type models; and Stochastic models.

Inventory type models have been constructed to aid the finance manager to determine optimum cash balance of his firm.

However, in a situation where the EOQ Model is not applicable, stochastic model of cash management helps in determining the optimum level of cash balance. It happens when the demand for cash is stochastic and not known in advance.

William J. Baumol's Economic Order Quantity Model,(1952)

According to this model, optimum cash level is that level of cash where the carrying costs and transactions costs are the minimum.

Miller-Orr Cash Management Model (1966)

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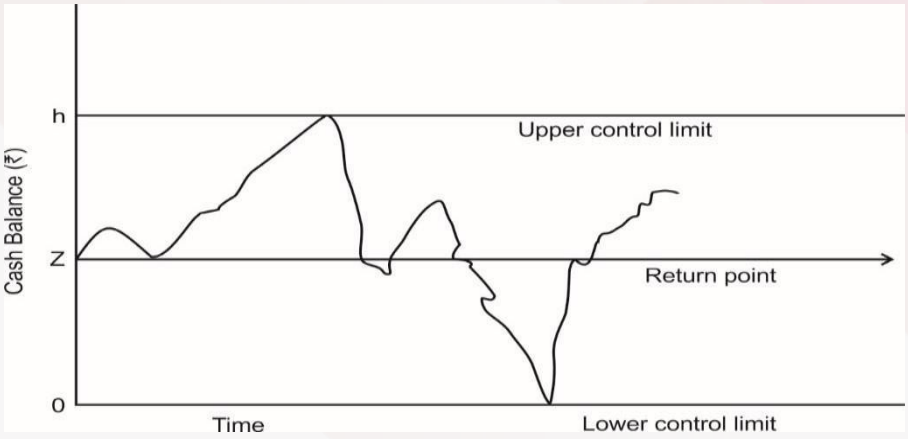
According to this model the net cash flow is completely stochastic.



RECENT DEVELOPMENTS IN CASHMANAGEMENT

7.1 Electronic Fund Transfer

The network will be linked to the different branches, banks. This will help the customers inthe following ways:

- Instant updating of accounts.
- Quick transfer of funds.
- Instant information about foreign exchange rates.

7.2 Zero Balance Account

For efficient cash management some firms employ an extensive policy of substituting marketable securities for cash by the use of zero balance accounts

7.3 Money Market Operations

One of the tasks of 'treasury function' of larger companies is the investment of surplus funds in the money market.

7.4 Petty Cash Imprest System

For better control on cash, generally the companies use petty cash imprest system wherein the day-to-day petty expenses are estimated taking into account past experience and future needs

7.5 Management of Temporary Cash Surplus

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Temporary cash surpluses can be profitably invested in the following:

- Short-term deposits in Banks and financial institutions.
- Short-term debt market instruments.

Or Long Term Debt Instruments with flexible maturity dates Shares of Blue chip listed companies

7.6 Electronic Cash Management System

Most of the cash management systems now-a-days are electronically based, since 'speed' is the essence of any cash management system.

Electronic-scientific cash management results in:

- Significant saving in time.
- Increase in interest earned & decrease in interest expense.
- Reduces paper-work & hence manpower.
- Greater accounting accuracy as it allows easy detection of book-keeping errors.
- More control over time and funds.
- Supports electronic payments.

- Faster transfer of funds from one location to another, where required.
- Speedy conversion of various instruments into cash.
- Making available funds wherever required, whenever required.
- Reduction in the amount of 'idle float' to the maximum possible extent.
- Ensures no idle funds are placed at any place in the organization.
- It makes inter-bank balancing of funds much easier.
- It is a true form of centralized 'Cash Management'.
- Produces faster electronic reconciliation.

7.7 Virtual Banking

The practice of banking has undergone a significant change in the nineties. While banks are striving to strengthen customer base and relationship and move towards relationship banking, customers are increasingly moving away from the confines of traditional branch banking and are seeking the convenience of remote electronic banking services including net banking & mobile banking

Advantages of Virtual Banking

The advantages of virtual banking services are as follows:

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- Lower cost of handling a transaction.
- The increased speed of response to customer requirements.
- The lower cost of operating branch network along with reduced staff costs leads to cost efficiency.
- Virtual banking allows the possibility of improved and a range of services being made available to the customer rapidly, accurately and at his convenience.

MANAGEMENT OF MARKETABLE SECURITIES

Management of marketable securities is an integral part of investment of cash as this may serve both the purposes of liquidity and cash, provided choice of investment is made correctly

The selection of securities should be guided by three principles.

- **Safety:** Return and risks go hand in hand. As the objective in this investment is ensuring liquidity, minimum risk is the criterion of selection.
- **Maturity:** Matching of maturity and forecasted cash needs is essential. Prices of long term securities fluctuate more with changes in interest rates and are therefore, riskier.
- **Marketability:** It refers to the convenience, speed and cost at which a security can be converted into cash.

Question 1: From the following information, find out the amount paid to creditors:-

Opening balance of creditors:-	Rs. 1,25,000
Purchases during the period:-	Rs. 10,75,000
Closing balance of the creditors:-	Rs. 2,45,000

Question 2: From the following information, find out the amount received from debtors:-

Opening balance of debtors:-	Rs. 5,00,000
Total Sales during the period:-	Rs.25,00,000
Closing balance of debtors:-	Rs.7,00,000

Credit sales is 80% of the total sale.

Question 3: Find out the amount received from sales for the three months (January-March):-

	November	December	January	February	March
Total Sales	1,00,000	80,000	1,05,000	1,20,000	90,000

Other information:-

(i) 20% of total sales are in cash.

(ii) 50% of the total credit sales will be received in 1 month from the month of sales and balance in next month.

Question 4: Find the amount paid to creditors in January, February and March, if materials are purchased 2 months before the sale and payment is made 1 month after the purchases. Purchases are 80% of the sale amount and sales amount is same as in Question No. 3.

Question 5:

	Sales	Purchases	Expenses
April	25,000	18,750	2,500
May	30,000	22,500	3,000
June	45,000	33,750	4,500
July	40,000	30,000	4,000
August	50,000	37,500	5,000
September	45,000	33,750	4,500

Other information:-

(i) All sales and purchases are on credit basis.

(ii) Debtors are given two months credit period.

(iii) Company have taken one month credit period from the suppliers.

(iv) Expenses are paid in $\frac{1}{2}$ month from the occurrence.

Prepare a cash budget for the month of July, August and September. Opening cash balance on 1st July is to be taken as Rs. 20,000.

Question 6: Prepare monthly cash budget for six months beginning from April 2010 on the basis of the following information:-

(i) Estimated monthly sales are as follows:-

	Rs.		Rs.
January	1,00,000	June	80,000
February	1,20,000	July	1,00,000
March	1,40,000	August	80,000
April	80,000	September	60,000
May	60,000	October	1,00,000

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(ii) Wages & salaries are estimated to be payable as follows:-

	Rs.		Rs.
April	9,000	July	10,000
May	8,000	August	9,000
June	10,000	September	9,000

(iii) Of the sale, 80% is on credit and 20% for cash, 75% of the credit sales are collected within one month and the balance in two months. There are no bad debts.

(iv) Purchases amount to 80% of sales and are made and paid for in the month preceding the sale.

(v) The firm has 10% debenture of Rs. 1,20,000. Interest on these has to be paid quarterly in January, April and so on.

(vi) The firm is to make an advance payment of tax of Rs.5,000 in July,2010.

(vii) The firm has a cash balance of Rs. 20,000 on April 1,2010, which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investment/liquidation of temporary investment or temporary borrowing at the end of each month (interest on these to be ignored).

Question 7: From the following information relating to a departmental store, you are required to prepare Month-wise cash budget on receipt and payments basis for the three months ending 31st March, 2010:-

It is anticipated that the working capital at 1st January, 2010 will be as follows:-

	Rs. In '000's
Cash in hand and at bank	545
Short term investment	300
Debtors	2,570
Stock	1,300
Trade creditors	2,110
Other creditors	200
Dividends payable	485
Tax due	320
Plant	800

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Budgeted Profit Statement: Rs. In '000's

	January	February	March
Sales	2,100	1,800	1,700
Cost of sales	1,635	1,405	1,330
Gross Profit	465	395	370
Administration, Selling and Distribution Expenses	315	270	255
Net Profit before tax	150	125	115

Budgeted balances at the end of each month:- Rs. In '000's

	31st Jan.	28th Feb.	31st March
Short term investment	700	---	200
Debtors	2,600	2,500	2,350
Stock	1,200	1,100	1,000
Trade Creditors	2,000	1,950	1,900
Other Creditors	200	200	200
Dividend payables	485	---	---
Tax due	320	320	320
Plant (depreciation ignored)	800	1,600	1,550

Question 8: A firm maintains a separate account for cash disbursement. Total disbursement are Rs, 1,05,000 per month or 12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is Rs. 20 per transfer. Marketable securities yield is 8% p.a.

Determine the optimum cash balance ACCORDING TO William J. Baumol model

Question 9: M/s ABC Ltd. provides following information:

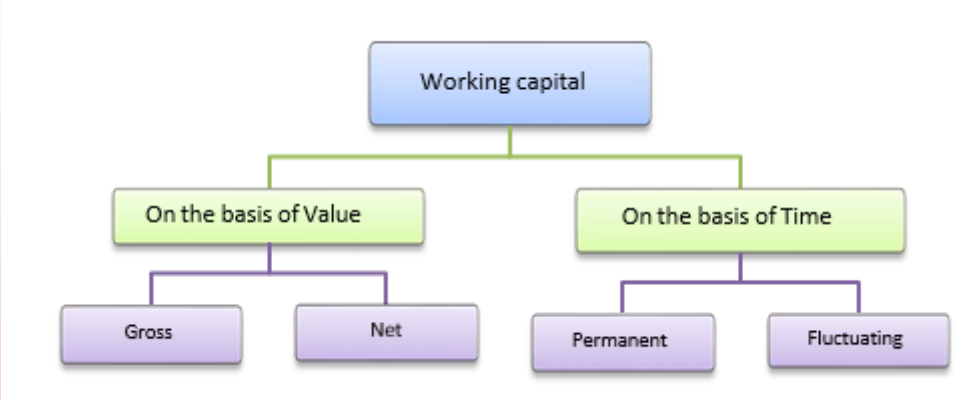
The company maintains a minimum cash balance of Rs. 1000. The standard deviation of the company's daily cash flow is Rs. 1200. The annual interest rate is 0.01%. The transaction cost of buying & selling securities is Rs. 20 per transaction. (Assume 360 days in a year).

Required: Calculate upper limit, return point, and average cash balance as per the Miller-Orr model.

CHAPTER - 9

MANAGEMENT OF WORKING CAPITAL

Working Capital Management is process which is designed to ensure that an organization operates efficiently by monitoring & utilizing its current assets and current liabilities to the best effect.



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a) **Value:** From the value point of view, Working Capital can be defined asGross Working Capital or Net Working Capital.

b) **Time:** From the point of view of time, working capital can be divided into twocategories viz., Permanent and Fluctuating (temporary).

SIGNIFICANCE OF WORKING CAPITAL

Importance of Adequate Working Capital

Management of working capital is an essential task of the finance manager. He has to ensure that the amount of working capital available is neither too large nor too small for its requirements.

Maintaining adequate working capital is not just important in the short-term, sufficient liquidity must be maintained in order to ensure the survival of the business in the long-term as well.

Optimum Working Capital

If a company's current assets do not exceed its current liabilities, then it may run into trouble with creditors that want their money quickly. Not being able to meet its short-term obligations, company shall eventually lose its reputation and not many vendors would like to do business with them.

a firm should have adequate working capital to run its business operations. Both excessive as well as inadequate working capital positions are dangerous.

DETERMINANTS OF WORKING CAPITAL

1. **Need for Cash:** Identify the cash balance which allows for the business to meet day-to-day expenses
2. **Desired level of Inventory:** Identify the level of inventory which allows for uninterrupted production but reduces the investment in raw materials and hence increases cash flow. The techniques like Just in Time (JIT) andEconomic order quantity (EOQ) are used for this.
3. **Receivables:** Identify the appropriate credit policy, i.e., credit terms which will attract customers
4. **Short-term Financing Options:** Inventory is ideally financed by credit granted by the supplier. However, depending on the cash conversion cycle, it may be necessary to utilize a bank loan (or overdraft), or to "convert debtors to cash" through "factoring" in order to finance working capital requirements.

5. **Nature of Business:** For e.g. in a business of restaurant, most of the sales are in Cash. Therefore, need for working capital is very less. On the other hand, there would be a higher inventory in case of a pharmacy or a bookstore.
6. **Market and Demand Conditions:** For e.g. if an item's demand far exceedsits production, the working capital requirement would be less as investment in finished goods inventory would be very less with continuous sales.
7. **Technology and Manufacturing Policies:** For e.g. in some businesses the demand for goods is seasonal, in that case a business may follow a policy for steady production throughout the whole year or rather may choose a policy of production only during the demand season.
8. **Operating Efficiency:** A company can reduce the working capital requirement by eliminating waste, improving coordination, process improvements etc.
9. **Price Level Changes & Exchange Rate Fluctuations:** For e.g. rising prices necessitate the use of more funds for maintaining an existing level of activity. For the same level of current assets, higher cash outlays are required. Therefore, the effect of rising prices is that a higher amount of working capital is required

MANAGEMENT OF WORKING CAPITAL

the working capital needs adequate attention and efficient management. When we talk about the management, it involves 3 Es i.e. Economy, Efficiency and Effectiveness and all these three are required for the working capital management.

