Corporate Finance

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Unit 01: Financial Management

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Objectives

After studying this unit, you will be able to:

- Understand the meaning of Corporate Finance
- Understand the evolution of Finance
- Understand the finance functions
- Outline the role of a finance manager
- Analyse the basic goal of a firm
- Understand the Agency problem in business
- Understand the concept of Business ethics
- Explain the concept of Social Responsibility

Introduction

Finance reference to the Management of large amounts of money, especially by governments or large companies. It may also mean providing funding for a person or an enterprise. The term Finance is derived from a French wordfinance,meaning an end, settlement, or retribution. It is used in the context of ending or settling a debt or a dispute. After adapting to English, the word is used to define any type of management of money.

1.1 Classification of finance

The discipline of Finance can be categorized into three parts:

Public Finance

This type of finance is related to states, municipalities, provinces in short government required finances. It includes long term investment decisions related to public entities. Public finance takes factors like distribution of income, resource allocation, economic stability in consideration. Funds are obtained majorly from taxes, borrowing from banks or insurance companies.

Corporate Finance

Corporate Finance is about funding the company expenses and building the capital structure of the company. It deals with the source of funds and the channelization of those funds like the allocation of funds for resources and increasing the value of the company by improving the financial position. Corporate finance focuses on maintaining a balance between the risk and opportunities and increasing the asset value.

Personal Finance

Personal Finance is managing the finance or funds of an individual and helping them achieve the desired goals in terms of savings and investments. Personal Finance is specific to individuals and the strategies depend on the individuals earning potential, requirements, goals, time frame, etc. Personal finance includes investment in education, assets like real estate, cars, life insurance policies, medical and other insurance, saving and expense management.

1.2 Corporate Finance

Imagine that you are planning to start your own business, you would have to answer three questions: What long-term investments should you take on? Where will you get the long-term financing to pay for your investment?How will you manage your everyday financial activities?Corporate finance is all about thestudy to answer these questions

Corporate finance deals with the capital structure of a corporation, including its funding and the actions that management takes to increase the value of the company. Corporate finance also includes the tools and analysis utilized to prioritize and distribute financial resources.

The ultimate purpose of corporate finance is to maximize the value of a business through planning and implementation of resources, while balancing risk and profitability.

"Corporate Finance is concerned with the efficient use of an important economic resource, namely capital funds" - Solomon Ezra & J. John Pringle.

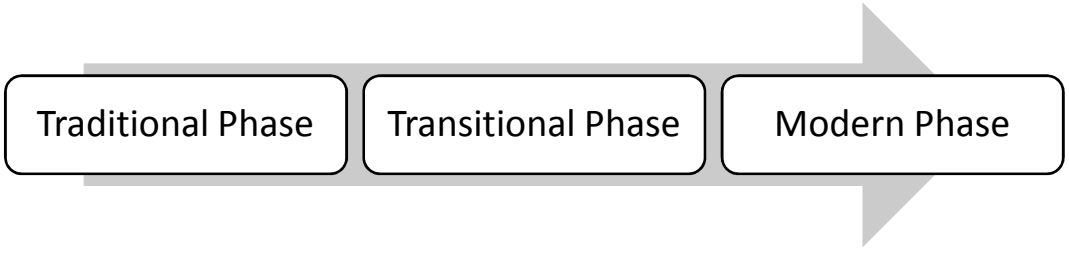
"Corporate Finance is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient business operations"- J.L. Massie.

The three Important Activities that Govern Corporate Finance:

1. Investments & Capital Budgeting
2. Capital Financing
3. Dividends and Return of Capital

1.3 Evolution of finance

The stages in the evolution of finance discipline can be categorized into three phases:



Finance, as capital, was part of the economics discipline for a long time. So, financial management until the beginning of the 20th century was not considered as a separate entity and was very much a part of economics

Traditional phase:

This phase started from 1920 and lasted till 1940. During this phase focus was mainly on below aspects:

- Arranging, formation, issuance of funds.
- Business expansion, merger, reorganization, and liquidation during the life cycle of the firm.
- The instruments of financing, the institutions and procedures used in capital markets, and the legal aspects of financial events.

Transitional phase

This phase started from early 1940 and lasted till early 1950. During this phase focus was mainly on below aspects:

- Nature of financial management was similar to same as Traditional phase.
- But more emphasis was put on financial problems faced by managers in day-to-day operations hence leading to increased focus on working capital management.

Modern Phase

This phase started in middle of 1950 and has witnessed an accelerated pace of development with the infusion of ideas from economic theories and applications of quantitative methods of analysis. During this phase focus was mainly on below aspects:

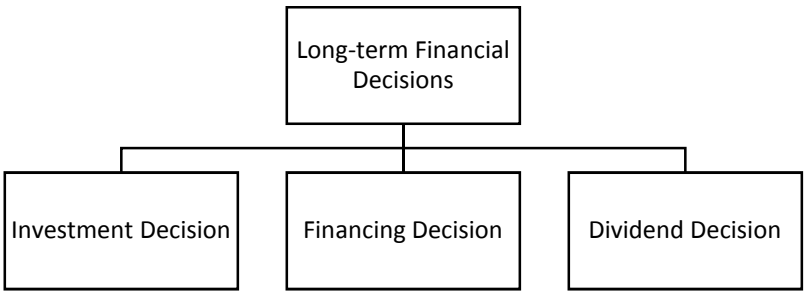
- The scope of financial management got broadened.
- A well-managed Finance department came into existence.
- Role of Financial manager got defined, which include acquisition of funds required in the business at the least possible cost, investing the funds obtained in an optimum manner so as to maximize returns and taking decisions relating to distribution of profits i.e., deciding the dividend policy and retention of profits.

1.4 Finance Functions

Finance function is the most important function of a business. Finance is closely connected with production, marketing and other activities. In the absence of finance, all these activities come to a halt. In fact, only with finance, a business activity can be commenced, continued and expanded.

Finance functions or decisions are divided into long-term and short-term decisions:

Long-term financial decisions can be further classified into three categories:



Investment Decisions:

Investment decision deals with the decisions related to the allocation of capital to long-term assets that would yield benefits in the future like Plant and machinery, Building etc. This decisionrelated to allocation of capital or commitment of funds to long-term assets that would generate cash flows in the future. It involves the evaluation of the prospective profitability of new investments.The Future benefits of investments are difficult to predict with certainty. The Risk in investment arises because of the uncertain returns. Hence, investment proposals should, therefore, be evaluated in terms of both expected return and risk and while, making these kinds of decisions, the financial manager must weigh the costs and benefits of each investment.

Financing Decisions:

Financing decisions are other important decisions to be made by the finance manager of firm, these decisions essentially relate with the arrangement of funds to fulfil the requirements of the firm. These decisions answer the question: from where and how to acquire funds to meet the Firm's Investment needs. The Financial Manager must decide whether to raise more money by equity or debt or by a combination of these finance sources. Use of each type of finance has certain costs and benefits attached with it. The main concern while selecting the finance source is its cost to the firm. Firm should select an optimum capital structure, it's the capital structure at which the cost of the capital is lowest for the firm.

Dividend Decisions:

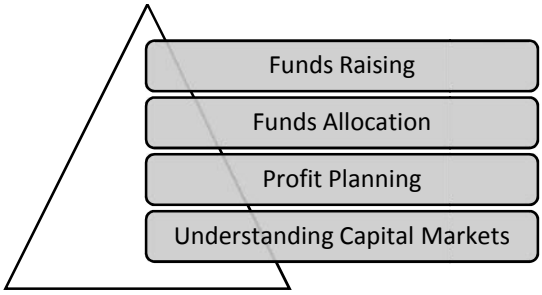
These decisions are related to the distribution of earnings. The financial manager must decide whether the firm should distribute all profits, or retain them, or distribute a portion and retain the balance. The proportion of profits distributed as dividends is called the dividend-payout ratio and the retained portion of profits is known as the retention ratio. Like the debt policy, the dividend policy should be determined in terms of its impact on the shareholders' value. The optimum dividend policy is one that maximizes the market value of the firm's shares.The financial manager should also answer the questions of dividend stability, bonus shares and cash dividends in practice.

Short-term Financial Decision: Liquidity Decision

Management of current assets that affects a firm's liquidity is yet another important finance function. Investment in current assets affects the firm's profitability and liquidity. Current assets should be managed efficiently for safeguarding the firm against the risk of illiquidity. A trade-off exists between profitability and liquidity while managing current assets. If the firm does not invest sufficient funds in current assets, it may become illiquid and therefore, risky. On the other hand, it would lose profitability, as idle current assets would not earn anything. Thus, a proper trade-off must be achieved between profitability and liquidity.

1.5 Role of a finance manager

A financial manager is a person in a firm who main responsibility is to carry out the finance functions.In a modern enterprise, the financial manager occupies a key position. He or she is one of the members of the top management team, The role of finance manager is becoming more important day by day. Finance manager performs a lot of tasks, some of his/her important responsibilities are giver below:



Fund Raising

The traditional approach placed emphasis on raising of funds. It neglected the issues relating to the allocation and management of funds. Raising of funds to meet the firm's requirement is one of the important responsibilities of the finance manager. It was during the major events, such as promotion, expansion or diversification that the financial manager was asked to raise funds. Otherwise, In the day-to-day activities, his or her only significant duty was ensure that the firm had sufficient cash to meet its requirements.

Fund Allocation

In the modern firm, the emphasis shifted from raising of funds to efficient and effective use of funds. Hence, financial manager, in the new role is concerned with the efficient allocation of funds.Thus, in a modern enterprise, the basic finance function is to decide about the expenditure decisions and to assess the requirement of capital for these expenditures. In other words, the financial manager, new role, is more concerned with the efficient allocation of funds.

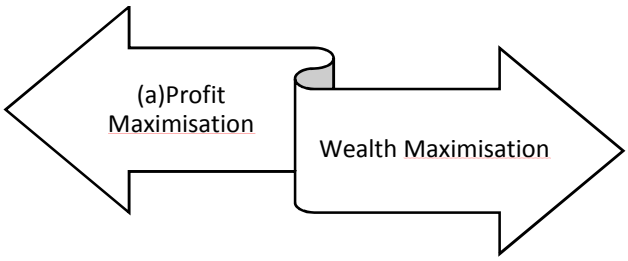
Profit Planning

The functions of the financial manager may be broadened to include profit-planning function. It refers to the operating decisions in the areas of pricing, costs, volume of output and the firm's selection of product lines.Profit planning means the decisions in the areas of pricing, costs, volume of output and other operating decisions. Profit planning is, therefore, a prerequisite for optimizing investment and financing decisions.

Understanding Capital Markets

Capital markets bring investors (lenders) and firms (borrowers) together.Hence the financial manager has to deal with capital markets. He or she should fully understand the operations of capital markets and the way in which the capital markets value securities.

1.6 The Basic Goal: Creating Shareholder Value



a) Profit Maximization

Profit Maximization is the capability of the firm in producing maximum output with the limited input, or it uses minimum input for producing stated output. It is termed as the foremost objective of the company.Profit maximization is considered as an important goal in financial decision-making in an organization. It ensures that firm utilizes its available resources most efficiently under conditions of competitive markets. But in recent years, profit maximization is regarded as unrealistic, difficult, inappropriate goal.

Favorable Arguments for Profit Maximization

- The main aim of a firm is to earn profit.
- Profit is the indicator of success of the business operation.
- Sufficient profitsreduce risk of the business concern.
- Profit is the main source of finance for a firm in the form of internal equity.
- Profitability meets the social needs of a business also.

Criticism of Profit Maximisation

- Profit maximization is vague concept as the term profit is not defined precisely. Profit may be short term or long-term profit; it may be before tax profit or after-tax profit.
- Profit maximization does not consider the time value of money or the net present value of the cash inflow.
- Profit maximization does not consider risk of the business concern. Risks may be internal or external which will affect the overall operation of the business concern.
- The goal of profit maximization may lead to the exploitation of workers and consumers.
- Profit maximization may create immoral practices such as corrupt practice, unfair trade practice, etc.