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Liquidity and Profitability

For uninterrupted and smooth functioning of the day-to-day business of an entity, it is important to maintain liquidity of funds evenly. a trade-off is required between the liquidity and profitability which increases the profitability without disturbing the day-to-day functioning. This requires 3Es i.e. economy in financing, efficiencyin utilisation and effectiveness in achieving the intended objectives

The trade-off between the components of working capital can be summarised asfollows:

Component of Working Capital	Advantages of higher side (Profitability)	Trade-off (between Profitability and Liquidity)	Advantages of lower side (Liquidity)
Inventory	Fewer stock-outs increase the profitability.	Use techniques like EOQ, JIT etc. to carry optimum level of inventory.	Lower inventory requires less capital but endangered stock-out and loss of goodwill.
Receivables	Higher Credit period attract customers and increase revenue (but can result in more bad debts)	Evaluate the credit policy; use the services of debt management (factoring) agencies.	Cash sales provide liquidity but fails to boost sales and revenue (due to lower credit period)
Pre-payment of expenses	Reduces uncertainty and profitable in inflationary environment.	Cost-benefit analysis required	Improves or maintains liquidity.
Cash and Cash equivalents	Payables are honoured in time, improves the goodwill and helpful in getting future discounts.	Cash budgets and other cash management techniques can be used	Cash can be invested in some other investment avenues
Payables and Expenses	Capital can be used in some other investment avenues	Evaluate the credit policy and related cost.	Payables are honoured in time, improves the goodwill and helpful in getting future discounts.

Investment and Financing

Working capital policy is a function of two decisions, first is investment in working capital and the second is financing of the investment. Investment in working capital is concerned with the level of investment in the current assets. It gives the answer of 'How much' fund to be tied in to achieve the organisation objectives

Investment of working capital: How much to be invested in current assets as working capital is a matter of policy decision by an entity. It has to be decided in the light of organisational objectives, trade policies and financial (cost-benefit) considerations.

level of investment depends on the various factors listed below:

a) **Nature of Industry:** Construction companies, breweries etc. requires large investment in working capital due long gestation period.

b) **Types of products:** Consumer durable has large inventory as compared to perishable products.

c) **Manufacturing Vs Trading Vs Service:** A manufacturing entity has to maintain three levels of inventory i.e. raw material, work-in-process and finished goods whereas a trading and a service entity has to maintain inventory only in the form of trading stock and consumables respectively.

d) **Volume of sales:** Where the sales are high, there is a possibility of high receivables as well.

e) **Credit policy:** An entity whose credit policy is liberal has not only high level of receivables but may require more capital to fund raw material purchases as that will depend on credit period allowed by suppliers.

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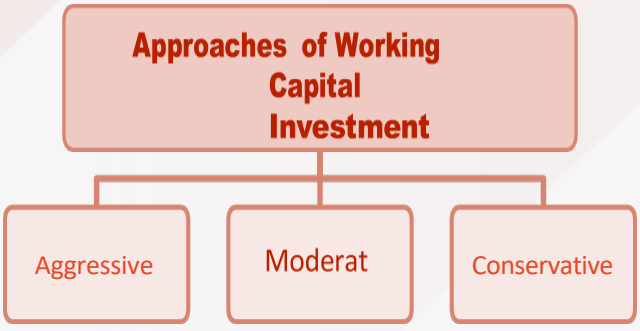
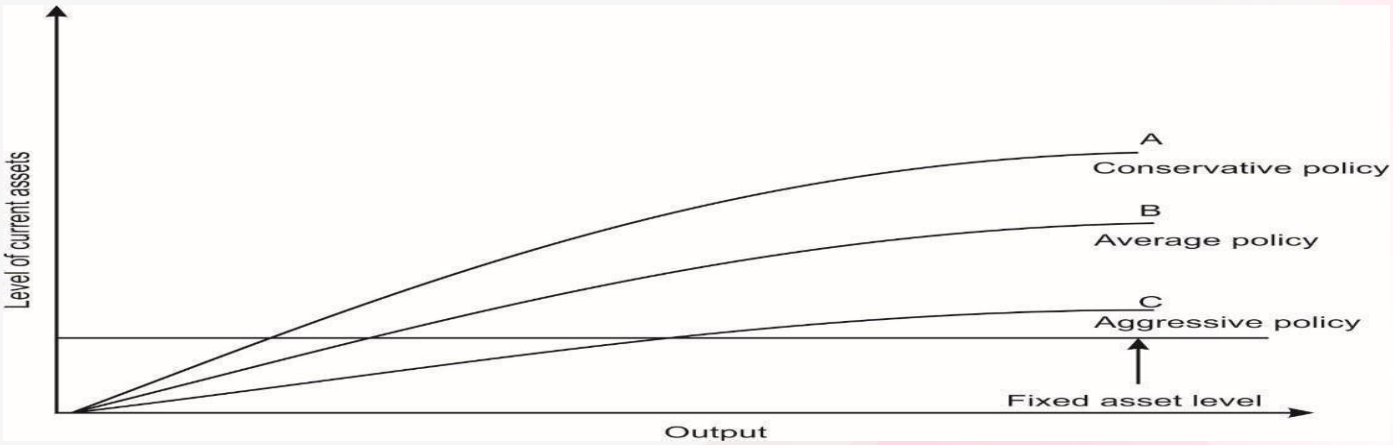
Approaches of working capital investment



Aggressive: Here investment in working capital is kept at minimal investment in current assets which means the entity does hold lower level of inventory, follow strict credit policy, keeps less cash balance etc.

Conservative: In this approach, organisation choose to invest high capital in current assets. Organisations use to keep inventory level higher, follows liberal credit policies, and cash balance as high as to meet any current liabilities immediately.

Moderate: This approach is in between the above two approaches. Under this approach a balance between the risk and return is maintained to gain more by using the funds in very efficient manner



ESTIMATING WORKING CAPITAL NEEDS

(i) **Current Assets Holding Period:** To estimate working capital needs based on the average holding period of current assets and relating them to costs based on the company's experience in the previous year. This method is essentially based on the Operating Cycle Concept.

(ii) **Ratio of Sales:** To estimate working capital needs as a ratio of sales on the assumption that current assets change with changes in sales.

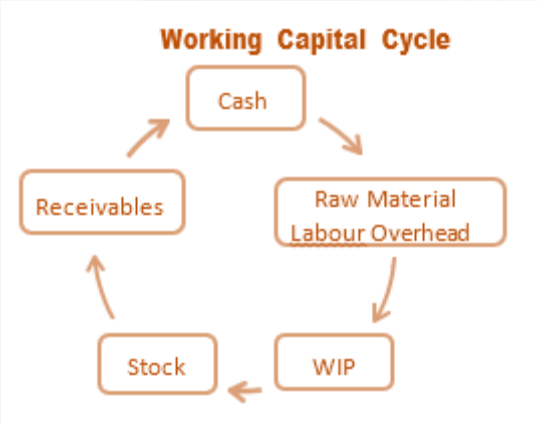
(iii) **Ratio of Fixed Investments:** To estimate Working Capital requirements as a percentage of fixed investments.

OPERATING OR WORKING CAPITAL CYCLE

Operating/Working Capital Cycle Definition

Working Capital cycle indicates the length of time between a company's paying for materials, entering into stock and receiving the cash from sales of finished goods. It can be determined by adding the number of days required for each stage in the cycle

Working Capital Cycle



If you……	Then …….
Collect receivables (debtors) faster	You release cash from the cycle
Collect receivables (debtors) slower	Your receivables soak up cash.
Get better credit (in terms of duration or amount) from suppliers.	You increase your cash resources.
Shift inventory (stocks) faster	You free up cash.
Move inventory (stocks) slower	You consume more cash.

Effect of Double Shift Working on Working Capital Requirements

impact of double shift on some of the components of working capital:-

- It is obvious that in double shift working, an increase in stocks will be required as the production rises. However, it is quite possible that the increase may not be proportionate to the rise in production since the minimum level of stocks may not be very much higher

- The amount of materials in process will not change due to double shift working since work started in the first shift will be completed in the second; hence, capital tied up in materials in process will be the same as with single shift working.

- Also, additional requirements of materials & other resources may result in some economies

Question 1: From the following information of XYZ Ltd., you are required to calculate:

a) Net operating cycle period.

b) Number of operating cycles in a year.

		Rs.
(i)	Raw material inventory consumed during the year	6,00,000
(ii)	Average stock of raw material	50,000
(iii)	Work-in-progress inventory	5,00,000
(iv)	Average work-in-progress inventory	30,000
(v)	Finished goods inventory	8,00,000
(vi)	Average finished goods stock held	40,000
(vii)	Average collection period from debtors	45 days
(viii)	Average credit period availed	30 days
(ix)	No. of days in a year	360 days

Question 2: Discuss the liquidity vs. profitability issue in management of working capital.

Question 3: Discuss the estimation of working capital need based on operating cycle process.

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Question 4: Q Ltd. sells good at a uniform rate of gross profit of 20% on sales including depreciation as part of cost of production. Its annual figures are as under:

	Rs.
Sales (At 2 month's credit)	24,00,000
Materials consumed (Suppliers credit 2 months)	6,00,000
Wages paid (Monthly at the beginning of the subsequent month)	4,80,000
Manufacturing expenses (Cash expenses are paid – one month in arrear)	6,00,000
Administration expenses (Cash expenses are paid – one month in arrear)	1,50,000
Sales promotion expenses (Paid quarterly in advance)	75,000

The company keeps one month stock each of raw materials and finished goods. A minimum cash balance of Rs. 80,000 is always kept. The company wants to adopt a 10% safety margin in the maintenance of working capital.

The company has no work in progress

Find out the requirements of working capital of the company on cash cost basis.

Question 5: A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are Rs. 2.60 crores and Rs. 2.34 crores respectively. Estimated Sales and EBIT depend on current assets investment, particularly inventories and book-debts. The financial controller of the company is examining the following alternative Working Capital Policies:

(Rs. Crores)

Working Capital Policy	Investment in Current Assets	Estimated Sales	EBIT
Conservative	4.50	12.30	1.23
Moderate	3.90	11.50	1.15
Aggressive	2.60	10.00	1.00

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long-term and short-term

borrowings for financing its assets. The company will use Rs. 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

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(Rs. Crores)

Financing Policy	Short-term Debt	Long-term Debt
Conservative	0.54	1.12
Moderate	1.00	0.66
Aggressive	1.50	0.16
Interest rate-Average	12%	16%

You are required to calculate the following:

1. Working Capital Investment for each policy:
   a) Net Working Capital position
   b) Rate of Return
   c) Current ratio
2. Financing for each policy:
   d) Net Working Capital position.
   e) Rate of Return on Shareholders equity.
   f) Current ratio.

Question 6: The following information has been extracted from the records of a Company:

Product Cost Sheet	Rs./unit
Raw materials	45
Direct labour	20
Overheads	40
Total	105
Profit	15
Selling price	120

- Raw materials are in stock on an average of two months.
- The materials are in process on an average for 4 weeks. The degree of completion is 50%.
- Finished goods stock on an average is for one month.
- Time lag in payment of wages and overheads is $1\frac{1}{2}$ weeks.
- Time lag in receipt of proceeds from debtors is 2 months.
- Credit allowed by suppliers is one month.
- 20% of the output is sold against cash.
- The company expects to keep a Cash balances of Rs. 1,00,000.
- Take 52 weeks per annum.

The Company is poised for a manufacture of 1,44,000 units in the year.

You are required to prepare a statement showing the Working Capital requirements of the Company.

Question 7: An engineering company is considering its working capital investment for the year 2003- 04. The estimated fixed assets and current liabilities for the next year are Rs. 6.63 crore and Rs. 5.967 crore respectively. The sales and earnings before interest and taxes (EBIT) depend on investment in its current assets - particularly inventory and receivables. The company is examing the following alternative working capital policies:

Working Capital Policy	Investment in Current Assets (Rs. Crores)	Estimated Sales (Rs. Crores)	EBIT (Rs. Crore)
Conservative	11.475	31.365	3.1365
Moderate	9.945	29.325	2.9325
Aggressive	6.63	25.50	2.55

You are required to calculate the following for each policy:

(i) Rate of return on total assets.

(ii) Net working capital position.

(iii) Current assets to fixed assets ratio.

(iv) Discuss the risk-return trade off of each working capital policy.

Question 8: XYZ Co. Ltd. is a pipe manufacturing company. Its production cycle indicates that materials are introduced in the beginning of the production cycle; wages and overhead accrue evenly throughout the period of the cycle. Wages are paid in the next month following the month of accrual. Work in process includes full units of raw materials used in the beginning of the production process and 50% wages and overheads are supposed to be conversion costs. Details of production process and the components of working capital are as follows:

Production of pipes	12,00,000 units
Duration of the production cycle	One month
Raw materials inventory held	One month consumption
Finished goods inventory held for	Two months
Credit allowed by creditors	One month
Credit given to debtors	Two months
Cost price of raw materials	Rs. 60 per unit
Direct wages	Rs. 10 per unit
Overheads	Rs. 20 per unit
Selling price of finished pipes	Rs. 100 per unit

Required to calculate the amount of working capital required for the company.

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Question 9: The following annual figures relates to MNP Limited:

Sales (at three months credit)	Rs. 90,00,000
Materials consumed (suppliers extend one and half month's credit)	Rs. 22,50,000
Wages paid (one month in arrear)	Rs. 18,00,000
Manufacturing expenses outstanding at the end of the year (cash expenses Rs. 2,00,000 are paid one month in arrear)	
Manufacturing expenses outstanding at the end of the year (cash expenses Rs. 2,00,000 are paid one month in arrear)	
Total Administrative expenses for the year (cash expenses are paid one Rs.6,00,000 month in arrear)	
Sales Promotion expenses for the year (paid quarterly in advance)	Rs. 12,00,000

The company sells its products on gross-profit of 25% assuming depreciation as a part of cost of production. It keeps two month's stock of finished goods and one month's stock of raw materials as inventory. It keeps cash balance of Rs. 2,50,000.

Assume a 5% safety margin, work out the working capital requirement of the company on cash cost basis. Ignore work-in-progress.

Question 10: A proforma cost sheet of a Company provides the following particulars:

	Amount per unit (Rs.)
Raw materials cost	100
Direct labour cost	37.50
Overheads cost	75
Total cost	212.50
Profit	37.50
Selling Price	250

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag payment of overhead expenses is two weeks.

The company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs. 37,500.

Required:

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Prepare a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

Question 11: A proforma cost sheet of a Company provides the following data:

	Rs.
Raw material cost per unit	117
Direct Labour cost per unit	49
Factory overheads cost per unit (include depreciation of Rs. 18 per unit at budgeted level of activity)	98
Total cost per unit	264
Profit	36
Selling price per unit	300

Following additional information is available:

Average raw material in stock	: 4 weeks
Average work-in-process stock	: 2 weeks
(% completion with respect to	
Materials	: 80%
Labour and Overheads	: 60%
Finished goods in stock	: 3 weeks
Credit period allowed to debtors	: 6 weeks
Credit period availed from suppliers	: 8 weeks
Time lag in payment of wages	: 1 week
Time lag in payment of overheads	: 2 weeks

The company sells one-fifth of the output against cash and maintains cash balance of Rs. 2,50,000.

Required:

Prepare a statement showing estimate of working capital needed to finance a budgeted activity level of 78,000 units of production. You may assume that production is carried on evenly throughout the year wages and overheads accrue similarly.

Question 12: MNO Ltd. has furnished the following cost data relating to the year ending on 31st March, 2008.

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	Rs. (in Lakhs)
Sales	450
Material consumed	150
Direct wages	30
Factory overheads (100% variable)	60
Office and Administrative overheads (100% variable)	60
Selling overheads	50

The company wants to make a forecast of working capital needed for the next year and anticipates that:

- Sales will go up by 100%.
- Selling expenses will be Rs. 150 lakhs,
- Stock holding for the next year will be-Raw material for two and half months, Work- in-progress for one month, Finished goods for half month and Book debts for one and half months,
- Lags in payment will be of 3 months for creditors, 1 month for wages and half month for Factory, Office and Administrative and Selling overheads.

You are required to prepare statement showing working capital requirements for next year.

Question 13: Following information is forecasted by the CS Limited for the year ending 31st March, 2010:

	Balances as at1st April, 2009 Rs.	Balances as at 31st March, 2010 Rs.
Raw Material	45,000	65,356
Work-in-progress	35,000	51,300
Finished goods	60,181	70,175
Debtors	1,12,123	1,35,000
Creditors	50,079	70,469
Annual purchases of raw material (all credit)		4,00,000
Annual cost of production		7,50,000
Annual cost of goods sold		9,15,000
Annual operating cost		9,50,000
Annual sales (all credit)		11,00,000

You may take one year as equal to 365 days. You are required to calculate:

(i) Net operating cycle period.

(ii) Number of operating cycles in the year.

(iii) Amount of working capital requirement.

Question 14: A newly formed company has applied to the Commercial Bank for the first time for financing its working capital requirements. The following information is available about the projections for the current year:

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	Per unit
Elements of Cost:	Rs.
Raw material	40
Direct labour	15
Overhead	30
Total cost	85
Profit	15
Sales	100

Other information:

Raw material in stock: average 4 weeks consumption, work- in progress(completion stage,50 percent),on an average half a month. Finished goods in stock: on an average, one month.

Credit allowed by suppliers is one month. Credit allowed to debtors is two months.

Average time lag in payment of wages is 1 $\frac{1}{2}$ weeks and 4 weeks in overhead expenses. Cash in hand and at bank is desired to be maintained at Rs. 50,000.

All Sales are on credit basis only. Required:

Prepare statement showing estimate of working of working capital needed to finance an activity level of 96,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overhead accrue similarly. For the calculation purpose 4 weeks may be taken as equivalent to a month and 52 weeks in a year.

Question 15: MN Ltd. is commencing a new project for manufacture of electronic toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

	Amout per unit Rs.
Raw materials	20
Direct labour	15
Manufacturing overheads:	Rs.
Variable	15
Fixed	10
	25
Selling and distribution overheads:	Rs
Variable	3
Fixed	1
	4
Total cost	64
Profit	16
Selling price	80

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In the first year of operations expected production and sales are 4,0000 units and 35,000 units respectively. To assess the need of working capital, the following additional information is available:

(i) Stock of Raw materials 3 months consumption.

(ii) Credit allowable for debtors 1 $\frac{1}{2}$ months.

(iii) Credit allowable by creditors 4 months.

(iv) Lag in payment of wages 1 month.

(v) Lag in payment of overheads $\frac{1}{2}$ month.

(vi) Cash in hand and Bank is expected to be Rs. 60,000.

(vii) Provision for contingencies is required @ 10% of working capital requirement including that provision.

You are required to prepare a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost.

Question 16: Samreen Enterprises has been operating its manufacturing facilities till 31.3.2010 on a single shift working with the following cost structure:

	Rs.
Cost of Material	6.00
Wages (out of which 40% fixed)	5.00
Overheads (80 % fixed)	5.00
Profit	2.00
Selling price	18.00
Sales during 2009-10 –Rs. 4,32,000. As at 31.3.2010 the company held:	
	Rs.
Stock of raw materials (at cost)	36,000
WIP (valued at prime cost)	22,000
Finished goods (valued at total cost)	72,000
Sundry debtors	1,08,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed of from suppliers will continue to remain at the present level i.e., 2 months. Lag in payment of wages and exp. will continue to remain half a month.

You are required to assess the additional working capital requirements, if the policy to increase output is implemented.

Question 17: The management of MNP Company Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveal the following annual information:

	Rs.
Sales –Domestic at one month's credit	24,00,000
Export at three month's credit (sales price 10% below domestic price)	10,80,000
Materials used (suppliers extend two months credit)	9,00,000
Lag n payment of wages – $\frac{1}{2}$ month	7,20,000
Lag in payment of manufacturing expenses (cash) – 1 month	10,80,000
Lag in payment of Adm. Expenses – 1 month	2,40,000
Sales promotion expenses payable quarterly in advance	1,50,000
Income tax payable in four instalments of which one falls in the next financial year	2,25,000

Rate of gross profit is 20%.

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Ignore work-in-progress and depreciation.

The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping Rs. 2,50,000 available to it including the overdraft limit of Rs. 75,000 not yet utilized by the company.

The management is also of the opinion to make 12% margin for contingencies on computed figure.

You are required to prepare the estimated working capital statement for the next year.

Question 18: The Trading and Profit and Loss Account of Beta Ltd. for the year ended 31st March, 2011 is given below:

Particulars		Amount (Rs.)	Particulars (Rs.)		Amount (Rs.)
To Opening Stock:			By Sales (Credit)		20,00,000
Raw Materials	1,80,000		By Closing Stock:		
Work- in- progress	60,000		Raw Materials	200000	
Finished Goods	2,60,000	5,00,000	Work-in-progress	100000	
To Purchases (credit)		11,00,000	Finished Goods	300000	
To wages		3,00,000			
To production		2,00,000			6,00,000
Expenses		5,00,000			
To Gross Profit c/d		26,00,000	By Gross Profit		26,00,000
To Administration Expenses		1,75,000	b/s		5,00,000
To Selling Expenses		75,000			
To Net Profit		2,50,000			
		5,00,000			5,00,000

The opening and closing balances of debtors were Rs. 1,50,000 and Rs. 2,00,000 respectively whereas opening and closing creditors were Rs. 2,00,000 and Rs. 2,40,000 respectively.

You are required to ascertain the working capital requirement by operating cycle method.

CHAPTER - 10

RATIO ANALYSIS

LIQUIDITY RATIO

Ratios	Formulae	Explanation
1. Current Ratio	Current Assets/ Current Liabilities	Current Assets: Assets which are expected to be realizable within one year.
2. Quick Ratio / Acid test Ratio	Quick Assets / Quick Liabilities or Current Liabilities	Current Liabilities: Liabilities which are payable within one year.
3. Absolute Cash Ratio Or Super Quick ratio	Cash Reservoir / Current Liabilities Cash + Bank + Marketable non trade Investment Non Trade: Held for the purpose of investment. Marketable: which can be easily convertible into cash. Usually investments that are quoted into recognized stock exchange.	Quick Assets: realizable within 3 months. It can be calculated by following ways, unless otherwise stated : (Current Assets – stock – prepaid exps.) Quick Liabilities: ayable within 3 months. Quick liabilities areequal to current liabilities unless otherwise stated.
4. Interval Measure Ratio	Cash Reservoir / Avg. daily cash Exp. Cost of goods sold + Administration exp + Selling and distribution exp. 360	

Profitability Ratio

Ratio	Formulae	Explanation
1. Gross Profit Ratio	$\frac{\text{G.P.}}{\text{Sales}} \times 100$	G.P. = Sales – Cost of goods sold Sales = Gross – Sales return
2. Operating Profit Ratio	$\frac{\text{Operating Profit}}{\text{Sales}} \times 100$	Operating Profit = Net profit – non operating income + non operating exp.
3. Operating Exp. Ratio or Operating Ratio	Cost of goods sold + Other $\frac{\text{Operating Exp.}}{\text{Sales}} \times 100$	
4. Net Profit Ratio	$\frac{\text{N. P.}}{\text{Sales}} \times 100$	
5. Return on Investment (ROI)	$\frac{\text{Return}}{\text{Avg. Investment}} \times 100$	Return = N.P. + interest on long term fund + provision for tax (in case or pre tax ROI) Average Inv. = Op. + Cl. / 2
6. Return on Equity (ROE)	$\frac{\text{EAESH}}{\text{EquitySHFund}} \times 100$	EAESH = EBIT – interest – tax – preference dividend. Equity Share Holder's Fund = refer Annexure I

Capital Structure Ratios

Ratios	Formulae	Explanation
1. Debt- Equity Ratio	Debt / Equity	Debt = all long term borrowings whether secured or not. Equity = refer Annexure I
2. Proprietary Ratio	Proprietary Fund / Total Assets	Proprietary Fund = refer Annexure I
3. Capital Gearing Ratio	(Preference Share Capital + Debt) / Equity Shareholders fund	
4. Fixed Assets Ratio	Fixed Assets / Capital Employed	

Coverage Ratios		
Ratios	**Formulae**	**Explanation**
1. Interest Coverage Ratio	EBIT / Interest	
2. Dividend Coverage Ratio	PAT / Dividend on Pref. Shares	
3. Debt Service Coverage Ratio (DSCR)	Profit available for debt servicing / Principal + Interest	Profit available for debt servicing = PAT + Non cash Exp. + Interest on long term borrowing

Turnover Ratio / Activity Ratio		
Ratios	**Formulae**	**Explanation**
1. Capital Employed Turnover Ratio	Turnover (Net Sales) / Capital Employed	Capital Employed = refer Annexure I
2. Fixed Assets Turnover Ratio	Turnover / Net Fixed Assets	
3. Working Capital Turnover Ratio	Turnover / Working Capital	
4. Finished Goods Turnover Ratio	CoGS / Avg FG	COGS = Sales – G/p Avg. stock = Op. + Cl. / 2
5. Work-in-progress Turnover Ratio	Cost of Production / Avg. stock of WIP	
6. Raw Material Turnover Ratio	Raw Material Consumed / Avg. stock of Raw Material	RM Consumed = Op. + purchases - Closing
7. Debtors Turnover Ratio	Credit Sales / Average Debtors	Avg. Debtors = Op. + Cl. / 2
8. Creditors Turnover Ratio	Credit Purchase / Average Creditors	Avg. Creditors = Op. + Cl. / 2

Annexure - I : Calculation of Capital Employed

Particulars	Amount
Equity Share Capital	XXX
+ Reserves & Surplus	XXX
Equity Share holder's Fund	XXX
+ Preference Share Capital	XXX
Share Holder's Fund / Equity / Proprietary Fund	XXX
+ Long Term Debt	XXX
Capital Employed	XXX

DEFINITION OF RATIO

A ratio is defined as "the indicated quotient of two mathematical expressions and as the relationship between two or more things."