(b) Wealth Maximization

The prime objective of a business entity is to maximize value for its owners, equity shareholders. Therefore, the ultimate objective of financial management should be wealth maximization.Wealth maximization means maximizing the 'net present value' of a course of action or investment project. The net present value of a course of action is the difference between the present value of its benefits and the present value of its costs. It is the versatile goal of the company and highly recommended criterion for evaluating the performance of a business organization.

Favorable Arguments for Wealth Maximization

- Contrary to profit maximization objective, wealth maximization is based on cash flows, and not on profits.
- The objective of wealth maximization focuses on the long run picture.
- Wealth maximization considers the time value of money.
- Wealth-maximization criterion considers the risk and uncertainty factor.

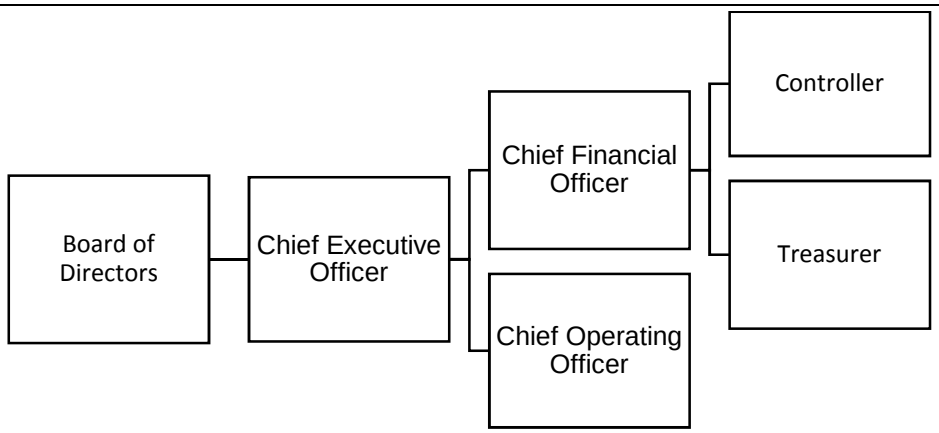
Profit Maximization V/s Shareholder Wealth Maximization

The objective of wealth maximization is generally preferred over profit maximization because of the following reasons:

- It considers wealth for the long-term.
- Wealth-maximization criterion considers the risk and uncertainty factor.
- It considers the timing of returns

1.7 Organization of Finance Functions

Responsibility of carrying out the finance functions lies with the top management. Financial Department may be created under the direct control of the board of directors. The executive heading the finance department is the firm's Chief Finance Officer (CFO). However, the exact nature of the organization of the financial management function differs from firm to firm depending upon factors such as size of the firm, nature of its business type of financing operations, ability of financial officers and the financial philosophy, and so on. Similarly, the designation of the chief executive of the finance department also differs widely in case of different firms. In some cases, they are known as finance managers while in others as vice-president (finance), director (finance), and financial controller and so on. He reports directly to the top management. Various sections within the financial management area are headed by managers such as controller and treasurer.



The Financial Functions Within a Corporation

Chief Executive Officer(CEO)

He or she is a member of the Top Management and is closely associated with the formulation of policies and making decisions for the firm. The Treasurer and Controller operates under CFO's supervision.

Treasurer

Treasurer is a manager responsible for financing, cash management, and relationships with financial markets and institutions. His/her duties include forecasting the financial needs, administering the flow of cash, managing credit, floating securities etc.

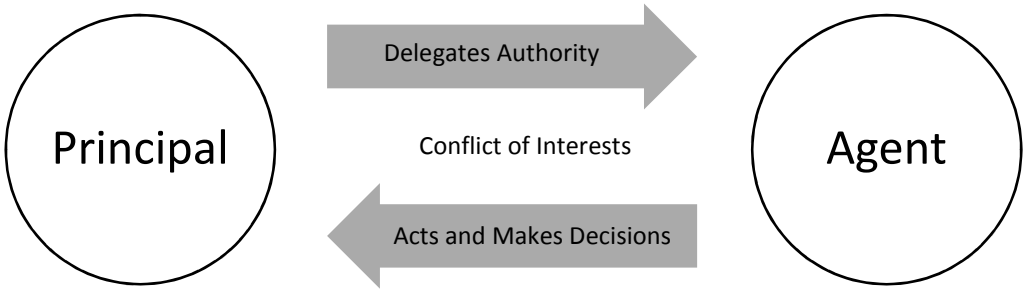
Controller

Controller is an officer responsible for budgeting, accounting and auditing.The functions of the controller relate to the management and control of assets.

1.8 Agency issues

The agency problem is a conflict of interest inherent in any relationship where one party is expected to act in another's best interests.The relationship between stockholders and management is called an agency relationship. Understand this though an example. Suppose that you want to sell your old bike and for that purpose you hire someone to sell it. You agree to pay the agent a flat fee when he/she sells the bike. This is an example of Principal-Agent Relationship. The agent's motive in this case is to make the sale, no guarantee that to get you the best price. This is an example of Agency Problem

Now, if you offer a commission instead of the flat fee, let's say, 3% percent of the sales price instead of a fixed amount, then this problem may be resolved.The agency problem is a conflict of interest inherent in any relationship where one party is expected to act in another's best interests. The relationship between stockholders and management is a form of agency relationship. The conflict between the principal and the agent emerges when the agents who is entrusted with the task, choose to use their authority for personal benefit.It is a common problem and it can be notices in any organization Like any club, company or any government institution.



Types of Agency problem:

- Stockholders v/s Management
- Stockholders v/s Creditors
- Stockholders v/s other Stakeholders

Agency Cost

Agency cost is the costs of the conflict of interest between stockholders and management. This cost can be indirect or direct. Suppose a firm is planning a new project. This project is expected to increase the share value for the shareholders, but it's risky. Now, the firm's owners or the shareholders may like to make the investment, but firms management may not, since there's a chance the project will fail and management's jobs will be lost.Thus, if management does not take the investment, then the stockholders may lose a good opportunity. This is one example of an indirect agency cost.

Direct agency costs are of two types. The first type is some sort of expenditure that will benefit firm's management but at the cost of the stockholders for e.g., purchase of expensive cars and corporate jets. The second type of direct agency cost are expenses incurred on monitoring managerial actions. For example, paying outside auditors to assess the accuracy of financial statement information.

Solving Agency issues

Incentives: incentivizing an agent to act in better accordance with the principal's best interests like a manager can be motivated to act in the shareholders' best interests through incentives such as performance-based compensation.

Regulations:agency issues can be reduced through instituting measures like tough screening mechanisms, penalizing for poor performance etc.

1.9 Business ethics and social responsibility

Business ethics:

The word 'ethics' has its origin in the Greek word 'ethics' meaning character; norms, ideals or morals prevailing in a group or society. Ethics is concerned with what is right and what is wrong in human behavior. It is judged on the basis of a standard form of conduct approved by society. Ethics can also refer to codes or other system for controlling means so that they serve human ends.

business ethics are the moral principles that act as guidelines for the way a business conducts itself and its transactions. A few examples of business ethics are: charging fair prices from customers, using fair weights for measurement of commodities, giving fair treatment to workers and earning reasonable profits.Ethical business behavior improves public image, earns people's confidence and trust, and leads to greater success.Ethics and profits go together in the long run. An ethically responsible enterprise develops a culture of caring for people and environment and commands a high degree of integrity in dealing with others.

Elements of Business Ethics

- **Top management commitment**: The (CEO) and other higher-level managers need to be openly and strongly committed to ethical conduct. They must give continuous leadership for developing and upholding the values of the organization.
- **Publication of a 'Code':**Businesses that have effective ethics programmes write out the standards of behavior for the entire organization in written documents known as the "code" covering areas such product safety and quality; health and safety in the workplace; conflicts of interest etc.
- **Establishment of compliance mechanisms:**In order to ensure that actual decisions and actions comply with the firm's ethical standards, suitable mechanisms should be established.
- **Involving employees at all levels:**It is the employees at different levels who implement ethics policies to make ethical business a reality. Therefore, their involvement in ethics programmes becomes a must.
- **Measuring results:** Although it is difficult to accurately measure the end results of ethics programmes, the firms can certainly perform audit to monitor compliance with ethical standards.

Social Responsibility

Social responsibility of business refers to its obligation to take those decisions and perform those actions which are desirable in terms of the objectives and values of our society.Business is part of society. It should fulfill the aspirations of society, and respect the values and norms of society. Thus, social responsibility relates to the voluntary efforts on the part of the businessmen to contribute to the social wellbeing.

Social responsibility is broader than legal responsibility of business. Legal responsibility may be fulfilled by mere compliance with the law. Social responsibility is more than that. It is a firm's recognition of social obligations even though not covered by law.

Arguments for Social Responsibility

- Justification For Existence and Growth: Profit should be looked upon as an outcome of service to the people. The prosperity and growth of business is possible only through continuous service to society
- Long-term Interest of The Firm: When members of society – including workers, consumers, feel that business enterprise is not serving its best interest, they will tend to withdraw their cooperation to the enterprise concerned. The public image of any firm would also be improved when it supports social goals.
- Avoidance of Government Regulation: it is believed that businessmen can avoid the problem of government regulations by voluntarily assuming social responsibilities.
- Maintenance of Society: laws cannot be passed for all possible circumstances. People who feel that they are not getting their due from the business may resort to anti-social activities, not necessarily governed by law
- Availability of resources with business: business institutions have valuable financial and human resources which can be effectively used for solving problems.
- Converting problems into opportunities: business with its history of converting risky situations into profitable deals, can not only solve social problems but it can also make them effectively useful by accepting the challenge.
- Better environment for doing business: business system should do something to meet needs before it is confronted with a situation when its own survival is endangered due to enormous social illnesses.

- Holding business responsible for social problems: some of the social problems have either been created by business enterprises themselves. pollution, unsafe workplaces. so, it is the moral obligation of business to get involved in solving these problems.

Arguments Against Social Responsibility

- Violation of profit maximization objective: According to this argument, business exists only for-profitmaximization. Therefore, any talk of social responsibility is against this objective.
- Burden on consumers: undertaking the social responsibility is very costly for the business and often require huge financial investments.
- Lack of social skills: All social problems cannot be solved the way business problems are solved so businesses should not be expected to solve the social problems.
- Lack of broad public support: business cannot operate successfully because of lack of public confidence and cooperation in solving social problems.

Reality of Social Responsibility

- Threat of public regulation: governments today are expected to act as welfare states whereby they have to take care of all sections of society. Thus, where business institutions operate in a socially irresponsible manner, action is taken to regulate them for safeguarding people's interest.
- Pressure of labor movement: labour movement for extracting gains for the working class throughout the world has become very powerful.
- Impact of consumer consciousness: Development of education and mass media and increasing competition in the market have made the consumer conscious of his right and power in determining market forces
- Development of social standard for business: New social standards consider economic activity of business enterprises as legitimate but with the condition that they must also serve social needs.
- Development of business education: Development of business education which has made more and more people aware of the social purpose of business.
- Relationship between social interest and business interest: Business enterprises have started realising the fact that social interest and business interest are not contradictory. Instead, these are complementary to each other
- Development of professional, managerial class: Professional management education in universities and management institutes have created a separate class of professional managers who have got a different attitude towards social responsibility as compared to the earlier class of manager.

Kinds of Social Responsibility:

- **Economic responsibility**: A business enterprise is basically an economic entity and, therefore, its primary social responsibility is economic.
- **Legal responsibility:**Every business has a responsibility to operate within the laws of the land. Since these laws are meant for the good of the society, a law-abiding enterprise is a socially responsible enterprise as well law-abiding enterprise.
- **Ethical responsibility:**This includes the behaviour of the firm that is expected by society but not codified in law. For example, respecting the religious sentiments and dignity of people while advertising for a product.
- **Discretionary responsibility:**This refers to purely voluntary obligation that an enterprise assumes, for instance, providing charitable contributions to educational institutions or helping the affected people during floods or earthquakes.