Ratio Analysis

The term financial ratio can be explained by defining how it is calculated and what the objective of this calculation is?

a. Calculation Basis (Basis of Calculation):

- A relationship expressed in mathematical terms
- Between two individual figures or group of figures
- Connected with each other in some logical manner
- Selected from financial statements of the concern

b. Objective for financial ratios is that all stakeholders (owners, investors, lenders, employees etc.) can draw conclusions about the:

- Performance (past, present and future)
- Strengths & weaknesses of a firm
- Can take decisions in relation to the firm

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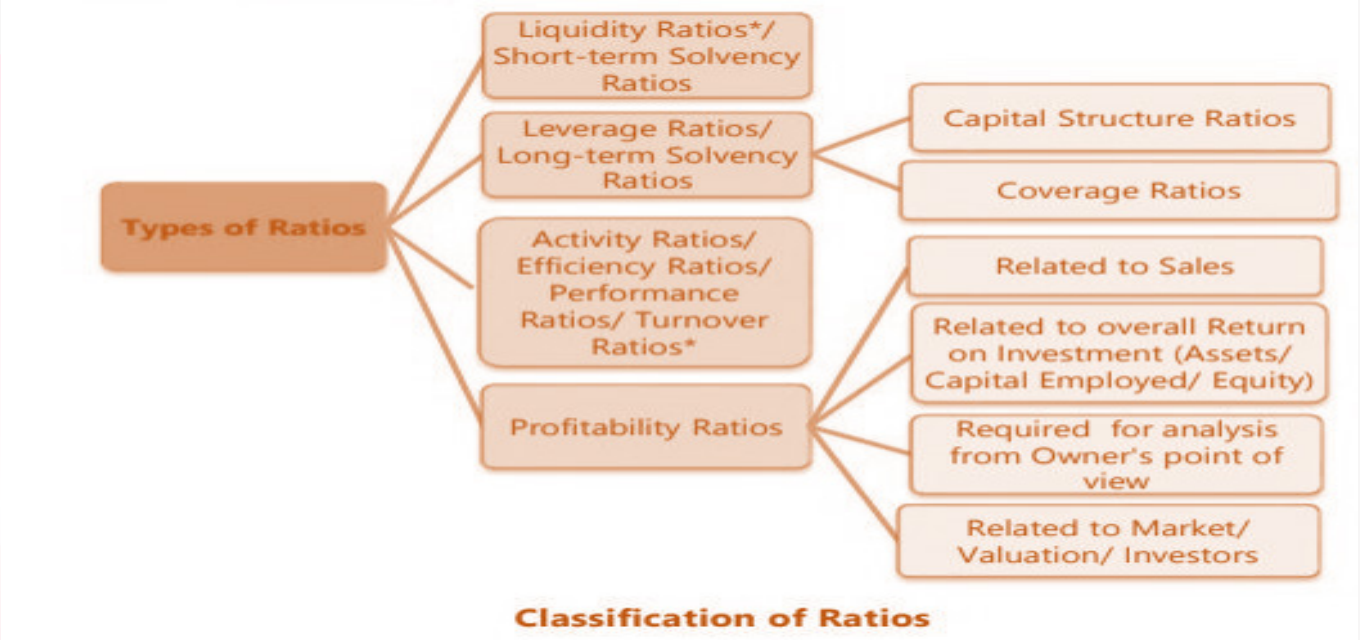
Sources of Financial Data for Analysis

The sources of information for financial statement analysis are:

i. Annual Reports
ii. Interim financial statements
iii. Notes to Accounts
iv. Statement of cash flows
v. Business periodicals.
vi. Credit and investment advisory services

3. TYPES OF RATIO



Classification of Ratios

Liquidity Ratios

The terms 'liquidity' and 'short-term solvency' are used synonymously.

Liquidity or short-term solvency means ability of the business to pay its short- term liabilities. Inability to pay-off short-term liabilities affects its credibility as well as its credit rating.

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Various Liquidity Ratios are:

(a) Current Ratio

(b) Quick Ratio or Acid test Ratio

(c) Cash Ratio or Absolute Liquidity Ratio

(d) Basic Defense Interval or Interval Measure Ratios

(e) Net Working Capital

Long-term Solvency Ratios/ Leverage Ratios

The leverage ratios may be defined as those financial ratios which measure the long-term stability and capital structure of the firm.

Leverage ratios are of two types:

1. **Capital Structure Ratios**
   - (a) Equity Ratio
   - (b) Debt Ratio
   - (c) Debt to Equity Ratio
   - (d) Debt to Total Assets Ratio
   - (e) Capital Gearing Ratio
   - (f) Proprietary Ratio

2. **Coverage Ratios**
   - (a) Debt-Service Coverage Ratio (DSCR)
   - (b) Interest Coverage Ratio
   - (c) Preference Dividend Coverage Ratio
   - (d) Fixed Charges Coverage Ratio

Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios

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These ratios are employed to evaluate the efficiency with which the firm manages and utilises its assets.

Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios:

(a) Total Assets Turnover Ratio

(b) Fixed Assets Turnover Ratio

(c) Capital Turnover Ratio/ Net Assets Turnover Ratio

(d) Current Assets Turnover Ratio

(e) Working Capital Turnover Ratio

- (i) Inventory/ Stock Turnover Ratio
- (ii) Receivables (Debtors) Turnover Ratio
- (iii) Payables (Creditors) Turnover Ratio

Profitability Ratios

The profitability ratios measure the profitability or the operational efficiency of the

firm. The results of the firm can be evaluated in terms of its earnings with reference to a given level of assets

or sales or owner's interest etc. Therefore, the profitability ratios are broadly classified in four categories:

(i) Profitability Ratios related to Sales

(ii) Profitability Ratios related to overall Return on Investment

(iii) Profitability Ratios required for Analysis from Owner's Point of View

(iv) Profitability Ratios related to Market/ Valuation/ Investors

Profitability Ratios are as follows:

(i) Profitability Ratios based on Sales

(a) Gross Profit Ratio

(b) Net Profit Ratio

(c) Operating Profit Ratio

(d) Expenses Ratio

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(ii) Profitability Ratios related to Overall Return on Assets/ Investments

(a) Return on Investments (ROI)

(i) Return on Assets (ROA)

(ii) Return of Capital Employed (ROCE)

(iii) Return on Equity (ROE)

(iii) Profitability Ratios required for Analysis from Owner's Point of View

(a) Earnings per Share (EPS)

(b) Dividend per Share (DPS)

(c) Dividend Pay-out Ratio (DP)

(iv) Profitability Ratios related to Market/ Valuation/ Investors

(a) Price Earnings (P/E) Ratio

(b) Dividend and Earning Yield

(c) Market Value/ Book Valueper Share (MV/BV)

(d) Q Ratio

USERS AND OBJECTIVE OF FINANCIAL ANALYSIS - A BIRD'S EYE VIEW

S.No.	Users	Objectives	Ratios used in general
1.	**Shareholders**	Being owners of the organization they are interested to know about profitability and growth of the organization	Mainly Profitability Ratios [In particular Earning per share (EPS), Dividend per share (DPS), Price Earnings (P/E), Dividend Payout ratio (DP)]
2.	**Investors**	They are interested to know overall financial health of the organization particularly future perspective of the organisations.	♦ Profitability Ratios ♦ Capital structure Ratios ♦ Solvency Ratios ♦ Turnover Ratios
3.	**Lenders**	They will keep an eye on the safety perspective of their money lent to the organization	♦ Coverage Ratios ♦ Solvency Ratios ♦ Turnover Ratios ♦ Profitability Ratios
4.	**Creditors**	They are interested to know liability position of the organisation particularly in short term. Creditors would like to know whether the organisation will be able to pay the amount on due date.	♦ Liquidity Ratios ♦ Short term solvency Ratios/ Liquidity Ratios
5.	**Employees**	They will be interested to know the overall financial wealth of the organization and compare it with competitor company.	♦ Liquidity Ratios ♦ Long terms solvency Ratios ♦ Profitability Ratios ♦ Return on investment
6.	**Regulator / Government**	They will analyse the financial statements to determine taxations and other details payable to the government.	♦ Profitability Ratios
7.	**Managers** **(a) Production Managers**	They are interested to know about data regarding input output, production quantities etc.	♦ Input output Ratio ♦ Raw material consumption ratio.

	(b) Sale s Managers	Data related to units sold for various years, other associated figures and predicted future sales figure will be an area of interest for them	♦ Turnover ratios (basically receivable turnover ratio) ♦ Expenses Ratios
	(c) Financial Manager	They are interested to know various ratios for their future predictions of financial requirement.	♦ Profitability Ratios (particularly related to Return on investment) ♦ Turnover ratios ♦ Capital Structure Ratios
	(d) Chief Executive/ General Manager	They will try to assess the complete perspective of the company, starting from Sales, Finance, Inventory, Human resources, Production etc.	♦ All Ratios
8.	**Different Industry** **(a) Telecom**	Finance Manager/ Analyst will calculate ratios of their company and compare it with Industry norms.	♦ Ratio related to 'call' ♦ Revenue and expenses per customer
	(b) Bank		♦ Loan to deposit Ratios ♦ Operating expenses and income ratios
	(c) Hotel		♦ Room occupancy ratio ♦ Bed occupancy Ratios
	(d) Transport		♦ Passenger-kilometre ♦ Operating cost-per passenger kilometre

APPLICATION OF RATIO ANALYSIS IN FINANCIAL DECISION MAKING

Financial Ratios for Evaluating Performance

Liquidity Position: With the help of ratio analysis one can draw conclusions regarding liquidity position of a firm.

Long-term Solvency: Ratio analysis is equally useful for assessing the long- term financial viability of a firm.

Operating Efficiency: Ratio analysis throws light on the degree of efficiency in the management and utilisation of its assets.

Overall Profitability: Unlike the outside parties which are interested in one aspect of the financial position of a firm, the management is constantly concerned about the overall profitability of the enterprise.

Inter-firm Comparison: Ratio analysis not only throws light on the financial position of a firm but also serves as a stepping stone to remedial measures. This is made possible due to inter-firm comparison/comparison with industry averages.

Financial Ratios for Budgeting: In this field ratios are able to provide a great deal of assistance. Budget is only an estimate of future activity based on past experience, in the making of which the relationship between different spheres of activities are invaluable

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LIMITATIONS OF FINANCIAL RATIOS

The limitations of financial ratios are listed below:

(i) **Diversified product lines:** Many businesses operate a large number of divisions in quite different industries. In such cases ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.

(ii) **Financial data are badly distorted by inflation:** Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.

(iii) **Seasonal factors:** It may also influence financial data.

(iv) **To give a good shape to the popularly used financial ratios (like current ratio, debt-equity ratios etc.):** The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would be different had there been no such change.

(v) **Differences in accounting policies and accounting period:** It can make the accounting data of two firms non-comparable as also the accounting ratios.

(vi) **No standard set of ratios against which a firm's ratios can be compared:**

(vii) **Difficulty to generalise whether a particular ratio is good or bad:**

(viii) **Financial ratios are inter-related, not independent:**

Financial ratios provide clues but not conclusions. These are tools only in the hands of experts because there is no standard ready- made interpretation of financial ratios.

FINANCIAL ANALYSIS

It may be of two types: - Horizontal and vertical.

Horizontal Analysis: When financial statement of one year are analysed and interpreted after comparing with another year or years, it is known as horizontal analysis.

Vertical Analysis: When financial statement of single year is analyzed then it is called vertical analysis

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Question 1: (master question).

Following are the Income Statement and Balance Sheet of Master Blaster Ltd. for the accounting year 2013.

INCOME STATEMENT

For the year ending Dec. 31st, 2013

Particulars	Amount
Credit Sales	61,48,000
Less: Cost of Goods Sold	41,76,000
G.P.	19,72,000
Less: Adm. Exp.	4,58,000
Selling Exp.	2,00,000
Dep.	4,78,000
Operating Profit (EBIT)	8,36,000
Less: Interest charges	1,76,000
PBT	6,60,000
Less: Provision for tax (30%)	1,98,000
PAT	4,62,000
Less: Preference Dividend	20,000
EARNING FOR EQUITY SHAREHOLDER	4,42,000
Less: Dividend paid	1,96,000
Retained Earning	2,46,000

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BALANCE SHEET OF MASTER BLASTER LTD.
As on 31st Dec.2013

	Amount
5% Pref. Share (of Rs. 100 each)	4,00,000
ESC (38,200 shares of Rs.10 each)	3,82,000
Total Share Capital	7,82,000
Add:- Security Premium	8,56,000
P & L	22,70,000
Shareholder's Fund	39,08,000
Add: Long term loan	20,46,000
Capital Employed	59,54,000
Represented by :	
Fixed Assets	93,38,000
Less: Dep.	45,90,000
Net Block (1)	47,48,000
Working Capital	
Cash and bank	7,26,000
Receivables	10,06,000
Marketable securities	1,36,000
Liquid assets	18,68,000
Add: Inventories	5,78,000
Total Current Assets(2)	24,46,000
Less: Trade Creditors	7,64,000
Bills payable	1,58,000
o/s exp.	1,20,000
Provision for tax	1,98,000
Total Current Liabilities(3)	12,40,000
Net Working Capital (4) (2-3)	12,06,000
Total Assets (1 + 4)	59,54,000

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Additional Information:

a) No final dividend has been proposed

b) Loan of Rs. 1,42,000 is to be repaid every year

c) Market price of the share on Dec.31,2012 was Rs.80

d) The firm extends a credit of 50 days to its customer but receives a credit of 90 days from its supplier.