Social Responsibility: Towards Different Interest Groups

- **Towards the shareholders or owners:**A business enterprise has the responsibility to provide a fair return to the shareholders on their capital investment and to ensure the safety of such investment.
- **Towards the workers:**Management of an enterprise is also responsible for providing opportunities to the workers for meaningful work. It should try to create the right kind of working conditions so that it can win the cooperation of workers
- **Towards the consumers:**Supply of right quality and quantity of goods and services to consumers at reasonable prices constitutes the responsibility of an enterprise toward its customers.
- **Towards the government and community:**Enterprise must respect the laws of the country and pay taxes regularly and honestly. It must behave as a good citizen and act according to the well accepted values of the society. It must protect the natural environment

Summary

- Corporate finance deals with the capital structure of a corporation, including its funding and the actions that management takes to increase the value of the company. Corporate finance also includes the tools and analysis utilized to prioritize and distribute financial resources.
- Evolution of finance discipline is generally classified in three phases: Traditional phase which lasted till 1940 and focused on certain episodic events like formation, issuance of capital, expansion, merger, reorganization and liquidation. Transitional phase - from early 1940 to 1950- and focused on financial problems faced by managers in day-to-day operations, leading to increased focus on working capital management and modern phased which started in mid of 1950 and focused on rational matching of funds to their uses so as to maximize the wealth of the shareholders.
- Finance function can be classified into long-term and short-term decisions: Under long-term decision comes Investment decisions which deals with the allocation of funds, Financing decisions which deals with the sourcing of funds and dividend decisions which relates with the distribution of earnings. Short-term decisions primarily relate with the management of current assets and liquidity.
- Role of finance manager mainly consists of funds raising, funds allocation, profit planning and understanding capital markets.
- Broadly there are two alternative objectives of a firm. Profit maximization vs Wealth maximization. Profit maximization objective primarily considers earning profits as the main objective of a firm. This objective has several criticisms. On the contrary,wealth maximization objective considers maximization of shareholdersvalue as the main objective and is generally preferred over the profit maximization objective.
- The agency problem is a conflict of interest inherent in any relationship where one party is expected to act in another's best interests.
- Ethics is concerned with what is right and what is wrong in human behavior judged on the basis of a standard form of conduct/behavior of individuals. business ethics are the moral principles that act as guidelines for the way a business conducts itself and its transactions.
- Social responsibility of business refers to its obligation to take those decisions and perform those actions which are desirable in terms of the objectives and values of our society.

- A firm has social responsibility towards different stakeholders. It has responsibilities towards shareholders or owners, workers, consumersandtowards the government and community.

Keywords

Corporate finance, Financial Management, Finance Functions, Profit maximization, Wealth maximization, Agency issues, Business Ethics, Social responsibility.

Self-Assessment

1. The structure in which there is separation of ownership and management is called

A. Sole proprietorship
B. Partnership
C. Company
D. All business organizations

2. Profits do not have to be shared in which of the following organization type

A. Partnership
B. Sole proprietorship
C. Company
D. None of the above

3. _____is the limitation of Traditional approach of Financial Management.

A. More emphasis on long term problems
B. Ignores allocation of resources
C. One-sided approach
D. All of the above

4. Financial decisions of an individual like planning application of income, deciding on mode of saving etc. relates to

A. Personal Finance
B. Corporate Finance
C. Public Finance
D. None of the above

5. Which of the following option/s is/are true about Corporate Finance:

A. It deals with the decisions of a firm related to investment, financing and dividend.
B. It is subset of finance
C. The primary goal of is to maximize shareholder value
D. All of the above

6. Which one of the following is a short-term financial decision?

A. Investment decision
B. Financing decision
C. Dividend decision
D. Liquidity decision

7. The main goal of financial management is
A. profit maximization
B. fund transfer
C. Maximum Returns
D. Wealth Maximization

8. Finance function involves
A. procurement of finance only
B. expenditure of funds only
C. safe custody of funds only
D. procurement and effective utilization of funds

9. Which of the following is/are the roles of the finance manager?
A. Funds Raising
B. Funds Allocation
C. Profit Planning
D. All of the above

10. The criticism of the Profit maximization goal is/are?
A. It is vague concept.
B. It ignores timing of returns.
C. It ignores the risk factor.
D. All of the above

11. Agency is the result of agreement between whom?
A. Principal and creditor
B. Principal and agent
C. Principal, agent and the third party
D. Principal and debtor

12. Example/s of the agency relation is/are
A. Stockholders and Management
B. Stockholders and Creditors
C. Stockholders and other Stakeholders
D. All of the above

13. Agency cost consists of

A. Unnecessary expenditure by the management
B. Monitoring
C. Auditing cost
D. All of the above

14. Examples of business ethics are:
A. charging fair prices from customers,

B. using fair weights for measurement of commodities,
C. giving fair treatment to workers
D. All of the above

15. Social Responsibility is needed for:
A. Long-term interest of the firm
B. Maintenance of society
C. Better environment for doing business
D. All of the above

Answers for Self Assessment

1.	C	2.	B	3.	D	4.	A	5.	D
6.	D	7.	D	8.	D	9.	D	10.	D
11.	B	12.	D	13.	D	14.	D	15.	D

Review Questions

1. Define corporate finance.
2. Which objective of financial management is superior?
3. What is the difference between profit maximization and wealth maximization objectives?
4. State the agency cost to prevent agency problem.
5. List the stages of evolution of financial management.

Further Readings

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2. https://corporatefinanceinstitute.com
3. https://www.investopedia.com/terms/b/business-ethics.asp

Unit 02: Sources of Finance

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of Business Finance
- classify various sources of Finance
- examine the factor affecting Source of Finance
- examine Equity and Preference shares as sources of finance
- evaluate the merits and limitations of Equity and Preference shares
- classify the various types of preference shares
- examine Debenture as a source of Finance.
- classify the types of debentures.
- compare equity Vs Debt financing.

Introduction

Business requires money for carrying out various activities.The finance required by business to establish and run its operations is known as business finance. No business can function without adequate amount of funds for undertaking various activities. Business finance is called the life blood fora business. The funds may be required for several purposes like purchasing fixed assets, for running day-to-day operations, and for undertaking growth and expansion plans in a business organization

Fixed Capital Requirement:

For starting any business, funds are required in order to purchase fixed assets for example, building, land, plant and machinery, and furniture and fixtures. The main feature of these fund is that the funds required in fixed assets remain invested in the business for a long period of time.

Working Capital Requirements:

Other than fixed assets, funds are required for short-term also. Working capital of a business firm is used for holding current assets, such as raw material stock, finished goods, bills receivables and for paying salaries, wages, taxes, and rent.

2.1 Classification of sources of funds

The funds required for an enterprise can be sourced from various sources. The funds available to a business can be classified according to three main criteria, which are:

(i) Time period

(ii) Ownership

(iii) Source of generation.

On the Basis of Time Period

Long-Term Sources: Those sources of finance which fulfills the financial need of an enterprise for a period exceeding five years are known as long-term sources.

Medium-Term Sources: The sources of finance which provides funds to an enterprise for more than one year but less than five years are known as medium-term sources.

Short-Term Sources: Short-Term sources as those which fulfills the financial requirements of a business firm for a period not exceeding one year.

On the Basis of Ownership

Owner's funds: the financial requirement of an enterprise can be met through own funds or through the borrowed funds. Owner funds are the funds that are provided by the owners of an enterprise, which can be sole proprietor, partners in a partnership firm or shareholders of a company.

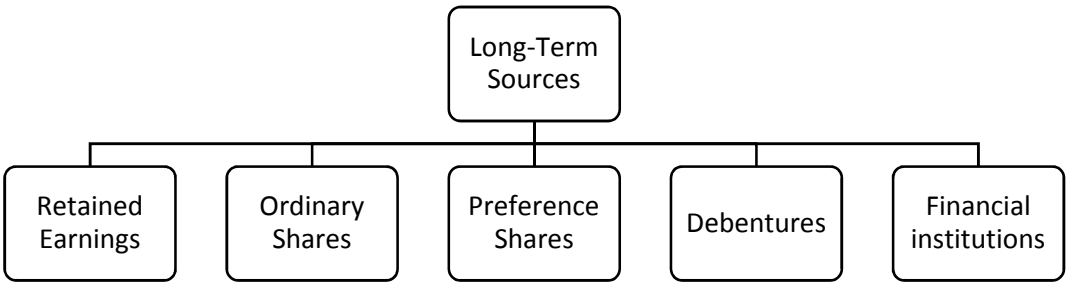
Borrowed funds: Borrowed funds are those funds which are borrowed from outside the enterprise and raised through loans or debentures. These funds have to paid back after a specific period of time along with the interest.

On the Basis of Generation

Internal sources of funds: Funds sources from inside the business enterprises are known as Internal sources of funds.

External sources of funds: These sources are external to the business enterprise such as suppliers, lenders, and investors.

2.2 Long-Term Sources of finance



Retained Earnings

Generally, a company does not distribute all the earnings to the shareholders. The portion of the net earnings of the company that is not distributed as dividends is known as retained earnings. The amount of retained earnings available depends on the dividend policy of the company. It is a source of internal financing or self-financing or ploughing back of profits.

Ordinary Shares

Equity shares is the most important source of raising long term capital by a company. Equity shares represent the ownership of a company and thus the capital raised by issue of such shares is known as ownership capital or owner's funds. The earning on these shares is fluctuating in nature. As the equity shares are the owners of the firm, they have a say in the management of a company.

Preference Shares

Preference shares are similar to the equity shares but they differ on some grounds. They get the preferential right to the shareholders with respect to payment of earnings and the repayment of capital. That means, while distributing the earnings, these shareholders get the return before the equityshareholders. The preference shareholders get steady income as return on these shares are fixed in nature.

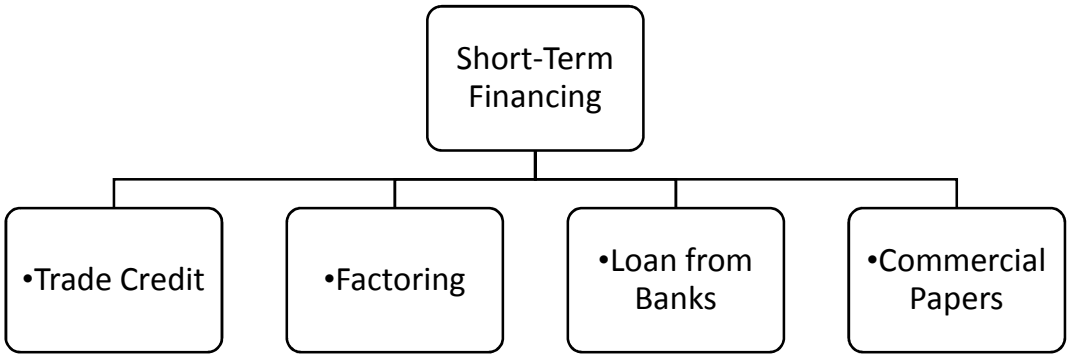
Debentures

Debentures are an important source of long-term debt capital. Debentures bear a fixed rate of interest. The debenture issued by a company is an acknowledgment that the company has borrowed a certain amount of money, which it promises to repay at a future date. It represents the loan capital of a company. These are the fixed charged funds that carry a fixed rate of interest. It is suitable in the situation when the sales and earnings of the company are stable.

Financial institutions

Loans from financial institutions is another source for getting external funds. Governments have established a number of financial institutions to provide industrial finance to companies. They are also called development banks. They are suitable when large funds are required for expansion, reorganization and modernization of the enterprise.

2.3 Short-Term Sources of finance



Trade Credit

Trade credit is source of short-term finance. Trade credit is the credit extended by one trader to another for purchasing goods or services. Trade credit facilitates the purchase of supplies on credit. The terms of trade credit vary from one industry to another and are specified on the invoice. Such credit appears in the records of the buyer of goods as 'sundry creditors' or 'accounts payable'.

Factoring

Factoring is a financial service under which the 'factor' renders various services such as discounting of bills, providing information about credit worthiness of prospective client's etc. Factor is responsible for all credit control and debt collection from the buyer. Itprovides protection against any bad-debt losses to the firm. The factor charges fees for the services rendered.

Loan from Banks

Banks loans another source of short-term finance for a business firm. Banks provide short and medium-term loans to firms of all sizes. The rate of interest charged by a bank depends upon factors including the characteristics of the borrowing firm and the level of interest rates in the economy.

Commercial Papers

Commercial papers is an unsecured promissory note issued by a firm to raise funds for a short period. The maturity period of commercial paper usually ranges from 90 days to 364 days. The amount raised by CP is generally very large. As the debt is totally unsecured, the firms having good credit rating can issue the CP.

2.4 International Financing

Apart from the sources discussed above, there are various other international sources through which firms can get funds. With liberalization and globalization of the economy, Indian companies have started generating funds from international markets. Include foreign currency loans from commercial banks, financial assistance provided by international agencies and development banks.

Global Depository Receipts (GDR's)

The local currency shares of a company are delivered to the depository bank. The depository bank issues depository receiptagainst these shares. Such depository receipts denominated in US dollars are known as Global Depository Receipts (GDR). GDR is an instrument issued abroad by an Indian company to raise funds in some foreign currency and is listed and traded on a foreign stock exchange.

American Depository Receipts (ADRs)

American Depository Receipts are similar to a Global Depository Receipts. ADRs are bought and sold in American markets, like regular stocks. It can be issued only to American citizens and can be listed and traded on a stock exchange of USA.

Indian Depository Receipt (IDRs)

Indian Depository Receipt is a financial instrument denominated in Indian Rupees in the form of a Depository Receipt. It is created by an Indian Depository to enable a foreign company to raise funds from the Indian securities market.

Foreign Currency Convertible Bonds (FCCBs)

Equity linked debt securities that are to be converted into equity or depository receipts after a specific period.The FCCB's are issued in a foreign currency and carry a fixed interest rate which is lower than the rate of any other similar nonconvertible debt instrument. FCCB's are listed and traded in foreign stock exchanges.

2.5 Factors Affecting the Choice of The Source of Funds

The selection of a source of capital is dependent on a number of factors making it a very complex decision for the business. The factors that affect the choice of source of finance are briefly discussed below:

Cost: Both the types of cost viz. cost of procurement of funds and cost of utilizing the funds should be taken into account while deciding about the source of funds.

Strength and Stability: The business should be in a healthy financial position so as to be able to repay the principal amount and interest on the borrowed amount. Thus, Financial Strength and Stability of Operations is an important factor affecting this decision.

Form of Organization: The choice is also based on the type of organization i.e., Sole proprietorship, Partnership firm or a company.A partnership firm, for example, cannot raise money by issue of equity shares as these can be issued only by a joint stock company.

Risk Profile: Business should evaluate each of the source of finance in terms of the risk involved as the risk associated with each type of the source is different.

Control:A particular source of fund may affect the control and power of the owners on the management of a firm. Thus, business firm should choose a source considering the preference of the equity shareholders.

Credit Worthiness: The dependence of business on certain sources may affect its credit worthiness in the market. For example, issue of secured debentures may affect the interest of unsecured creditors of the company and may adversely affect their willingness to extend further loans as credit to the company.

Purpose and Time Period: Business should plan according to the time period for which the funds are required. Similarly, the purpose for which funds are required need to be considered so that the source is matched with the use.

Tax Benefits: Various sources may also be weighed in terms of their tax benefits. For example, while the dividend on preference shares is not tax deductible, interest paid on debentures and loan is tax deductible

Flexibility and Ease: Flexibility and ease of obtaining funds is another factor affecting the choice. For e.g., restrictive provisions, detailed investigation and documentation in case of borrowings from banks and financial institutions for example may be the reason that a business organisation may not prefer it.

2.6 Equity Shares

Equity share capital is the most important source of raising long term capital for a company.The capital of a company is divided into small units or parts called as shares. The person holding the share is known as shareholder.Equity shares represent the ownership of a company and the holders of these shares are called as owners of the company. This capital is the prerequisite for the creation of a company. Equity shares are also known as Ordinary shares.

Features of Equity Shares:

The key features of the equity shares are discussed below:

Nofixed dividend: Equity shareholders are not entitled to get any fixed dividend or fixed interest. Their earning depends on the company's earning as well as the dividend policy of the firm.

Residual owners: They are known to as 'residual owners' as they receive what is left after all other claims on the company's income and assets have been settled.

Bear the risk: Equity shareholders bear the risk in their investment also as the dividend is not fixed on their investment.

Liability is Limited: The liability of the shareholders is limited to the extent of capital contributed by them in the company.

Right to Participate: The equity shareholderare the owners of the company. Through their right to vote, these shareholders have a right to participate in the management of the company.

Merits:

The merits of equity share capital as a source of finance are as follows:

i. Equity share capital is the permanent Source of Finance.
ii. The payment of dividend on the equity share capital is not fixed.
iii. The usage of equity share capital opens the chances of borrowing for the company.
iv. Equity capital helps in retained the earnings for future use.
v. Democratic control over management of the company is maintained due to voting rights of equity shareholders.

Limitations:

Equity share capital comes with some limitations also which are discussed below:

i. While issuing equity capital, floatation cost is incurred by the company which increases the cost of the capital.
ii. Due to the high risk involved in the equity capital, the return demanded by the equity shareholders is also high.
iii. Equity capital is taxable unlike debt capital. Hence, Interest on debentures are tax deductible expenses but dividends are not.
iv. Issuance of new equity shares dilutes the control of existing shareholders.

Terms Related to Equity Shares

Various terms related to the equity shares are defined below:

Authorized Share Capital:

It is the maximum amount of capital which a company can issue. The companies can increase it from time to time.

Issued Share Capital:

It is that part of authorized capital which the company offers to the investors.

Subscribed Share Capital:

It is that part of issued capital which an investor accepts and agrees upon.

Paid-up Capital: It is the part of the subscribed capital, which the investors pay. Normally, all companies accept complete money in one shot and therefore issued, subscribed and paid capital becomes one and the same.

Rights Shares:

Right shares are those shares which a company issues to its existing shareholders. The purpose of issuing these kinds of shares in order to protect the ownership rights of the existing investors.

Bonus Shares:

Sometime company issues share to the existing shareholders in place of cash dividends. These shares are known as bonus shares.

Sweat Equity Share:

Sweat equity shares are issued to theexisting employees or directors of the company for their performance.

Various prices of Equity Shares:

Various prices of equity shares are defined below:

Par or Face value:

Par or face value of a share is the value of shares which is recorded in the books of accounts.

Issue Price:

Issue price is the price which a company offers to the investors.

Share Premium/Discount:

When issuance of shares is at a price higher than face value, this excess amount is known as premium. On the other hand, when the issuance of shares is at a price lower than face value, this deficit amount is known as discount.

Book Value:

This is the balance sheet value of shares.The calculation of the book value is the sum of paid-up capital and reserve and surplus less any loss divided by the total number of equity shares of the company.

Market Value:

In the case of companies listed on stock exchanges, the market value of the share is the price at which they are currently sold in the market. This price is determined by the demand and supply of the shares in the stock market.

2.7 Preference Shares

Preference shares also commonly known as preferred stock. It is a special type of share where dividends are paid to the shareholders before the equity stock dividends.The preference shareholders get preference over equity shareholders in two ways:They receiving a fixed rate of dividend out of the earning of the company and, receiving their capital (after the claims of the company's creditors have been settled) at the time of liquidation. Unlike ordinary shares, the holders of these shares do not enjoy any voting rights.

Features:

The key features of the preference shares are discussed below:

Fixed Dividends: The preference shareholders get fixed dividends as return on their capital due to this reason they resemble debentures.

Preference over Equity: While distributing the earning of the company, the preference shareholders is given preference over ordinary shareholders.

No Voting Rights: The preference shareholders do not enjoy voting rights in the meeting and thus they do not have any control over the firm.

Fixed Maturity: These preference shares are issued for a fixed period, after which the preference share capital is paid back to the holders.

Merits

i. Although the preference shareholders have to be paid fixed dividend regularly, however, there is no legal obligation for the company to pay the dividend.
ii. Just like equity share capital, preference share capital also improves borrowing capacity of a company.
iii. As the preference shareholders do not have any voting rights the issuance of equity capital do not results in the dilution of control of the equity shareholders.

Limitations

i. Preference share capital is costlier source of finance than the debt capital.
ii. Although a company can skip paying the dividend in a year, generally skipping dividend disregard market image of the company.
iii. The preference shareholders have the preference in claims on the company in case of liquidation over equity shareholders.

2.8 Types of Preference Shares

a) Cumulative and Non-Cumulative
b) Participating and Non-Participating
c) Convertible and Non-Convertible

a) Cumulative and Non-Cumulative

Cumulative preference shares are the preference shares which enjoy the right to accumulate unpaid dividends in the future years, in case the same is not paid during a year. On Non-cumulative shares, dividend is not accumulated if it is not paid in a particular year.

b) Participating and Non-Participating

Participating shares are those shares which have a right to participate in the further surplus of a company shares, which after dividend at a certain rate has been paid on equity shares.The non-participating preference are such which do not enjoy such rights of participation in the profits of the company.

c) Convertible and Non-Convertible

Convertible preference shares are those preference shares that can be converted into equity shares within a specified period of time. On the other hand, non-convertible shares are such that cannot be converted into equity shares

2.9 Debentures

Debentures arethe debt instrument issued by companies to raise money for medium to long-term duration. The debenture holders are paid return y company ata specified rate of interest. Debentures of a written contract specifying the repayment of the principal and the interest payment at the fixed rate. Generally, a debenture is not secured by any collateral and is only backed by the reputation of the issuer.An alternative form of debenture in India is a bond. Public issue of debentures requires that the issue be rated by a credit rating agency like CRISIL.

Features of Debentures:

Some of the features of the debentures are discussed below:

Interest Rate: The interest rate on a debenture is fixed. It indicates the percentage of the par value of the debenture that will be paid out annually in the form of interest.

Maturity: Debentures are issued for a specific period of time. The maturity of a debenture indicates the length of time until the company redeems (returns) the par value to debenture holders.

Redemption: Mostly debentures are redeemable. Redemption of debentures can be accomplished either through a sinking fund or buy-back (call) provision.

Security: Debentures are classified as secured debentures and unsecured debentures. Secured debentures are secured by some immovable assets of the company. On the other hand, the unsecured assets are issued based on the general credit of the company.

Indenture: It is also known as debenture trust deed and is a legal agreement between the company issuing debentures and the debenture trustee. It is the responsibility of the trustee to protect the interests of debenture holders by ensuring that the company fulfils the contractual obligations.

Merits

i. Debentures are cheaper source of finance for the company. The investors consider debentures as a relatively less risky investment and therefore, require a lower rate of return. Other major benefit with the debentures is that the interest payments on debentures are tax deductible.
ii. Company has to pay debenture holders a fixed Interest regularly as the payment for return on their investment.
iii. Debenture-holders do not have voting rights. Thus, debenture issue does not cause dilution of ownership of the equity shareholders.
iv. There is disciplinary effect of debenture capital on the management of the company due to theburden of interest despite business profit or loss which makes the entrepreneur cautious.

Limitations

i. There is an obligatory payment for the firm to pay the interest regularly and the principal amount to the debenture holders. If not paid, can force the company into liquidation.
ii. It increases the firm's financial leverage and hence, the financial risk also. It may be disadvantageous to a firm having volatile sales and earnings.
iii. The principal amount has to be paid on maturity. Hence, at some points, they involve substantial cash outflows from the company.
iv. Debenture indenture or the agreement may contain several restrictive conditions which may limit the company's operating flexibility in future.

2.10 Types of Debentures

There are different types of debentures which a firm can issue.

On the basis of security:

a) **Secured Debentures:** secured debentures are the debentureswhich are secured fully or partly by a charge over the assets of the company.

b) **Unsecured Debentures:**Unsecured debentures are those debentures which are not secured fully or partly by a charge over the assets of the company.

On the basis of Convertibility:

a) **Convertible Debentures:**Convertible debenture are the debentures, which are convertible into equity shares or preference shares at the option of the holders, after a certain period.
b) **Non-Convertible Debentures:**The non-convertible debenturesare not convertible into equity shares.

On the Basis of Redeemability

a) **Redeemable Debentures:**Redeemable debentures are the debentures which are repayable by the company after a certain period. These debentures can be redeemed by the company on demand by the holders or by the company.
b) **Irredeemable Debentures**:Irredeemable Debenturesare the debentures, which are not repayable during the life time of the company. The company may repay the money at the time of liquidation.