Calculate various financial ratios to analyze different aspects of the operations and financial position of the company.

Question 2: The balance sheet of AD-HOC LTD is given below:

Liabilities	Amount	Assets	Amount
ESC	250	Fixed Assets	400
Gen. Res.	280	Investment	50
P & L (current)	30	Stock	460
Secured Loan (long term)	300	Debtors	460
Secured Loan (short term)	360	Cash	10
Creditors	150	Misc Exp. (not written off)	20
Other Liabilities	30		
	1400		1400

Additional Information:

a) From the P & L a/c 90 lakhs are transferred to general reserve during the year.

b) Interest cost = 120 lakhs

c) Tax 40%)

You are required to calculate (i) Debt Equity Ratio (ii) Current Ratio (iii) Interest coverage Ratio

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Question 3: In a meeting held at Solan towards the end of 2009, the Directors of M/s HPCL Ltd. have taken a decision to diversify. At present HPCL Ltd. sells all finished goods from its own warehouse. The company issued debentures on 01.01.2010 and purchased fixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you:

INCOME STATEMENTS

	2009 (Rs.)		2010 (Rs.)	
Cash Sales	30,000		32,000	
Credit Sales	2,70,000	3,00,000	3,42,000	3,74,000
Less: Cost of goods sold		2,36,000		2,98,000
Gross profit		64,000		76,000
Less: Expenses				
Warehousing	13,000		14,000	
Transport	6,000		10,000	
Administrative	19,000		19,000	
Selling	11,000		14,000	
Interest on Debenture		49,000	2,000	59,000
Net Profit		15,000		17,000

BALANCE SHEET

	2009 (Rs.)		2010 (Rs.)	
Fixed Assets (Net Block)		30,000		40,000
Debtors	50,000		82,000	
Cash at Bank	10,000		7,000	
Stock	60,000		94,000	
Total Current Assets (CA)	1,20,000		1,83,000	
Creditors	50,000		76,000	
Total Current Liabilities (CL)	50,000		76,000	
Working Capital (CA - CL)		70,000		1,07,000
Total Assets		1,00,000		1,47,000
Represented by:				
Share Capital		75,000		75,000
Reserve and Surplus		25,000		42,000
Debentures		-		30,000
		1,00,000		1,47,000

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You are required to calculate the following ratios for the years 2009 and 2010.

(i) Gross Profit Ratio

(ii) Operating Expenses to Sales Ratio.

(iii) Operating Profit Ratio

(iv) Capital Turnover Ratio

(v) Stock Turnover Ratio

(vi) Net Profit to Net Worth Ratio, and

(vii) Debtors Collection Period.

(viii) Ratio relating to capital employed should be based on the capital at the end of the year. Give the reasons for change in the ratios for 2 years. Assume opening stock of Rs. 40,000 for the year 2009. Ignore Taxation.

Question 4: Following is the abridged Balance Sheet of Alpha Ltd. :-

Liabilities	Rs.	Assets		Rs.
Share Capital	1,00,000	Land and Buildings		80,000
Profit and Loss Account	17,000	Plant and Machineries	50,000	
Current Liabilities	40,000	Less: Depreciation	15,000	35,000
				1,15,000
		Stock	21,000	
		Debtors	20,000	
		Bank	1,000	42,000
Total	1,57,000	Total		1,57,000

With the help of the additional information furnished below, you are required to prepare Trading and Profit & Loss Account and a Balance Sheet as at 31st March, 2010:

(i) The company went in for reorganisation of capital structure, with share capital remaining the same as follows:

Share capital	50%
Other Shareholders' funds	15%
5% Debentures	10%
Trade Creditors	25%

Debentures were issued on 1stApril, interest being paid annually on 31st March.

(ii) Land and Buildings remained unchanged. Additional plant and machinery has been bought and a further Rs. 5,000 depreciation written off.

(The total fixed assets then constituted 60% of total gross fixed and current assets.)

(iii) Working capital ratio was 8 : 5.

(iv) Quick assets ratio was 1 : 1.

(v) The debtors (four-fifth of the quick assets) to sales ratio revealed a credit period of 2 months. There were no cash sales.

(vi) Return on net worth was 10%.

(vii) Gross profit was at the rate of 15% of selling price.

(viii) Stock turnover was eight times for the year.

Ignore Taxation

Question 5: Equity Shares (80000 @ Rs.10)

9% Preference Shares (Rs.3,00,000)

Additional information:

Profit (after tax at 35 per cent),Rs.2,70,000;Depreciation, Rs. 60,000; Equity dividend paid, 20 per cent; Market price of equity shares, Rs. 40.

You are required to compute the following, showing the necessary workings:

a) Dividend yield on the equity shares

b) Cover for the preference and equity dividends

c) Earnings per shares

d) Price-earnings ratio

Question 6: The total sales (all credit) of a firm areRs.6,40,000. It has a gross profit margin of 15 per cent and a current ratio of 2.5. The firm's current liabilities are Rs. 96,000; inventories Rs. 48,000 and cash Rs. 16,000. (a) Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume a 360 day year). (b) Determine the average collection period if the opening balance of debtors is intended to be of Rs. 80,000?

(Assume a 360 day year).

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Question 7: The following accounting information and financial ratios of PQR Ltd. relate tothe year ended 31st December, 2009:

I	Accounting Information:	
	Gross Profit 15% of Sales	
	Net profit	8% of sales
	Raw materials consumed	20% of works cost
	Direct wages	10% of works cost
	Stock of raw materials	3 months' usage
	Stock of finished goods	6% of works cost
	Debt collection period	60 days
	All sales are on credit	
II	Financial Ratios:	
	Fixed assets to sales	1 : 3
	Fixed assets to Current assets	13:11
	Current ratio	2 : 1
	Long-term loans to Current liabilities	2 : 1
	Capital to Reserves and Surplus	1 : 4

If value of fixed assets as on 31st December, 2008 amounted to Rs. 26 lakhs, prepare a summarised Profit and Loss Account of the company for the year ended 31st December, 2009 and also the Balance Sheet as on 31st December, 2009.

Question 8: Ganpati Limited has furnished the following ratios and information relating tothe year ended 31st March, 2010.

Sales	Rs. 60,00,000
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	7:3
Current ratio	2
Net profit to sales	6.25%
Inventory turnover (based on cost of goods sold)	12
Cost of goods sold	Rs. 18,00,000
Interest on debentures	Rs. 60,000
Sundry debtors	Rs. 2,00,000
Sundry creditors	Rs. 2,00,000

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You are required to:

a) Calculate the operating expenses for the year ended 31st March, 2010.

b) Prepare a balance sheet as on 31st March in the following format:

Liabilities	Amount	Assets	Amount
Share Capital Reserve and Surplus 15% Debenture Sundry Creditors		Fixed Assets Current Assets Stock Debtors Cash	

Question 9: ABC Company sells plumbing fixtures on terms of 2/10, net 30. Its financial statements over the last 3 years are as follows:

	200	200	2009
	Rs	Rs	Rs
Cash	30,000	20,000	5,000
Accounts receivable	2,00,000	2,60,000	2,90,000
Inventory	4,00,000	4,80,000	6,00,000
Net fixed assets	8,00,000	8,00,000	8,00,000
	14,30,000	15,60,000	16,95,000
	Rs	Rs	Rs
Accounts payable	2,30,000	3,00,000	3,80,000
Accruals	2,00,000	2,10,000	2,25,000
Bank loan, short-term	1,00,000	1,00,000	1,40,000
Long-term debt	3,00,000	3,00,000	3,00,000
Common stock	1,00,000	1,00,000	1,00,000
Retained earnings	5,00,000	5,50,000	5,50,000
	14,30,000	15,60,000	16,95,000
	Rs	Rs	Rs
Sales	40,00,000	43,00,000	38,00,000
Cost of goods sold	32,00,000	36,00,000	33,00,000
Net profit	3,00,000	2,00,000	1,00,000

Analyse the company's financial condition and performance over the last 3 years. Are there any problems

Question 10: Using the following information, complete this balance sheet:

Long-term debt to net worth	0.5 to 1
Total asset turnover	2.5
Average collection period*	18 days
Inventory turnover	9
Gross profit margin	10%
Acid-test ratio	1 to 1

Assume 360 days-year and all sales on credit.

Cash		Payables	1,00,000
Accounts Receivable		Long Term Debt	
Inventories		Common Stock	1,00,000
Plant and Equipment		Retained Earning	1,00,000
Total Assets		Total Liabilities	

PRACTICE QUESTIONS

Question 1: Using the following data, complete the Balance Sheet given below:

Gross Profit	Rs. 54,000
Shareholders' Funds	Rs. 6,00,000
Gross Profit margin	20%
Credit sales to Total sales	80%
Total Assets turnover	0.3 times
Inventory turnover	4 times
Average collection period (a 360 days year)	20 days
Current ratio	1.8
Long-term Debt to Equity	40%

Balance Sheet

	Rs.		Rs.
Creditors		Fixed Assets	
Long term Debt		Cash	
Share Holder's Fund		Debtors	
		Inventories	

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Question 2: From the following information, prepare a summarised Balance Sheet as at 31st March, 2002:

Working Capital	Rs. 2,40,000
Bank overdraft	Rs. 40,000
Fixed Assets to Proprietary ratio	0.75
Reserves and Surplus	Rs. 1,60,000
Current ratio	2.5
Liquid ratio	1.5

Question 3: JKL Limited has the following Balance Sheets as on March 31, 2006 and March 31, 2005: Balance Sheet

	Rs. in lakh	
	March 31, 2006	March 31, 2005
Sources of Funds		
Shareholders Funds	2,377	1,472
Loan Funds	3,570	3,083
	5947	4,555
Application of Funds :		
Fixed Assets	3,466	2,900
Cash and Bank	489	470
Debtors	1,495	1,168
Stock	2,867	2,407
Other Current Assets	1,567	1,404
Less : Current Liabilities	(3,937)	(3,794)
	5,947	4,555

The Income Statement of the JKL Ltd. for the year ended is as follows:

		Rs. in lakh
	March 31, 2006	March 31, 2005
Sales	22,165	13,882
Less: Cost of Goods sold	20,860	12,544
Gross Profit	1,305	1,338
Less: Selling, General and Administrative expenses	1,135	752
Earnings before Interest and Tax (EBIT)	170	586
Interest Expense	113	105
Profits before Tax	57	481
Tax	23	192
Profits after Tax (PAT)	34	289

Require:

(i) Calculate for the year 2005-06

a) Inventory turnover ratio

b) Financial Leverage

c) Return on Investment (ROI)

d) Return on Equity (ROE)

e) Average Collection period.

(ii) Give a brief comment on the Financial Position of JKL Limited.

Question 4: With the help of the following information complete the Balance Sheet of MNOP Ltd.:

Equity share capital	Rs. 1,00,000
The relevant ratios of the company are as follows:	
Current debt to total debt	.40
Total debt to owner's equity	.60
Fixed assets to owner's equity	.60
Total assets turnover	2 Times
Inventory turnover	8 Times

Question 5: Using the following information, complete the Balance Sheet given below:

(i) Total debt to net worth:	1 : 2
(ii) Total assets turnover:	2
(iii) Gross profit on sales:	30%
(iv) Average collection period:	40 days
(Assume 360 days in a year)	
Inventory turnover ratio based on cost of goods sold and year-end inventory	:3
Acid test ratio	:0.75

ESC	4,00,000	Plant and Machinery	
Reserve & surplus	6,00,000	Current Assets:	
Total Debt:		Inventory	
Current Liability		Debtors	
		Cash	

Question 6: Honey Sing's Financial Statement contain the following info. :-

	Year 1	Year 2
Cash	200000	160000
Sundry Debtors	320000	400000
Temporary Investment	200000	320000
Stock	1840000	2160000
Prepaid exp.	28000	12000
Total CA	2588000	3052000
Total Assets	5600000	6400000
Current Liabilities	640000	800000
Loan	1600000	1600000
Capital	2000000	2000000
Retained Earning	468000	812000

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STATEMENT OF PROFIT FORTHE CURRENT YEAR

	Rs.
Sales	40,00,000
Less: Cost of goods sold	28,00,000
Less Interest	1,60,000
Net Profit	10,40,000
Less: Tax @ 50%	5,20,000
PAT	5,20,000
Profit distributed	2,20,000

From the above, appraise the financial position of the company from the point of view of:

(i) Liquidity

(ii) Profitability

(iii) Activity.