On the Basis of Registration

a) **Registered Debentures:**In case of registered debentures, the names of the holders of these debentures with details of the number, value and type of debenture held are recorded in the register of debenture holders.
b) **Bearer Debentures:**In case of the bearer debentures, the register of debenture holders does not have the names of the debenture holder recorded. They are transferable by mere delivery.

On the Basis of Priority

a) **Preferred Debentures:**These debenturesare paid first at the time of winding up of the company. These debentures are also called first debentures.
b) **Ordinary Debentures:**Ordinary debenturesare paid only after the preferred debentures during the liquidation or winding up of a company.

2.11 Debt v/s Equity Financing

Companies mainly have two types of financing options, equity financing and debt financing. Mostly companies use a mixture of debt and equity financing. The comparison of these financing options is given below:

Equity Financing:

Equity financing is also called ownership capital. This source of capital does not placeany additional financial burden on the company. Moreover, there is no obligation to repay the money acquired through it.Equity financing involves selling a portion of a company's equity or ownership in return for capital.

Debt Financing:

Debt financing is other option to finance the requirements of the company. Debt financing involves the borrowing of money and paying it back with interest. The debt provider has no voting right or control over the company. It's a cheaper source of finance than the equity capital due to the lesser risk involved as well as due to the interest tax shield.

Example:Equity Financing v/s Debt Financing

Company XYZ is planning to build a new factory. It determines that it needs to raise Rs. 50 Lacs in capital to fund this expansion.To obtain this capital, the company decides to offer a combination of equity financing and debt financing. It can issue 100% equity or 100% debt, or 50% equity and 50% debt or any other combination. If the company decides to raise capital with just equity financing, the owners would have to give up more ownership.On the other hand, if they decided to use only debt financing, their monthly expenses would be higher.Businesses must determine which option or combination is the best for them.

Summary

- Business requires money for carrying out various activities. The finance required by business to establish and run its operations is known as business finance.
- The funds required for an enterprise can be sourced from various sources. The funds available to a business can be classified according to three main criteria, which are:
    - Time period
    - Ownership
    - Source of generation
- The main long-term sources of finance are
    - Retained Earnings
    - Ordinary Shares
    - Preference Shares
    - Debentures
    - Financial institutions
- The main short-term financing source of capital available for a company are:
    - Trade Credit
    - Factoring
    - Loan from Banks
    - Commercial Papers
- Apart from the sources discussed above, there are various other international sources through which firms can get funds. With liberalization and globalization of the economy, Indian companies have started generating funds from international markets.
    - Global Depository Receipts (GDR's)
    - American Depository Receipts (ADRs)
    - Indian Depository Receipt (IDRs)
    - Foreign Currency Convertible Bonds (FCCBs)
- Factors Affecting the Choice of The Source of Funds: The selection of a source of capital is dependent on a number of factors making it a very complex decision for the business. The factors that affect the choice of source of finance are briefly discussed below:
    - Cost of capital
    - Strength and Stability
    - Form of Organization
    - Risk Profile
    - Control
    - Credit Worthiness
    - Purpose and Time Period
    - Tax Benefits
    - Flexibility and Ease

- Equity share capital is the most important source of raising long term capital for a company.The capital of a company is divided into small units or parts called as shares. The person holding the share is known as shareholder. Equity shares represent the ownership of a company and the holders of these shares are called as owners of the company.
- Preference shares also commonly known as preferred stock. The preference shareholders get preference over equity shareholders in two ways: They receiving a fixed rate of dividend out of the earning of the company and, receiving their capital (after the claims of the company's creditors have been settled) at the time of liquidation.
- Types of Preference Shares
    - Cumulative and Non-Cumulative
    - Participating and Non-Participating
    - Convertible and Non-Convertible
- Debentures arethe debt instrument issued by companies to raise money for medium to long-term duration. The debenture holders are paid return by company ata specified rate of interest. Debentures of a written contract specifying the repayment of the principal and the interest payment at the fixed rate.
- There are different types of debentures which a firm can issue.
    - On the basis of security:
        - Secured Debentures
        - Unsecured Debenture
    - On the basis of Convertibility
        - Convertible Debentures
        - Non-Convertible Debentures
    - On the Basis of Redeemability
        - Redeemable Debentures
        - Irredeemable Debenture
    - On the Basis of Registration
        - Registered Debentures
        - Bearer Debentures
    - On the Basis of Priority
        - Preferred Debentures
        - Ordinary Debentures
- A firm can choose between equity or debt source of capital. However, there are certain benefits and limitations with both of these sources. If the company decides to raise capital with just equity financing, the owners would have to give up more ownership. On the other hand, if they decided to use only debt financing, their monthly expenses would be higher.Businesses must determine which option or combination is the best for them.

Keywords

Capital, Source of capital, Equity, Debt, Preference shares, Retained Earning.

Self-Assessment

1. Which among the following is not a long-term source of finance?

A. Retained Earnings
B. Ordinary Shares
C. Preference Shares
D. Trade Credit

2. _____is a form of long-term finance.

A. Retained Earnings
B. Trade Credit
C. Loan from Banks
D. Commercial Papers

3. Internal sources of capital are those that are

A. Generated through outsiders such as suppliers
B. Generated through loans from commercial banks
C. Generated through issue of shares
D. Generated within the business

4. Debenture means

A. Taking Loan
B. Taking Capital
C. Taking Venture capital
D. None of the above

5. Commercial paper is a type of

A. Fixed coupon Bond
B. Unsecured short-term debt
C. Equity share capital
D. Government Bond

6. Equity shareholders are called

A. Owners of the company
B. Partners of the company
C. Executives of the company
D. Guardian of the company

7. The share capital which has preference of dividend and capital is known as

A. Equity share
B. Preference share
C. Debenture
D. Term loan

8. Which is not true for Equity Shares capital?

A. Permanent Source of Finance
B. No obligatory dividend payments
C. Open Chances of Borrowing
D. Fixed interest payments

9. To whom dividend is given at a fixed rate in a company?

A. To equity shareholders
B. To preference shareholders
C. To debenture holders
D. To promoters

10. Issue of shares at a price lower than its face value is called:

A. Issue at a Loss
B. Issue at a Profit
C. Issue at a Discount
D. Issue at a Premium

11. A company cannot issue

A. Debentures with Voting rights
B. Share
C. Debentures
D. None of the above

12. Which of the following is False?

A. Debentures is written instrument acknowledgment a debt under the common seal of the company.
B. Debentures is a part of owned capital.
C. The payment of interest on debentures is a charge on the profit of the company.
D. Redeemable debentures are those debentures, which are payable on the expiry of the specific period.

13. Debenture holders are the:

A. Owners of the company

B. Creditors of the company

C. Money lenders

D. None of the above

14. _____Debentures have to be redeemed within a fixed period of time.

A. Convertible

B. Redeemable

C. Participating

D. None

15. Debentures are usually

A. Secured

B. Unsecured

C. Assets

D. Loss.

Answers for Self Assessment

1.	D	2.	A	3.	D	4.	A	5.	B
6.	A	7.	B	8.	D	9.	C	10.	C
11.	A	12.	B	13.	B	14.	B	15.	A

Review Questions

1. Explain why do a business need funds?

2. Explain the sources of raising long-term and short-term finance.

3. Explain the difference between Equity and preference share capital.

4. Explain what are the preferential rights which are enjoyed by preference shareholders.

5. Explain briefly the different types of debentures.

Further Readings

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Unit 03: Money Market Instruments

CONTENTS

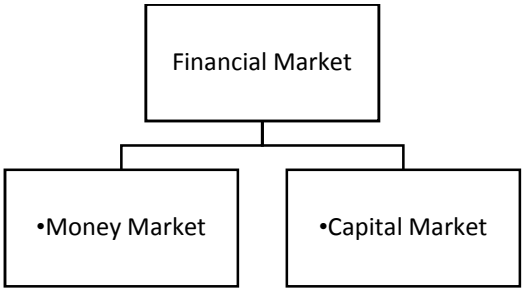
Objectives

After studying this unit, you will be able to:

- define Money Market,
- identify various money market instruments,
- evaluate merits and limitations of these money market instruments.
- understand the concept of Treasury Management in corporations,
- analyse External Commercial Borrowings,
- identify the Financing options available for MSMEs.

Introduction

Whilethe capital market handles the medium term and long-term credit needs of the firms, the Money Market is a market for lending and borrowing of short-term funds. It deals in funds and financial instruments having a maturity period of one day to one year. It covers money and financial assets which are close substitutes for money. The instruments in the money market are of short-term nature and highly liquid. Money market does not deal in cash or money as such but simply provides a market for credit instruments such as bills of exchange, promissory notes, commercial paper, treasury bills, etc.



Money market refers to the whole networks of financial institutions which deals in the short-term funds, that provides an outlet to lenders and a source of supply for such funds to borrowers. Most of the money market transactions take place on telephone, fax or Internet.

3.1 Indian Money Market

The Indian money market consists of Reserve Bank of India, Commercial banks, Co-operative banks, and other specialized financial institutions.The Reserve Bank of India is the leader of the money market in India. Some Non-Banking Financial Companies (NBFCs) and financial institutions like LIC, GIC, UTI, etc. also operate in the Indian money market.

3.2 Participants of Money Market

There are many institutions which participates in the India money market which are as follows:

- Reserve Bank of India
- Commercial banks
- Central and State Government
- Public sector undertaking
- Private sector companies
- Non-banking financial institutions
- Mutual funds
- Insurance companies

3.3 Functions of Money Market

The important functions of the money market are discussed below:

Financing Trade: The main function of the money market is to provides financing to the traders who need short-term funds. It provides a facility to discount bills of exchange, and this provides immediate financing to pay for goods and services.

Central Bank Policies: As we know, the central bank is responsible for guiding the monetary policy of a country. With the help of money market, the central bank can perform its policy-making function efficiently.For example, the short-term interest rates in the money market represent the prevailing conditions in the banking industry and can guide the central bank in developing an appropriate interest rate policy.

Growth of Industries: The money market fulfills short-term needs of the firm and helps to finance its working capital requirements. Although money markets do not provide long-term loans, it influences the capital market and can also help businesses obtain long-term financing. The capital market benchmarks its interest rates based on the prevailing interest rate in the money market.

Commercial Banks Self-Sufficiency: Money market provides commercial banks with a market where they can invest their excess reserves and earn interest which can easily be converted to cash to support customer withdrawals.When faced with liquidity problems, they can borrow from the money market on a short-term basis.

Money Market Instruments

Money Market instruments mainly include Government securities, securities issued by private sector and banking institutions:

3.4 Treasury Bills

In simple terms, a treasury bill is actually a promissory note issued by the Government under discount for a specified period stated therein which does not exceed one year. It is a short-term borrowing instrument issued by the govt. of India. The Government promises to pay the specified amount mentioned therein to the bearer of the instrument on the due date.The Treasury bill rate of discount is fixed by the RBI from time-to-time. It is the lowest one in the entire structure of interest rates in the country because of short-term maturity and degree of liquidity and security.

The difference between the issue price and the redemption value indicates the interest on treasury bills, call as a discount. For example, a 91-day Treasury bill of Rs.100/- (face value) may be issued at say Rs. 98.20, that is, at a discount of say, Rs.1.80 and would be redeemed at the face value of Rs.100. This means that you can get a hundred-rupee treasury bill at a lower price and can get Rupees hundred at maturity. These are the safest investment instrument of its category, as the risk of default is negligible. Further, the date of issue predetermines, as well as the amount also fixed.