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CHAPTER - II

LEVERAGE

INTRODUCTION

Objective of financial management is to maximize wealth. To maximize value, company should try to manage its risk. This risk may be business risk, financial risk or both as defined below:

Business Risk: It refers to the risk associated with the firm's operations. It is the uncertainty about the future operating income (EBIT) i.e., how well can the operating income be predicted?

Financial Risk: It refers to the additional risk placed on the firm's shareholders because of use of debt i.e., the additional risk a shareholder bears when a company uses debt in addition to equity financing. Companies that issue more debt instruments would have higher financial risk than companies financed mostly or entirely by equity

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MEANING AND TYPES OF LEVERAGE

2.1 Meaning of Leverage

The term leverage represents influence or power. In financial analysis, leverage represents the influence of one financial variable over some other related financial variable. These financial variables may be costs, output, sales revenue, Earnings Before Interest and Tax (EBIT), Earning PerShare (EPS) etc.

2.2 Types of Leverage

(i) **Operating Leverage:** It is the relationship between Sales and EBIT and indicates business risk.

(ii) **Financial Leverage:** It is the relationship between EBIT and EPS and indicates financial risk.

(iii) **Combined Leverage:** It is the relationship between Sales and EPS and indicates total risk i.e., both business risk and financial risk.

3. OPERATING LEVERAGE

Operating Leverage (OL) means tendency of operating income (EBIT) to change disproportionately with change in sale volume. This disproportionate change is caused by operating fixed cost, which does not change with change in sales volume.

Operating leverage is a function of three factors:

(i) Amount of fixed cost,

(ii) Variable contribution margin, and

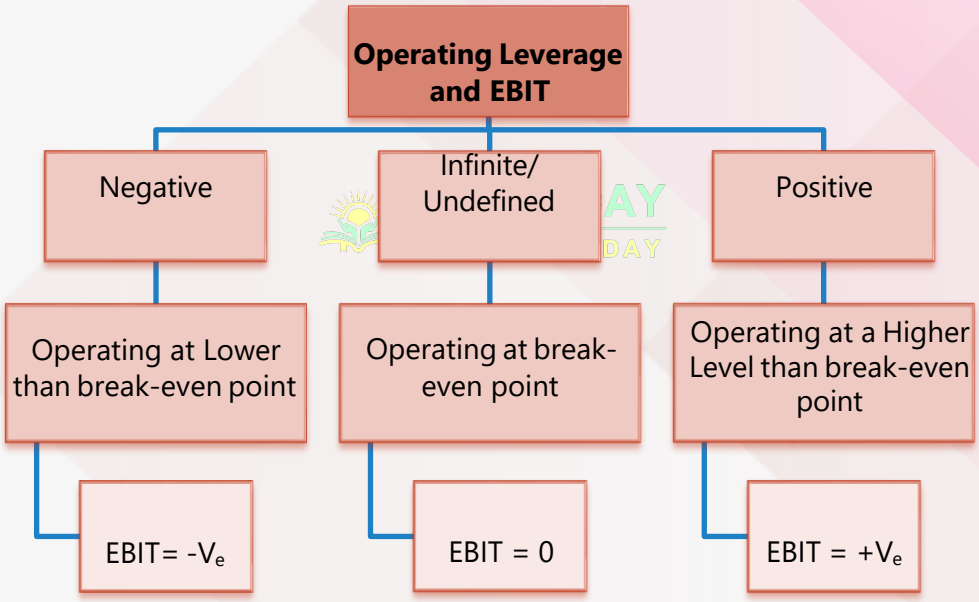
(iii) Volume of sales.

3.1 Margin of Safety (MOS) and Operating Leverage (OL)

In cost accounting, margin of safety (MOS) may be calculated as follows:

MOS = [Sales - BEP Sales /Sales]× 100

Higher margin of safety indicates lower business risk and higher profit and vice versa. MOS is inversely related to OL.



4. FINANCIAL LEVERAGE

Financial leverage (FL) maybe defined as 'the use of funds with a fixed cost in order to increaseearnings per share'. In other words, it is the use of company funds on which it pays a limited return. Financial leverage involves the use of funds obtained at a fixed cost in the hope of increasing the return to common stockholders.

4.2 Financial Leverage as 'Trading on Equity'

A firm is known to have a positive/favourable leverage when its earnings are more than the cost of debt. If earnings are equal to or less than cost of debt, it will be an negative/unfavourable leverage. When the quantity of fixed cost fund is relatively high in comparison to equity capital it is said that the firm is "trading on equity".

4.3 Financial Leverage as a 'Double edged Sword'

When the cost of 'fixed cost fund' is less than the return on investment, financial leverage will help to increase return on equity and EPS. The firm will also benefit from the saving of tax on interest on debts etc. However, when cost of debt will be more than the return it will affect return of equity and EPS unfavourably and as a result firm can be under financial distress. Therefore, financial leverage is also known as "double edged sword".

5. COMBINED LEVERAGE

Combined leverage may be defined as the potential use of fixed costs, both operating and financial, which magnifies the effect of sales volume change on the earning per share of the firm.

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Question 1: A Company produces and sells 10,000 shirts. The selling price per shirt is Rs. 500. Variable cost is Rs. 200 per shirt and fixed operating cost is Rs. 25,00,000.

a) Calculate operating leverage.

b) If sales are up by 10%, then what is the impact on EBIT?

Question 2: Calculate the operating leverage for each of the four firms A, B, C and D fromthe following price and cost data.

	Firms			
	A Rs.	B Rs.	C Rs.	D Rs.
Sale price per unit	20	32	50	70
Variable cost per unit	6	16	20	50
Fixed operating cost	80,000	40,000	2,00,000	Nil

What calculations can you draw with respect to levels of fixed cost and the degree of operating leverage result? Explain. Assume number of units sold is 5,000.

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Question 3: A firm's details are as under:

Sales (@100 per unit)	Rs. 24,00,000
Variable Cost	50%
Fixed Cost	Rs. 10,00,000

It has borrowed Rs. 10,00,000 @ 10% p.a. and its equity share capital is Rs. 10,00,000 (Rs. 100 each) Calculate:

a) Operating Leverage

b) Financial Leverage

c) Combined Leverage

d) Return on Investment

e) If the sales increases by Rs. 6,00,000; what will the new EBIT?

Question 4: Betatronics Ltd. has the following balance sheet and income statement information:

Balance Sheet as on March 31st

Liabilities	(Rs.)	Assets	(Rs.)
Equity capital (Rs. 10 per share)	8,00,000	Net fixed assets	10,00,000
10% Debt	6,00,000	Current assets	9,00,000
Retained earnings	3,50,000		
Current liabilities	1,50,000		
	19,00,000		19,00,000

Income Statement for the year ending March 31

	(Rs.)
Sales	3,40,000
Operating expenses (including Rs. 60,000 depreciation)	1,20,000
EBIT	2,20,000
Less: Interest	60,000
Earnings before tax	1,60,000
Less: Taxes	56,000
Net Earnings (EAT)	1,04,000

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a) Determine the degree of operating, financial and combined leverages at the current sales level, if all operating expenses, other than depreciation, are variable costs.

b) If total assets remain at the same level, but sales

(i) increase by 20 percent and

(ii) decrease by 20 percent, what will be the earnings per share at the new sales level?

Question 5: Calculate the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	4,000 units
Actual Production and Sales	75% of the Capacity
Selling Price	Rs. 30 Per Unit
Variable Cost	Rs. 15 Per Unit

Fixed Cost:

Under Situation I	Rs. 15,000
Under Situation II	Rs. 20,000

Capital Structure:

	Financial Plan	
	A	B
	Rs.	Rs.
Equity	10,000	15,000
Debt (Rate of Interest at 20%)	10,000	5,000
	20,000	20,000

Question 6: Prepare the income statement and Balance-sheet from the following data:

Price Earning ratio	3 time
Market price per equity share	Rs. 18
No. of equity share of Rs. 10 each	10,000
No. of 12% pref. shares of Rs. 100 each	1,000
Degree of financial leverage	2-1
Degree of operating leverage	2-1
Income-tax rate	40%
Variable cost as % of sales revenue	60%
Rate of interest	10%

CHAPTER - 12

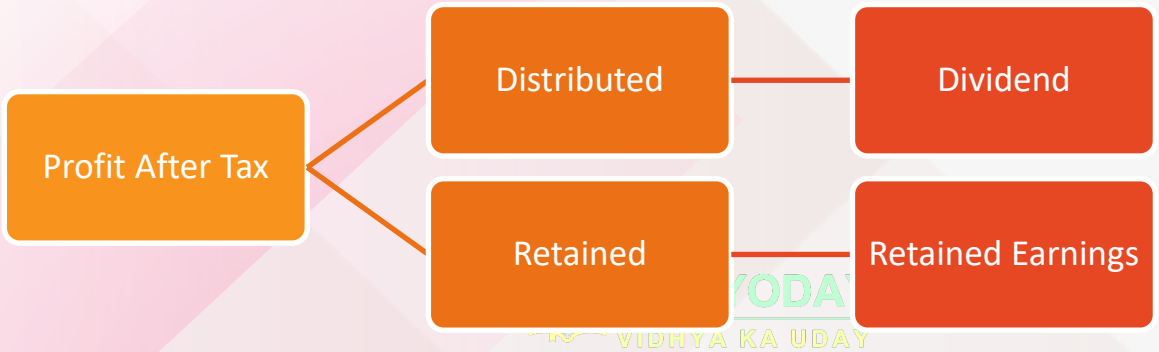
DIVIDEND POLICY AND EQUITY VALUATION

MEANING OF DIVIDEND

Dividend is that part of Profit After Tax (PAT) which is distributed to the shareholders of the company. Further, the profit earned by a company after paying taxes can be used for:

i. Distribution of dividend, or

ii. Retaining as surplus for future growth



FORMS OF DIVIDEND

Generally, the dividend can be of the following forms (depending upon some factors that will be discussed later):

1. **Cash dividend:** It is the most common form of dividend. Cash here means cash, cheque, warrant, demand draft, pay order or directly through Electronic Clearing Service (ECS) but not in kind.

2. **Share repurchases:** A share repurchase is transaction in which company buys back its own shares using corporate cash. This is done by lot of corporates these days.

   The bought back shares as above can be classified as

   a) treasury shares which are kept for re-issuance in future or

   b) cancelled shares if they would be retired from issued share capital. Share repurchases are also viewed as one form dividend distribution

3. **Stock dividend (Bonus Shares):** It is a distribution of shares in lieu of cash dividend.

Conditions of Stock Dividend or Bonus Issue

To issue Bonus shares, a Company needs to fulfil all the conditions given by Security Exchange Board of India (SEBI). As per SEBI, the bonus shares are issued not in lieu of cash dividends. A bonus issue should be authorised by Article of Association (AOA) and not to be declared unless all partly paid-up shares have been converted into fully paid-up shares. The Company should not have defaulted in re-payment of loan, interest and any statutory dues. Bonus shares are to be issued only from share premium and free reserves and not from capital reserve on account of fixed assets revaluation.

Advantages of Stock Dividend

(1) To Shareholders:

a) No tax is payable by shareholders on stock dividend received from domestic company as it is not treated as dividend but capitalasset under Income Tax Act, 1961.

b) Policy of paying fixed dividend per share and its continuation even after declaration of stock dividend will increase total cash dividend of the shareholders in future.

c) Bonus shares improves liquidity in the hands of shareholders as bonus shares leads to breaking down of higher priced shares into lower priced shares and hence give a choice to shareholders to sell some of the lower priced shares and get some liquidity.

(2) To Company:

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a) Conservation of cash for meeting profitable investment opportunities.

b) Suitable in case of cash deficiency and restrictions imposed by lenders to pay cash dividend.

Limitations of Stock Dividend

1. **To Shareholders:** Stock dividend does not affect the wealth of shareholders and therefore it has no value for them. It merely divides the company's ownership into a large number of share certificates

2. **To Company:** Stock dividends are costlier to administer than cash dividends. It is disadvantageous if periodic small stock dividends are declared by the company as earnings.

SIGNIFICANCE OF DIVIDEND POLICY

(i) Long Term Financing Decision:

As we know that one of the financing options is 'Equity'. Equity can either be raised externally through issue of new equity shares or can be generated internally through retained earnings. For Equity, retained earnings are preferable because they do not involve any floatation costs (issue expenses).

payment of cash dividend reduces the amount of funds required to finance profitable investment opportunities thereby restricting its financing options.

In this backdrop, the decision is based on the following:

1. Whether the organization has opportunities in hand to invest the profit, if retained?
2. Whether the return on such investment (ROI) will be higher than the expectations of shareholders i.e. Ke?

(ii) Wealth Maximization Decision:

management should develop a dividend policy which divides net earnings into dividends and retained earnings in an optimum way so as to achieve the objective of wealth maximization for shareholders.