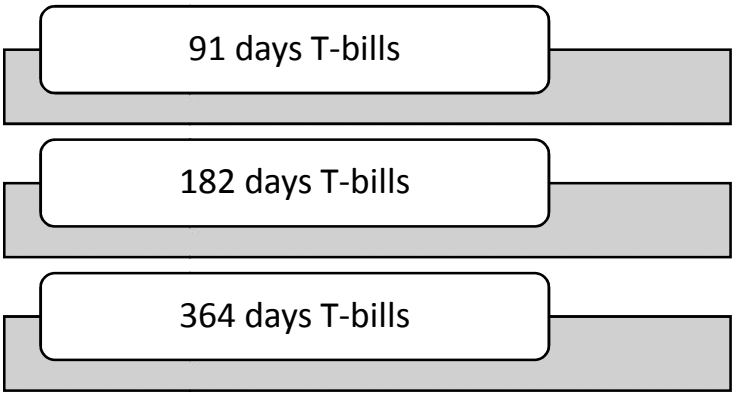
Features of Treasury Bills

The main features of the treasury bills are given as under:

- **Form**: The treasury bills are issued by government in physical form as a promissory note or dematerialized form.
- **Eligibility:** The investment in the treasury bills can be made byIndividuals, firms, companies, trust, banks, insurance companies, provident funds, state government, and financial institutions.
- **Issue price:**The T-bills are issued at a discount but redeemed at par.The difference between the issue price and the redemption value indicates the interest on treasury bills, call as a discount
- **Repayment:**The repayment of the T-bill is made at par on the maturity of the term.
- **Availability:**The T-bills are available in both primary as well as secondary financial markets.
- **Method of the auction:**the method of auction is uniform price auction method for 91 days T-bills, whereas multiple price auction method for 364 days T-bill.

Types of T-bills

The three types of Treasury bills are:



a) **91-Days T-Bills:**The tenor of these bills completes on 91 days. These are an auction on Wednesday, and the payment makes on the following Friday.

b) **182 days T-bills:**These treasury bills get matured after 182 days, from the day of issue, and the auction is on Wednesday of non-reporting week. Moreover, these are repaying on following Friday, when the term expires.

c) **364 days T-bills:**The maturity period of these bills is 364 days. The auction is on every Wednesday of reporting week and repay on the following Friday after the term gets over.

Merits

- **Safety:**Investments in T-bills are very safe as the payment of interest and principal are assured by the Government. They carry zero default risk since they are issuing by the RBI for and on behalf of the Central Government.
- **Liquidity:** T-bills are also highly liquid because they can convert into cash at any time at the option of the investors.
- **Ideal Short-Term Investment:**Idle cash can profitably invest for a very short period in T-bills. T-bills are available on top throughout the week at specified rates. Financial institutions can employ their surplus funds on any day.
- **Ideal Fund Management:**T-billsare available on top as well through periodical auctions. They are also available in the secondary market. T-bills help financial managers to manages the funds effectively and profitably.
- **Statutory Liquidity Requirement:**As per the RBI directives, commercial banks have to maintain SLR (Statutory Liquidity Ratio) and for measuring this ratio of investments in T-bills takes into account. T-bills are eligible securities for SLR purposes. Moreover, to maintain CRR (Cash Reserve Ratio). TBs are very helpful.
- **Source of Short-Term Funds:**The Government can raise short-term funds for meeting its temporary budget deficits through the issue of T-bills. It is a source of cheap finance to the Government since the discount rates are very low.
- **Non-Inflationary Monetary Tool:**T-bills enable the Central Government to support its monetary policy in the economy. For instance, excess liquidity, if any, in the economy can absorb through the issue of T-bills.
- **Hedging Facility:**T-bills can use as a hedge against heavy interest rate fluctuations in the call loan market. When the call rates are very high, money can raise quickly against T-billsand invest in the call money market and vice versa. T-bills can use in ready forward transitions.

Limitations

- **Poor Yield:**The yield form T-billsis the lowest. Long-term government securities fetch more interest and hence subscriptions for T-billsare on the decline in recent times.
- **Absence of competitive bids:**Though T-bills sell through auction to ensure market rates for the investors, in actual practice, competitive bids are conspicuously absent. The RBI compels to accept these non-competitive bids. Hence adequate return is not available.

3.5 Commercial Paper

A commercial paper is a bill of exchange used to finance the working capital requirements of business firms. It is a short-term, negotiable, self-liquidating instrument which is used to finance the credit sales of firms. It is issued by one firm to other business firms, insurance companies, pension funds and banks. The amount raised by Commercial Paper is generally very large. It has emerged as a source of short-term finance in our country in the early nineties. As the debt is totally unsecured, the firms having good credit rating can issue the Commercial Paper. This unsecured promissory note comes along with a set maturity and is issued by All India Financial Institutions (FIs) and Primary Dealers (PDs). commercial paper has a minimum maturity of seven days and a maximum of up to one year from the date of issue.

Features of Commercial Paper

- It is a short-term money market tool, including a promissory note and a set maturity.
- It acts as an evidence certificate of unsecured debt.
- It is subscribed at a discount rate and can be issued in an interest-bearing application.
- The issuer guarantees the buyer to pay a fixed amount in future in terms of liquid cash and no assets.
- A company can directly issue the paper to investors, or it can be done through banks/dealer banks.

Merits

- A commercial paper is sold on an unsecured basis and does not contain any restrictive conditions.
- As the commercial papers are freely transferable, they are highly liquid.
- Generally, the cost of commercial paper to the issuing firm is lower than the cost of commercial bank loans. Hence, It provides more funds compared to other sources.
- A commercial paper provides a continuous source of funds. This is because their maturity can be tailored to suit the requirements of the issuing firm. Further, maturing commercial paper can be repaid by selling new commercial paper.
- Companies can park their excess funds in commercial paper thereby earning some good return on the same.

Limitations

- Only financially sound and highly rated firms can raise money through commercial papers. New and moderately rated firms are not in a position to raise funds by this method.
- The size of money that can be raised through commercial paper is limited to the excess liquidity available with the suppliers of funds at a particular time.
- Commercial paper is an impersonal method of financing. As such if a firm is not in a position to redeem its paper due to financial difficulties, extending the maturity of a Commercial paper is not possible.

Types of Commercial Papers

These can be broadly categorized into two parts depending upon the security it offers:

- **Secured Commercial Papers:**These are often known as Asset-backed commercial papers (ABCP) wherein it is backed by physical assets like trade receivables, etc.
- **Unsecured Commercial Papers:**In this unsecured kind, the paper isn't backed by pledging any asset and is allotted without any security.

Uniform Commercial Code (UCC) has divided the commercial paper in India into four categories:

i. **Draft:** It is written by one individual to another (usually banks) asking to pay a definite sum to the third party. A drawer, drawee, and acceptor are involved in the process. It can be of two kinds - sight draft and time draft.
ii. **Note:** Also known as a promissory note, these are written by specifying the amount to be paid after a certain amount of time. Here two parties are involved - promisor (maker) and promisee (payee).
iii. **Cheque:** Like drafts, these are written in paper forms where the drawee is a bank.
iv. **Certificates of Deposit**: Often known as CD, this is an acknowledgement form issued by the bank confirming receipt of the deposit. Some of the difference between commercial paper and certificate of deposit is in terms of issuer, denomination, etc.

3.6 Certificate of Deposit

A Certificate of Deposit (CD) is a money market instrument which is issued in a dematerialized form against funds deposited in a bank for a specific period.Regulated by the Reserve Bank of India, the Certificate of Deposit is a promissory note, the interest on which is paid by the bank.The Certificate of Deposit is issued in dematerialized form i.e., issued electronically and may automatically be renewed if the depositor fails to decide what to do with the matured amount during the grace period of 7 days. It also restricts the holder from withdrawing the amount on demand or paying a penalty, otherwise. When the Certificate of Deposit matures, the principal amount along with the interest earned is available for withdrawal

Features of Certificate of Deposit:

The important features of Certificates of Deposits are:

- **Eligibility:**A selective list of commercial banks and financial institutions have been authorized by the Reserve bank of India (RBI) to issue Certificates of Deposits. Rural regional banks and co-operative banks cannot issue CDs.
- **Maturity Period:**The tenure for Certificates of Deposit issued by commercial banks varies between 7 days and 1 year. The maturity term for CDs issued by financial institutions varies from 1 year to 3 years.
- **Minimum investment amount:** A CD can be issued to a single issuer for a minimum of Rs.1 Lakh and its multiples
- **Transferability:**Dematerialised or electronically generated certificates can be transferred by delivery or endorsement, while those in demat forms can be transferred as per the guidelines set for demat securities.
- **Non-availability of loan:** Since these instruments do not have any lock-in period, banks do not grant loans against them. In fact, banks cannot even buy back certificates of deposit before maturity
- **Discount offered:** Certificate of deposit is issued at a discounted rate on the face value. Moreover, banks and financial institutions can also issue CDs on a floating rate basis

Merits:

The advantages of certificate of deposits are as follows:

- As these are government-backed securities, the investor's principal amount is kept safe. Hence, it can be said that CDs are a less risky investment option than stocks or bonds.
- Certificate of Deposit is known to offer a higher rate of interest and better returns in comparison to the traditional savings accounts.

- Investments in CD grant a grace period of 7 days to the investor to decide whether or not he/she wants to reinvest the matured amount.

Limitations:

The limitations of certificate of deposits are:

- Certificates of deposit are characterized by a lack of liquidity since they are locked in for a certain amount of time.
- There are many other investments and asset classes that offer a higher yield.

3.7 Treasury Management

Treasury Management is all about planning, organizing and controlling holding, funds and working capital of the enterprise. The aim is to make the best possible use of the funds, maintain firm's liquidity, reduce the overall cost of funds, and mitigate operational and financial risk.Treasury Management (or treasury operations) includes management of an enterprise's holdings, with the ultimate goal of maximizing the firm's liquidity and mitigating its operational, financial and reputational risk.

Functions of treasury management

The functions of treasury management are discussed below:

- **Cash Management:** Treasury Management includes cash management, and so it ensures that there are an effective collection and payment system in the organization.
- **Liquidity Management:** An optimum level of liquidity should be maintained in the business, for the better and smooth functioning of the business,
- **Availability of funds in adequate quantity and at the right time:** The treasury manager has to ensure that the funds are available with the organization in sufficient quantity
- **Deployment of funds in adequate quantity and at the right time:** The deployment of funds has to be done in right quantity such as the acquisition of fixed assets, purchase of raw material, payment of expenses like rent, salary, bills, interest and so forth.
- **Optimum utilization of resources:** Treasury Management also aims at ensuring the effective utilization of the firm's resources, to reduce the operating costs and also prevent liquidity shortage in the coming time.
- **Risk Management:** One of the primary objectives of the treasury management is to manage financial risk to allow the enterprise to meet its financial obligations, as they fall due and also ensure predictable performance of the business

Objectives of Treasury management

- **Availability of funds in right quantity:**Treasury manager has also to ensure that the funds are just adequate for the requirements, neither more nor less.Adequacy of funds has to be determined carefully.
- **Availability of funds at right time:**The required funds for day-to-day working of the firm should be available in time.Timely availability of funds smoothens the operations of the firm.
- **Deployment of funds in right quantity:**Treasury manager must ensure that the right quantity of funds is deployed. It meansallocation of funds for various expense heads, parking of short-term funds and investing surplus funds.

- **Deployment of funds at right time:**Amount of time varies from firm to firm. The treasury manager has to honour the outstanding commitments on working capital account within this short span of time.
- **Profiting from availability and deployment:**Once the funds have been sourced in correct measure, the deployment adds further to the profitability of the firm. Correct deployment ensures that there is no unnecessary accumulation of funds in the firm at any point in time.

Role of Treasury Management and Benefits

Although the role of the Treasury function is constantly evolving, it can be broken down into six broad but interlinked categories:

1. Planning and Operations

Key activities	**Key benefits**
Cash flow forecasting	Subsidiary and Group financial management
Risk forecasting	Risks are identified early and mitigated
Investment appraisal	Resources are directed to the best opportunities
Tax planning	Clear and quantifiable approach to the future
Pensions planning	Tested contingencies in the event of exceptions
Co-operate with Board on strategic development	Operational risk management
Choose and operate Treasury systems	Transaction costs minimized

Cash and Liquidity Management:

Key activities	**Key benefits**
Manage internal capital market by investing and lending to subsidiaries	Minimize external borrowing requirement
Work with the business to optimize commercial cash flows	Optimize interest expense
Work with the business to optimize working capital	Optimize tax expense
Minimize idle cash through netting and cash concentration	Avoid future liquidity problems
Confirmation and reconciliation of receipts	Create 'cash is king' culture
Timely disbursement of payments	Smooth operations and supplier relationships

2. Funding and Capital Markets:

Key activities	**Key benefits**
Optimization of capital structure	Optimization of Weighted Average Cost of Capital (WACC)
Manage short, medium and long-term investments	Maximize yield on assets
Ensure adequate liquidity to support the business	Minimize interest expense
Ensure adequate liquidity to meet	Access to capital at the right time, price and

obligations as they fall due	conditions
Arrange liquidity for strategic events such as M&A, Divestiture and JV's	Removal of concentration risks
Diversify capital sources, partners and maturities	Ensure good credit ratings
Portfolio management of debt, derivatives and investments	Ensure limits accurately reflected the borrowing requirement (thus minimizing commitment fees)

3. Financial Risk Management:

Key activities	**Key benefits**
Seek natural hedges and offsets within the business	Visibility of financial risks on an enterprise basis
Interest Rate risk management	Minimize external hedging requirement
FX risk management	Minimize impact of external risk on P&L and Balance Sheet
Commodity risk management	Reduce volatility
Counterparty risk management	Access to capital at the right time, price and conditions
Credit risk management	Improve asset quality
Liquidity risk management	Create 'risk aware' culture
Pension risk management	Certainty facilitates better decisions

4. Corporate Governance:

Key activities	**Key benefits**
Ensure accurate valuation of financial instruments	Ensure the financial profile represents and true and fair view
Ensure accurate accounting of Treasury transactions	Adequate internal controls
Implement and manage treasury policies and procedures	Demonstrate preparedness
Provision of covenant tests and information to investors	Reputational risk management
Provision of compliance information to regulators	
Ensure accurate transaction history and audit trail	
Work with internal and external auditors	

5. Stakeholder Relations:

Key activities	**Key benefits**
Provide performance and risk analytics to Board	Access to capital at the right time, price and conditions
Manage relationship with banks and other investors	Relationship benefit from proactive communication

Manage relationship with credit rating agencies	Reputational risk management
Co-operate with Board and Investor Relations on shareholder matters	Valuable knowledge and contacts from deep involvement with financial markets
Ensure the Treasury function is understood and valued within the business	Tangible financial results in the form of cost savings, efficiency gains, yield enhancement and protecting profitability

Relationship Between Treasury Management and Financial Management

The treasury function is supplemental and complemental to the finance function. As a supplemental function, it reinforces the activities of the finance function by taking care of the finer points while the latter delineates the broad contours. As a complementary function, the treasury manager takes care of even those areas which the finance function does not touch.

3.8 External Commercial Borrowings

Foreign capital is money obtained from foreign countries to make investment domestically. There are different types of foreign capital. The major category: Foreign Investment including Foreign Direct Investment and Foreign Portfolio Investment. Other types: trade credit, NRI Deposits and the External Commercial Borrowings (ECBs).

External Commercial Borrowings is an instrument that helps Indian firms and organizations raise funds from outside India in foreign currencies. Indian corporates are permitted by the Indian government to raise funds using External Commercial Borrowing to help the companies expand their current capacity. External Commercial Borrowing can also be used to bring in fresh investments.

- Commercial bank loans
- Buyers' Credit
- Suppliers' Credit
- Floating Rate Notes
- Fixed Rate Bonds
- Credit from official export credit agencies
- Commercial borrowings from Multilateral Financial Institutions

Features of External Commercial Borrowings

The important features of External Commercial Borrowings are discussed below:

- **Availing of External Commercial Borrowing:**The ECBs can be availed through two modes.The Automatic route and the Approval mode. There are a variety of eligibility regulations created by the government for availing of finance under the automatic route. These regulations are in relation to amounts, industry, the end-use of the funds, etc. Companies that desire to raise finance via ECB must necessarily meet these eligibility criteria; thereafter, funds can be raised without the need for approval.The approval route, on the other hand, mandates that companies which fall under certain pre-specified sectors must obtain the RBI's or the government's explicit permission, prior to raising funds through External Commercial Borrowing. The RBI has issued circulars and formal guidelines, specifying the borrowing structure.

- **Eligible Borrowers and Recognized Lenders:**The approval route, on the other hand, mandates that companies which fall under certain pre-specified sectors must obtain the RBI's or the government's explicit permission, prior to raising funds through External Commercial Borrowing. The RBI has issued circulars and formal guidelines, specifying the borrowing structure.
- **End-use Restrictions:**The approval route, on the other hand, mandates that companies which fall under certain pre-specified sectors must obtain the RBI's or the government's explicit permission, prior to raising funds through External Commercial Borrowing. The RBI has issued circulars and formal guidelines, specifying the borrowing structure.

Advantages of ECBs

The important benefits of External Commercial Borrowings are:

- External Commercial Borrowingsprovide opportunity to borrow large volume of funds.
- The funds are available for relatively long term.
- Interest rates are also lower compared to domestic funds.
- External Commercial Borrowingsare in the form of foreign currencies. Hence, they enable the corporate to have foreign currency to meet the import of machineries etc.
- Corporate can raise External Commercial Borrowings from internationally recognized sources such as banks, export credit agencies, international capital markets etc.

Disadvantages of ECBs

Some of the limitations of the External Commercial Borrowings are:

- As funds are available at lower rates, companies could evelop a lax attitude.
- May lead to higher debt on the balance sheet.
- The company opens itself up to the risks associated with exchange rates.
- Several guidelines and restrictions that cannot be evaded.

3.9 Micro Small and Medium Enterprise

MSME sector is the nursery of entrepreneurship contributing substantially to the GDP, manufacturing output, exports as also is the highest generator of employment.MSMEs account for about 45% of India's manufacturing output.MSMEs accounts for nearly 40% of India's total exports.The sector employs more than 73 million people in more than 31 million units spread across the country.MSMEs manufacture more than 6,000 products.MSMEs are an important sector for the Indian economy and have contributed immensely to the country's socio-economic development. It not only generates employment opportunities but also works hand-in-hand towards the development of the nation's backward and rural areas. According to the annual report by the Government (2018-19), there are around 6,08,41,245 MSMEs in India.

3.10 Financing for MSMEs:

Micro Small and Medium Enterprise sector can avail financing from various sources. The various financing options available for Micro Small and MediumEnterprises are discussed below:

Scheduled Commercial Banks

Banks have been the largest source of finance for SMEs. Amongst commercial Banks, Public Banks have a better access to MSMEs and take the lead in lending to the sector.Public sector banks also have considerable empirical knowledge of the MSME sector.However, Banks have also aimed at limiting their exposure due to high-risk perception and high transaction costs. Majority of the MSMEs do not have sufficient assets to offer as collateral for lending. As majority of the MSMEs do not follow proper accounting processes, the task of generating clean financial statements becomes quite difficult.SMEs are part of the priority sector lending for banks.

Non-Banking Finance Companies

Non-Banking Finance Companies have also been a significant source of MSME debt. Large share of the funding is for purchase of asset / plant & machinery. Major share of the loan portfolio comprises of business related to transport, engineering, vendor supply chains and retail trade.

Small Banks

Small banks such as RRBs, UCBs and government financial institutions such as SFCs, SIDCs have been able to leverage their local presence to get better knowledge and understanding of MSME financial needs. Small Banks have also exhibited the potential to serve a much larger MSME customer base than they are currently serving. RBI allowed collateral-free lending up to a limit of INR 5 lakh for all enterprises covered under the definition of the MSMED Act 2006. Further, in an effort to minimize the impact of default on loans, the GOI and SIDBI launched the Credit Guarantee Trust for MSMEs. The CGTMSE aims to comfort the financier that in the event of MSME default (which availed collateral-free credit facilities), the Guarantee Trust will make good the loss by up to 75 to 85% of the credit availed.

3.11 Equity funding

Venture capital provides financial assistance primarily by way of equity or equity-linked capital investment. MSMEs which are involved in commercializing innovations and high-end technologies need access to the VC fund. These firms need finance during the initial stages of conceptualizing their product offerings and during the development and marketing phase. Besides infusing capital, VCs also bring expertise, superior advice and other skills that help the MSME to develop marketable products. VC provides assistance to the entrepreneur in recruiting key personnel, providing contacts in international markets, introductions to strategic partners, etc. They also take active part in the management of the company and provide expertise in the board decisions of the firm. VC funding improves the credibility of the MSME and increases the chances of receiving Bank finance.

Problems faced by MSMEs

The Micro Small and Medium Enterprise sector faces a lot of problem in India while availing the financing. The list of the problems that are faced by existing/new companies in SME sector are as under:

- Absence of collateral in loan
- High rates of lending
- Lack of knowledge about available schemes
- Lengthy processing time for the loan application
- Lack of available infrastructure
- Lack of availability of skilled labor
- Tax compliance issues

Summary

Money Market is a market for lending and borrowing of short-term funds. It deals in funds and financial instruments having a maturity period of one day to one year. It covers money and financial assets which are close substitutes for money.

- The Indian money market consists of Reserve Bank of India, Commercial banks, Co-operative banks, and other specialized financial institutions.The Reserve Bank of India is the leader of the money market in India. Some Non-Banking Financial Companies (NBFCs) and financial institutions like LIC, GIC, UTI, etc. also operate in the Indian money market.
- There are many institutions which participates in the India money market which are as follows:
    - Reserve Bank of India
    - Commercial banks
    - Central and State Government
    - Public sector undertaking
    - Private sector companies
    - Non-banking financial institutions
    - Mutual funds
    - Insurance companies
- The important functions of the money market are Financing Trade, helping Central Bank in framing Policies, influencing the capital market andproviding commercial banks with a market where they can invest their excess reserves and earn interest which can easily be converted to cash.
- The Money Market Instruments are:
    - Treasury Bills: treasury bill is actually apromissory note issued by the Government under discount for a specified period stated therein which does not exceed one year. It is a short-term borrowing instrument issued by the govt. of India.
    - Commercial Paper: A commercial paper is a bill of exchange used to finance the working capital requirements of business firms. It is a short-term, negotiable, self-liquidating instrument which is used to finance the credit sales of firms. It is issued by one firm to other business firms, insurance companies, pension funds and banks.
    - Certificate of Deposit: A Certificate of Deposit (CD) is a money market instrument which is issued in a dematerialized form against funds deposited in a bank for a specific period.Regulated by the Reserve Bank of India, the Certificate of Deposit is a promissory note, the interest on which is paid by the bank.
- Treasury Management is about planning, organizing and controlling holding, funds and working capital of the enterprise. The aim is to make the best possible use of the funds, maintain firm's liquidity, reduce the overall cost of funds, and mitigate operational and financial risk.
- External Commercial Borrowings is an instrument that helps Indian firms and organizations raise funds from outside India in foreign currencies. Indian corporates are permitted by the Indian government to raise funds using External Commercial Borrowing to help the companies expand their current capacity.
- The various financing options available for Micro Small and MediumEnterprises are: Scheduled Commercial Banks, Non-Banking Finance Companies, Small Banks and Equity funding.

- The Micro Small and Medium Enterprise sector faces a lot of problem in India while availing the financing which are absence of collateral in loan, high rates of lending, lack of knowledge about available schemes, lengthy processing time for the loan application, lack of available infrastructure etc.

Keywords

Money market, Treasury bills, Certificate of deposit, Commercial paper, Short-term financing, External Commercial Borrowing, Treasury Management, MSME.

Self Assessment

1. How many types of treasury bills are issued in India?
A. One
B. Two
C. Three
D. Four

2. Which among the following is not a type of treasury bill issued in India?
A. 45 day
B. 91 day
C. 182 day
D. 364 day

3. In India, Treasury bill is quoted at discounted price to par value of _____?
A. Rs 50
B. Rs 100
C. Rs 150
D. Rs 200

4. The tenor of certificate of deposit issued by commercial banks ranges from _____ to _____
A. 7 days, 1 year
B. 14 days, 1 year
C. 1 year, 3 years
D. 14 days, 3 years

5. The financial instrument which is used to raise funds for working capital is considered as
A. Commercial Paper
B. Commercial notes
C. Notes payable
D. Notes receivable

6. What is the Purpose of a Money Market?
A. Maintains Liquidity in the Market
B. Provides Funds at a Short Notice
C. Utilization of Surplus Funds
D. All of the above

7. Which of the following statement is not true

A. No restrictive conditions
B. The size of money that can be raised through Commercial paper is unlimited.
C. Cost of Commercial Paper to the issuing firm is lower
D. Only highly rated firms can raise money through commercial papers.