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DETERMINANTS OF DIVIDEND DECISIONS

The dividend policy is affected by the following factors:

1. **Availability of funds:** If the business is in requirement of funds, then retained earnings could be a good source.
2. **Cost of capital:** If the financing requirements are to be executed through debt (relatively cheaper source of finance), then it would be preferable todistribute more dividend
3. **Capital structure:** An optimum Debt Equity ratio should also be considered for the dividend decision.
4. **Stock price:** Stock price here means market price of the shares. Generally, higher dividends increase market value of shares and low dividends decrease the value.
5. **Investment opportunities in hand:** The dividend decision is also affected if there are investment opportunities in hand. In that situation, the company may prefer to retain more earnings.
6. **Trend of industry:** The investors depend on some industries for their regular dividend income.
7. **Expectation of shareholders:** The shareholders can be categorised into two categories: (i) those who invests for regular income, & (ii) those who invests for growth. Generally, the investor prefers current dividend over the future growth.

8. **Legal constraints:** Section 123 of the Companies Act, 2013 which provides for declaration of dividend sates that Dividend shall be declared or paid by a company for any financial year only:

   (a) out of the profits of the company for that year

   (b) out of the profits of the company for any previous financial year

   (c) out of both,

   (d) out of money provided by the Central Government or a State Government for the payment of dividend by the company in pursuance of a guarantee given by that Government.

9. **Taxation:** Before 1st April 2020, as per Section 115-O of Income Tax Act, 1961, dividend was subject to dividend distribution tax (DDT) in the hands of the company.

PRACTICAL CONSIDERATIONS INDIVIDEND POLICY

Financial Needs of a Company: Retained earnings can be a source of finance for creating profitable investment opportunities

Mature Companies	Growth Companies
1. Mature companies having few investment opportunities will show high payout ratios;	1. Growth companies have low payout ratios. They are in need of funds to finance fast growing fixed assets.
2. Share prices of such companies are sensitive to any changes in dividend payout.	2. Distribution of earnings reduces the funds of the company. They retain all the earnings and declare bonus shares to offset the dividend requirements of the shareholders.
3. A small portion of the earnings is kept to meet emergent and occasional financial needs.	3. These companies increase the amount of dividends gradually as the profitable investment opportunities start falling.

Constraints on Paying Dividends

Liquidity: Payment of dividends means outflow of cash. Ability to pay dividends depends on cash and liquidity position of the firm

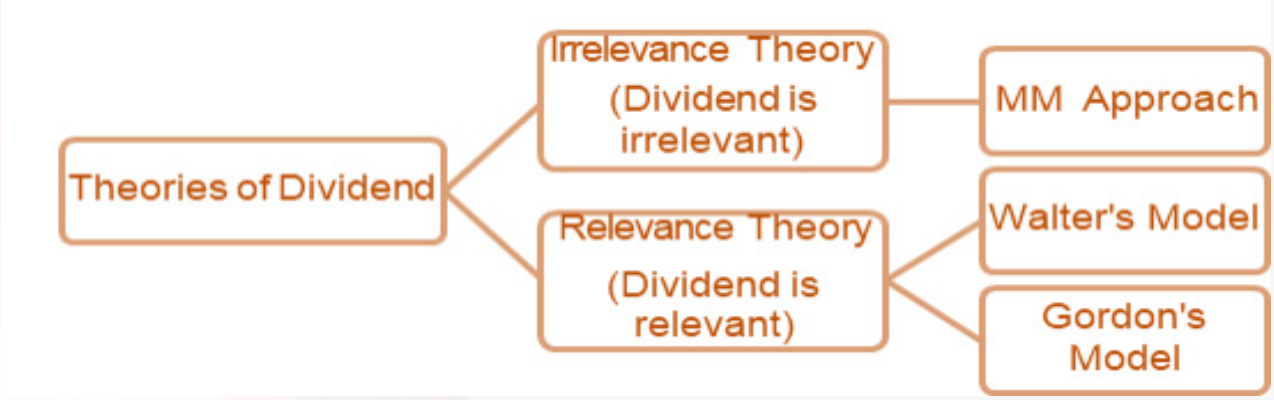
Access to the Capital Market: By paying large dividends, cash position is affected. So, if new shares have to be issued to raise funds for financing investment programmes

Legal: see point no. (9)

Investment Opportunities:

Payout policies: Payout policies can be maintained

THEORIES OF DIVIDEND



1. Dividend's Irrelevance Theory

MODIGLIANI and MILLER (MM) HYPOTHESIS:

Modigliani – Miller theory was proposed by Franco Modigliani and Merton Miller in 1961. MM approach is in support of the irrelevance of dividends i.e. firm's dividend policy has no effect on either the price of a firm's stock or its cost of capital.

According to MM Hypothesis

- Market value of equity shares of a firm depends solely on its earning power and is not influenced by the manner in which its earnings are split between dividends and retained earnings.
- Market value of equity shares is not affected by dividend size.
- Under MM hypothesis there is no meaningful distinction between dividend and share repurchases. They both are ways for a company to return cash to shareholders.

Assumptions of MM Hypothesis

MM hypothesis is based on the following assumptions:

- Perfect capital markets: The firm operates in a market in which all investors are rational and information is freely available to all.
- No taxes: There are no taxes or no tax discrimination between dividend income and capital appreciation (capital gain).
- Fixed investment policy: It is necessary to assume that all investment should be financed through equity only,
- No floatation or transaction cost: Similarly, these costs may differ from country to country or market to market.
- Risk of uncertainty does not exist. Investors are able to forecast future prices and dividend with certainty and one discount rate is appropriate for all securities and all time periods.

2. Dividend's Relevance Theory

1. WALTER'S MODEL

Assumptions of Walter's Model

Walter's approach is based on the following assumptions:

- All investment proposals of the firm are to be financed through retained earnings only.
- 'r' rate of return & 'Ke' cost of capital are constant.
- Perfect capital markets: The firm operates in a market in which all investors are rational and information is freely available to all.
- No taxes or no tax discrimination between dividend income and capital appreciation (capital gain).
- No floatation or transaction cost: Similarly, these costsmay differ country to country or market to market.
- The firm has perpetual life

Advantages of Walter's Model

1. The formula is simple to understand and easy to compute.
2. It can envisage different possible market prices in different situations and considers internal rate of return, market capitalisation rate and dividend payout ratio in the determination of market value of shares.

Limitations of Walter's Model

1. The formula does not consider all the factors affecting dividend policy and share prices. Moreover, determination of market capitalisation rate is difficult.
2. Further, the formula ignores such factors as taxation, various legal and contractual obligations, management policy and attitude towards dividend policy and so on.

GORDON'S MODEL

According to Gordon's model, dividend is relevant and dividend policy of a company affects its value.

Assumptions of Gordon's Model

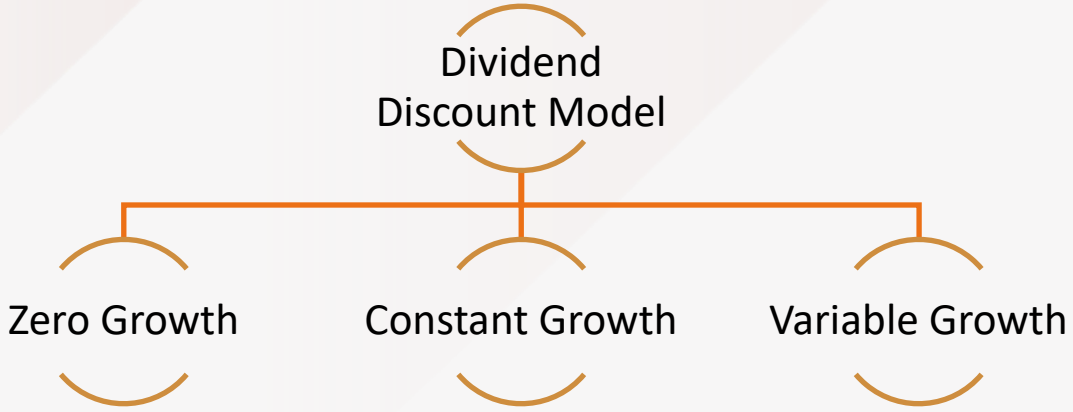
This model is based on the following assumptions:

- Firm is an all equity firm i.e. no debt.
- IRR will remain constant, because change in IRR will change the growth rate and consequently the value will be affected. Hence this assumption is necessary.
- Ke will remain constant, because change in discount rate will affect the present value.
- Retention ratio (b), once decide upon, is constant i.e. constant dividend payout ratio will be followed.
- Growth rate (g = br) is also constant, since retention ratio and IRR will remain unchanged and growth, which is the function of these two variable will remain unaffected.
- Ke > g, this assumption is necessary and based on the principles of series of sum of geometric progression for 'n' number of years.
- All investment proposals of the firm are to be financed through retained earnings only.

Dividend Discount Model (DDM)

It is a financial model that values shares at the discounted value of the future dividend payments.

Three can three possible situations



Advantages of Gordon's Model

1. The dividend discount model is a useful heuristic model that relates the present stock price to the present value of its future cash flows.
2. This Model is easy to understand.

Limitations of Gordon's Model

1. The dividend discount model depends on projections about company growth rate and future capitalization rates of the remaining cash flows, which may be difficult to calculate accurately.
2. The true intrinsic value of a stock is difficult to determine realistically.

STOCK SPLITS

2.1 Meaning of Stock Split

Stock split means splitting one share into many, say, one share of ₹ 500 into 5 shares of ` 100. Stock splits is a tool used by the companies to regulate the prices of

Advantages of Stock Splits

1. It makes the share affordable to small investors.
2. Number of shares may increase the number of shareholders; hence the potential of investment may increase.

2.2 Limitations of Stock Splits

1. Additional expenditure needs to be incurred on the process of stock split.
2. Low share price may attract speculators or short term investors, which are generally not preferred by any company.

SHARE BUYBACK

1.1 Meaning of Share Buyback

Share buyback, in simple terms, means buying/repurchasing own shares by the company resulting into decrease in share capital of the company. Thus, the shares bought back are cancelled leading reduction in outstanding number of shares.

Question 1: (Valuation based on dividend.)

The following information are available for XYZ CO.

- No of shares outstanding is 1 lakh
- EPS is Rs. 4
- DPS is Rs. 2.4
- Equity capitalization rate: 12%
- Rate of return on investment: 15%

(i) As per Walter's model, what will be Market value per Share?

(ii) To keep Share price at Rs. 40, what should be payout ratio?

(iii) As per Walter's model, what is optimum payout ratio?

(iv) Market Value at that payout ratio?

Question 2: ABC Ltd has 10 lakhs equity shares outstanding at the beginning of the year. The current market price of is Rs. 150 and the directors have recommended a dividend of Rs. 8 per share. The shareholders expect a return of 12%.

(i) Applying MM Model calculate the fair price of the shares when a) dividend is declared and b) dividend is not declared.

(ii) If the investment budget is Rs. 500 lakhs and anticipated profit is Rs. 180 lakhs, compute how many shares are to be issued if

a) dividend is declared and

b) dividend is not declared.

Question 3: The following figures are collected from the annual report of PQR Ltd.:

	Rs.
Net Profit	300 lakhs
Outstanding 12% preference shares	1000 lakhs
No. of equity shares	30 lakhs
Return on Investment	20%

What should be the approximate dividend pay-out ratio so as to keep the share price at Rs. 42 by using Walter model?

Question 4: ABC Ltd. was started a year back with a paid-up equity capital of Rs. 40,00,000. The other details are as under:

Earnings of the company	Rs. 4,00,000
Dividend paid	Rs. 3,20,000
Price-earning ratio	12.5
Number of shares	40,000

You are required to find out whether the company's dividend payout ratio is optimist, using Walter's formula.

Question 5: A large sized chemical company has been expected to grow at 14% per year for the next 4 years and then to grow indefinitely at the same rate as the national economy, i.e., 5%. The required rate of return on the equity shares is 12%. Assume that the company paid a dividend of Rs. 2 per share last year (D0 = 2). Determine the market price of the share today.

Question 6: The EPS of a company is Rs. 16. The market capitalization rate applicable to the company is 12.5%. Retained earnings can be employed to yield a return of 10%. The company is considering a payout of 25%, 50% and 75%. Which of these, if any, would maximise the wealth of shareholders as per the Walter's Model?

Question 7: Exponent Ltd. had 50,000 equity shares of Rs. 10 each outstanding on 1st April. The shares are being quoted at par in the market. The company intends to pay a dividend of Rs. 2 per share for current financial year. It belongs to a risk class whose appropriate capitalization rate is 15%.

Using Modigliani-Miller Model and assuming to taxes, ascertain the price of company's share as it is likely to prevail at the end of the year when (i) dividend is declared; and

(ii) no dividend is declared.

Also find out number of new equity shares that the company must issue to meet its investment needs of Rs. 2,00,000 assuming net income of Rs. 1,10,000 and assuming that the dividend is paid.

Question 8: Import Replacement Ltd. specializes in producing goods to substitute imports from the USA. The managing director of the company Ajay is seriously concerned about the dividend payout policy of the company. He has asked you as a company secretary-cum- finance director to suggest dividend payout under each of the following alternative policies:

Policy-I: A dividend payout of Rs. 2.00 per share, increasing by Rs. 0.20 per share over the previous year whenever the dividend payout falls below 50% for the two consecutive years.

Policy-II: A dividend payout of Rs. 1.00 per share for each period except when earnings per share exceed Rs. 6.00 when an extra dividend equal to 80% of earning beyond Rs. 6.00 would be paid.

The earnings per share of the company over the last 10 years is shown in the following table:

Year	Earnings per Share Rs.
2001	8.00
2000	7.60
1999	6.40
1998	5.60
1997	6.40
1996	4.80
1995	2.40
1994	3.60
1993	-1.00
1992	0.50

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You are also required to discuss the pros and cons of each of the dividend police mentioned above.

Question 9: The required rate of return of investors is 15%. ABC Ltd. declared and paid annual dividend of Rs. 4 per share. It is expected to grow @ 20% for the next 2 years and 10% thereafter. Compute the price at which the shares should sell.

NOTE: PV factor @ 15% for Year 1 = 0.8696 and Year 2 = 0.7561.

Question 10: Best buy Auto Ltd. had outstanding 1,20,000 shares selling at Rs. 20 per share. The company hopes to make a net income of Rs. 3,50,000 during the year ended 31st March, 2003. The company is considering to pay a dividend of Rs. 2 per share at the end of current year. The capitalization rate for risk class of this company has been estimated to be 15%.

Assuming no taxes, answer the questions listed below on the basis of the Modigliani Miller Dividend Valuation Model:

(i) What will be the price of a share at the end of 31st March, 2003-

- If the dividend is paid; and
- If the dividend is not paid?

(ii) How many new shares must the company issue if the dividend is paid and company needs Rs. 7,40,000 for an approved investment expenditure during the year?

Question 11: The earnings per share (EPS) of a company is Rs. 10. It has an internal rate of return of 15% and the capitalization rate of its risk class is 12.5%. If Walter's Model is used.

(i) What should be the optimum payout ratio of the company?

(ii) What should be the price of the share at this payout?

(iii) How shall the price of the shares be affected, if a different payout were employed?

Question 12: Following information is available in respect of DPS and PPS of Intelligent Ltd. for the last five years:

Year	2004	2003	2002	2001	2000
EPS (Rs.)	14.10	13.60	13.10	12.70	12.20
DPS (Rs.)	8.20	8.10	7.90	7.80	7.70

Dividends for a particular year are paid in the same calendar year. If the same dividend policy is maintained, it is expected that the annual growth rate of earnings will be no better than the average of last four years. The risk free rate is 6% and the market risk premium is 4%. With reference to the market rate of return, the equity shares of the company have a β of 1.5 and is not expected to change in near future.

The company has received a proposal from Smart Ltd. to acquire its operations by paying the value of shares.

You are required

to value the equity shares of the company using

(i) dividend growth model;

(ii) earnings growth model; and

(iii) capital asset pricing model (CAPM).

Question 13: A closely-held toys manufacturing company has been following a dividend policy, which can maximise the market value of the company as per Walter's Model. Accordingly, each year at dividend time, the capital budget is reviewed in conjunction with the earnings for the period and alternatives investment opportunities for the shareholders. In the current year, Co. reports a net profit of Rs.1000000 the company can earn Rs. 2,50,000 if such profits are retained. The investors have alternative investment opportunities that will yield them 12%. The company has 1,00,000 shares outstanding. What would be the dividend payout ratio of the company, if it wishes to maximise the wealth of the shareholders?

Question 14: From the following information, ascertain whether the firm is following an optimal dividend policy as per Walter's model:

Total earnings (RS.)	6,00,000
Number of equity shares of Rs. 100 each	40,000
Dividend paid (Rs.)	1,60,000
Prices-Earnings (P/E) ratio	10

The firm is expected to maintain its rate of return on fresh investment.

What should be the P/E ratio at which dividend policy will have no effect in the value of the share?

Will your decision change if the P/E ratio is 5 instead of 10?

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Question 15: The following financial data relates to XYZ Ltd.:

Year	Earnings Per Share (Rs.)	Dividend Per Share (RS.)	Share Price (RS.)
2004	42	17	252
2005	46	18	184
2006	51	20	255
2007	55	22	275
2008	62	25	372

A firm of market analysts which specializes in the industry in which XYZ Ltd. operates has recently re-evaluated the company's future prospects. The analysts estimate that XYZ Ltd.'s earnings and dividend will grow a 25% for the next three years. Thereafter, earnings are likely to increase at a lower rate of 10%. If this reduction in earnings growth occurs, the analysts consider that the dividend payout ratio will be increased to 50%.

XYZ Ltd. is all equity financed and has 10 lakh ordinary shares in issue. The tax

rate of 33% is not expected to change in the foreseeable future. Calculate the estimated share price; and the P/E ratio by using dividend valuation model. For this purpose, you can assume a constant post-tax cost of capital of 18%.

Question 16: Rosa Chemicals Ltd. has outstanding 1,20,000 shares selling at Rs. 20 per share. The company hopes to make a net income of Rs. 3,50,000 during the year ending 31st March, 2009. The company is thinking of paying a dividend of Rs. 2 per share at the end of current year. The capitalization rate for risk class of this firm has been estimated to be 15%. Assuming no taxes, answer the questions listed below on the basis of the Modigliani Miller dividend valuation model:

(i) What will be the price of share at the end of 31st March, 2009, if –

a) the dividend is paid; and

b) the dividend is not paid?

(ii) How many new shares the company must issue if the dividend is paid and company needs Rs. 9,50,000 for an approved investment expenditure during the year?

Question 17: From the following information, determine the market value of equity shares of the company:

Earnings of the company	Rs. 5,00,000
Dividend paid Rs.	3,00,000
Number of shares outstanding	1,00,000
Price-earnings ratio	8
Rate of return on investment	15%

Are you satisfied with the current dividend policy of the company? If not, what should be the optimal dividend payment ratio? Use Walter's Model.

Question 18: Zebra Ltd. was started a year back with paid-up equity capital of Rs. 40 lakh. Other details are as under:

Earnings of the year : Rs. 4,00,000

Dividend paid : Rs. 3,20,000

Price-earnings ratio : 12.5

Number of shares : 40,000

You are required

to find out whether company's dividend payout ratio is optimal using Walter's Model, giving reasons.

Question 19: Rani has invested in a share whose dividend is expected to growth at 15% for 5 years and thereafter at 5% till life of the company. Find out value of the share, if current dividend is Rs. 4 and investor's required rate of return is 6%.

Question 20: The following data relate to Intel Projects (India) Ltd.:

Year ending 31st March	Net Earnings Per Share	Net Dividend Per Share
	(Rs.)	(Rs.)
2006	32	17.50
2007	128	18.50
2008	26	20.00
2009	26	21.00
2010	24	22.00

There are 10 lakh equity shares issued and majority of these shares are owned by private investors. There is no debt in the capital structure of the company.

The company has been experiencing difficult trading conditions over the past few years. In the current year, net earnings are likely to be Rs. 2.20 crore, which will be just sufficient to pay a maintained dividend of Rs. 22 per share.

You are required to comment on the company's dividend policy between 2005-06 to 2009-10; and on its possible consequences for earnings.

CHAPTER - 13

MANAGEMENT OF PAYABLES (CREDITORS)

COST AND BENEFITS OF TRADE CREDIT

(a) Cost of Availing Trade Credit

Normally it is considered that the trade credit does not carry any cost. However, it carries the following costs:

(i) **Price:** There is often a discount on the price that the firm undergoes when it uses trade credit, since it can take advantage of the discount only if it pays immediately. This discount can translate into a high implicit cost.

(ii) **Loss of goodwill:** If the credit is overstepped, suppliers may discriminate against delinquent customers if supplies become short. As with the effect of any loss of goodwill, it depends very much on the relative market strengths of the parties involved.

(iii) **Cost of managing**: Management of creditors involves administrative and accounting costs that would otherwise be incurred.

(iv) **Conditions:** Sometimes most of the suppliers insist that for availing the credit facility the order should be of some minimum size or even on regular basis.

(b) Cost of Not Taking Trade Credit

On the other hand, the costs of not availing credit facilities are as under:

(i) **Impact of Inflation:** If inflation persists then the borrowers are favored over the lenders as they were better off to pay the fixed outstanding amount later than sooner. Also, the subsequent transactions shall be at higher prices.

(ii) **Interest:** Trade credit is a type of interest free loan, therefore failure to avail this facility has an interest cost. This cost is further increased if interest rates are higher.

(iii) **Inconvenience:** Sometimes it may also cause inconvenience to the supplier if the supplier is geared to the deferred payment.

CHAPTER - 14

FINANCING OF WORKING CAPITAL

The working capital finance may be classified between the two categories:

(i) Spontaneous sources; and

(ii) Negotiable sources.

Spontaneous Sources: Spontaneous sources of finance are those which naturally arise in the course of business operations. Trade credit, credit from employees, credit from suppliers of services, etc. are some of the examples which may be quoted in this respect.

Negotiated Sources: On the other hand, the negotiated sources, as the name implies, are those which have to be specifically negotiated with lenders say, commercial banks, financial institutions, general public etc.

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The finance manager has to be very careful while selecting a particular source, or a combination thereof for financing of working capital. Generally, the following parameters will guide his decisions in this respect:

(i) Cost factor

(ii) Impact on credit rating

(iii) Feasibility

(iv) Reliability

(v) Restrictions

(vi) Hedging approach or matching approach i.e., Financing of assets with the same maturity as of assets.

SOURCES OF FINANCE

26.1 Spontaneous Sources of Finance

26.2 Inter-corporate Loans and Deposits

26.3 Commercial Papers

26.4 Funds Generated from Operations

26.5 Public Deposits

26.6 Bills Discounting

26.7 Bill Rediscounting Scheme

26.8 Factoring

Spontaneous Sources of Finance

- Trade Credit:
- Bills Payable
- Accrued Expenses

Commercial Papers

Commercial Paper (CP) is an unsecured promissory note issued by a firm to raise funds for a short period. This is an instrument that enables highly rated corporate borrowers for short-term borrowings and provides an additional financial instrument to investors with a freely negotiable interest rate. The maturity period ranges from minimum 7 days to less than 1 year from the date of issue. CP can be issued in denomination of Rs 5 lakhs or multiples thereof.

Advantages of CP: From the point of the issuing company, CP provides the following benefits:

a) CP is sold on an unsecured basis and does not contain any restrictive conditions.

b) Maturing CP can be repaid by selling new CP and thus can provide a continuous source of funds.

c) Maturity of CP can be tailored to suit the requirement of the issuing firm.

d) CP can be issued as a source of fund even when money market is tight.

e) Generally, the cost of CP to the issuing firm is lower than the cost of commercial bank loans.

However, CP as a source of financing has its own limitations:

(i) Only highly credit rating firms can use it. New and moderately rated firm generally are not in a position to issue CP.

(ii) CP can neither be redeemed before maturity nor can be extended beyond maturity.

WORKING CAPITAL FINANCE FROM BANKS

Instructions on Working Capital Finance by Banks

Assessment of Working Capital

- Reserve Bank of India has withdrawn the prescription, in regard to assessment of working capital needs, based on the concept of Maximum Permissible Bank Finance (MPBF), in April 1997. Banks are now free to evolve, with the approval of their Boards, methods for assessing the working capital requirements of borrowers, within the prudential guidelines and exposure norms prescribed.
- With the above liberalizations, all the instructions relating to MPBF issued by RBI from time to time stand withdrawn. Further, various instructions/guidelines issued to banks with objective of ensuring lending discipline in appraisal, sanction, monitoring and utilization of bank finance cease to be mandatory.

FORMS OF BANK CREDIT

The bank credit will generally be in the following forms:

- **Cash Credit:** This facility will be given by the banker to the customers by giving certain amount of credit facility on continuous basis. The borrower will not be allowed to exceed the limits sanctioned by the bank.
- **Bank Overdraft:** It is a short-term borrowing facility made available to the companies in case of urgent need of funds. The banks will impose limits on the amount they can lend. When the borrowed funds are no longer required they can quickly and easily be repaid. The banks issue overdrafts with a right to call them in at short notice.
- **Bills Discounting:** The Company which sells goods on credit will normally draw a bill on the buyer who will accept it and sends it to the seller of goods. The seller, in turn discounts the bill with his banker. The banker will generally earmark the discounting bill limit.
- **Bills Acceptance:** To obtain finance under this type of arrangement a company draws a bill of exchange on bank. The bank accepts the bill thereby promising to pay out the amount of the bill at some specified future date.
- **Line of Credit:** Line of Credit is a commitment by a bank to lend a certain amount of funds on demand specifying the maximum amount.
- **Letter of Credit:** It is an arrangement by which the issuing bank on the instructions of a customer or on its own behalf undertakes to pay or accept or negotiate or authorizes another bank to do so against stipulated documents subject to compliance with specified terms and conditions.
- **Bank Guarantees:** Bank guarantee is one of the facilities that the commercial banks extend on behalf of their clients in favour of third parties who will be the beneficiaries of the guarantees.

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