8. Who among the following cannot issue commercial papers?
A. Scheduled Commercial Banks
B. Corporates
C. Primary dealers (PDs)
D. All-India Financial Institutions (FIs)

9. The financial instrument such as commercial paper can be sold
A. issued by commercial banks
B. directly
C. with brokers or dealers
D. functional buyers

10. The certificate of deposits which are usually negotiable are issued by
A. banks
B. financial market
C. stock exchange
D. business corporations

11. Functions of Treasury management are:
A. Cash Management
B. Liquidity management
C. Optimum utilization of resources
D. All of the above

12. Which is not true for ECBs?
A. It provides opportunity to borrow large volume of funds
B. The funds are available for relatively short term
C. Interest rate are lower compared to domestic funds
D. They enable the corporate to have foreign currency to meet the import of machineries etc.

13. External Commercial Borrowings (ECBs) includes:
A. Commercial bank loans
B. Buyers' Credit
C. Suppliers' Credit
D. All of the above

14. What is/are the routes available for the Indian companies to get ECBs?
A. The Automatic route
B. The Approval route
C. Both a and b
D. None of the Above

15. What is/are the problem/s faced by MSMEs?
A. Difficulty in collateral/guarantee
B. High rates of lending
C. Lack of knowledge about available schemes
D. All of the above

Answers forSelf Assessment

1.	C	2.	A	3.	B	4.	A	5.	A
6.	D	7.	B	8.	A	9.	B	10.	A

11. D 12. B 13. D 14. C 15. D

Review Questions

1. How does Money market differ from Capital market? Explain.
2. Explain in brief the difference between Treasury bills and Commercial papers.
3. List the functions of treasury management
4. What are External commercial borrowings? explain the features of ECBs.
5. Discuss the financing options available for MSME sector.

Further Readings

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Unit 04: Time Value of Money Concept

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of Time Value of Money
- explain the concept of Compounding
- explain the concept of Discounting
- explain Future value and Present value concepts
- compute future value of a single amount and an annuity
- compute present value of a single amount and an annuity
- compute the future value of annuity in case of Annuity due
- compute the Present value of annuity in case of Annuity due
- compute Effective Interest Rate

Introduction

As we have already discussed in chapter 1 that the objective of wealth maximization of financial management is superior to the objective of profit maximization, because the objective of wealth maximization incorporates the timing of benefits received while the objective of profit maximization ignores it. In order to make a comparison between cash flows accruing in different time periods in future, it is necessary to discount them to the present value or if the value of todays cash flow has to be calculated for some future point of time, it is necessary to compound it. This chapter is devoted to the discussion of compounding and discounting.

4.1 Time Value of Money

Conceptually, 'time value of money' means that the value of a unit of money is different in different time periods. The value of a sum of money received today is more than its value received after some time. Conversely, the sum of money received in future is less valuable than it is today. In other words, the present worth of a rupee received after some time will be less than a rupee received today. Since a rupee received today has more value, rational investors would prefer current receipt to future receipts. The time value of money can also be referred to as time preference for money.

4.2 Time Lines

Time lines are used to identify when cash inflows and outflows will occur so that an accurate financial assessment can be made.

4.3 Concept of Interest

The time preference for money is generally expressed by an interest rate. If the time preference rate is 5 per cent, it means that an investor can forego the opportunity of receiving Rs. 100 if he/she is offered Rs. 105 after one year. How does knowledge of the required rate of return (or simply called the interest rate) help a firm in making investment decisions? It permits the firm to convert cash flows occurring at different times to amounts of equivalent value in the present, that is, a common point of reference. Interest can be thought of as rent for the use of money or fee for the use of the money. If the interest rate is 10 percent, then the rental rate for using Rs 100 for the year is Rs 10.

4.4 Compounding

It is the impact of the time value of money (e.g., interest rate) over multiple periods into the future, where the interest is added to the original amount. For example, if you have Rs 1,000 and invest it at 10 percent per year for 20 years, its value after 20 years is Rs 6,727. Assuming that you leave the interest amount earned each year with the investment instead of withdrawing it. If you leave the interest with the investment, the size of the investment will grow exponentially. But if you leave it with the investment, the size of the investment will grow exponentially. This is because you are earning interest on your interest. This process is called compounding.

Table 1: Compounding computation of Rs 100 over 10 years at an annual interest rate of 15 percent.

Year	Amount	Computation
0	100	
1	115.0	100 × 1.15 = 115
2	132.3	115 × 1.15 = 132.2
3	152.1	132.2 × 1.15 = 152.0
4	174.9	152.0 × 1.15 = 174.9
5	201.1	174.9 × 1.15 = 201.1
6	231.3	201.1 × 1.15 = 231.3
7	266.0	231.3 × 1.15 = 266.0
8	305.9	266.0 × 1.15 = 305.9
9	351.8	305.9 × 1.15 = 351.7
10	404.6	7. × 1.15 = 404.5

The above Table is shown graphically in Figure 1. The increase in cash amount over the 10-year period increases exponentially rather than in a straight line. The slope of the line increases over time it meaning that each year the size of the increase is greater than the previous year. If the time

period is extended to 20 or 30 years, the slope of the line would continue to increase. Over the long-term, compounding is a very powerful financial concept.

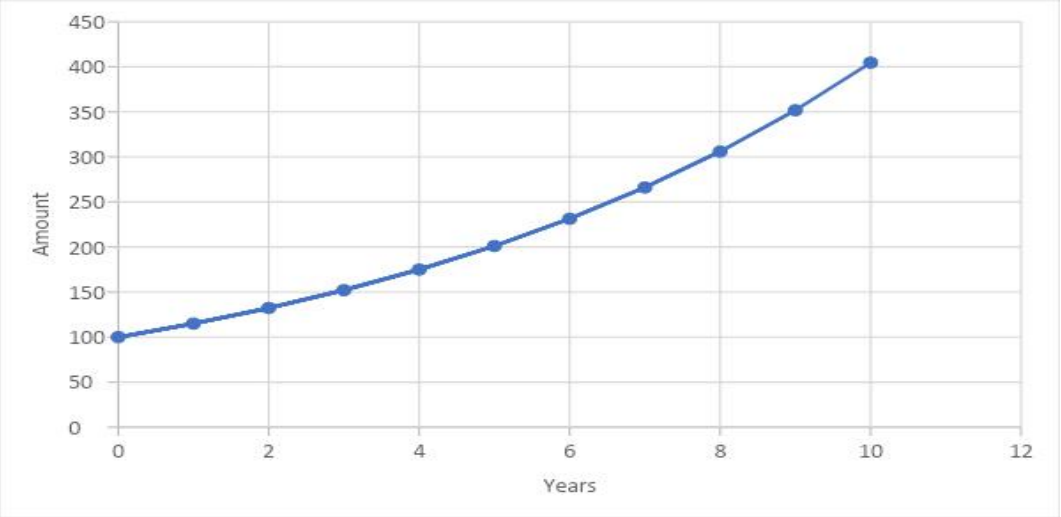

Fig 1: Impact of Compound Interest

4.5 Impact of Interest Rate

The effect of compounding is also greatly impacted by the size of the interest rate. Essentially, the larger the interest rate the greater the impact of compounding. Figure 2 shows the impact of a 20 percent interest rate (5 percent higher rate) and 10 percent (5 percent lower rate).

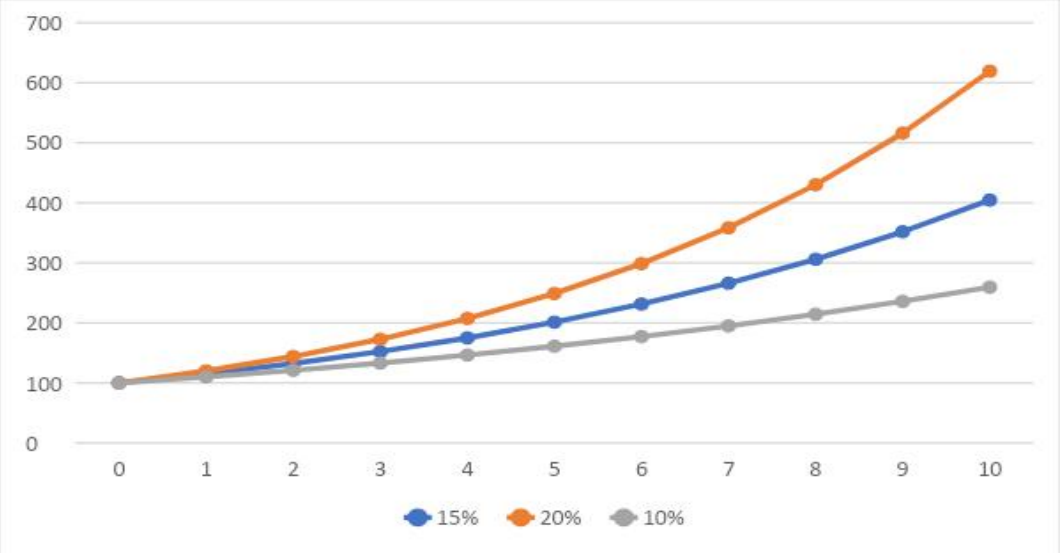

Fig. 2: Impact of Compound Interest

Figure 2 shows the impact of a 20 percent interest rate (5 percent higher rate) and 10 percent (5 percent lower rate) over the 10-year period. By examining you can see that increasing the size of the interest rate greatly increases the power of compounding.

Table 2: Compounding computation of Rs 100 over 10 years at an annual interest rate of 15, 20 and 10 percent.

Year	15%	20%	10%

0	100	100.0	100.0
1	115.0	120.0	110.0
2	132.3	144.0	121.0
3	152.1	172.8	133.1
4	174.9	207.4	146.4
5	201.1	248.8	161.1
6	231.3	298.6	177.2
7	266.0	358.3	194.9
8	305.9	430.0	214.4
9	351.8	516.0	235.8
10	404.6	619.2	259.4

Over the 10-year period, the 20 percent rate yields Rs 619.2, while the 10 percent rate results in Rs 259.4. Increasing the size of the interest rate increases the power of compounding.

4.6 Impact of Time Period

Another dimension of the impact of compounding is the number of compounding periods within a year. As shown in Table 3, semiannual compounding will result in 20 compounding periods over a 10-year period, while annual compounding results in only 10 compounding period. A shorter compounding period means a larger number of compounding periods over a given time period and a greater compounding impact. If the compounding period is shortened to monthly or daily periods, the compounding impact will be even greater.

Table 1: Compounding computation of Rs 100 over 10 years at an annual interest rate of 15 percent.

Year	Amount	Computation
0	100	
1	115.0	100 × 1.15 = 115
2	132.3	115 × 1.15 = 132.2
3	152.1	132.2 × 1.15 = 152.0
4	174.9	152.0 × 1.15 = 174.9
5	201.1	174.9 × 1.15 = 201.1
6	231.3	201.1 × 1.15 = 231.3
7	266.0	231.3 × 1.15 = 266.0
8	305.9	266.0 × 1.15 = 305.9
9	351.8	305.9 × 1.15 = 351.7
10	404.6	351.7 × 1.15 = 404.5

Table 3: A comparison of Rs 100 compounding semiannually (10 years, 7.5 percent interest)

Year	Amount
0	100
0.5	107.5
1	115.6

1.5	124.2
2	133.5
2.5	143.6
3	154.3
3.5	165.9
4	178.3
4.5	191.7
5	206.1
5.5	221.6
6	238.2
6.5	256.0
7	275.2
7.5	295.9
8	318.1
8.5	341.9
9	367.6
9.5	395.1
10	424.8

4.7 Discounting

Although the concept of compounding is straight forward and relatively easy to understand, the concept of discounting is more difficult. Discounting is the opposite of compounding. If we start with a future value of Rs 404.6 at the end of 10 years in the future, and discount it back to today at an interest rate of 15 percent, the present value is Rs 100.

As shown in Table 1, the compounding factor of annually compounding at an interest rate of 15 percent is 1.15 or 1.15/1.00. If discounting is the opposite of compounding, then the discounting factor is 1.00 / 1.15 = 0.869565 or 0.87.

Table 4: Discounting computation of Rs 404.6 over 10 years at an annual discount rate of 15 percent

Year	Amount	Computation
10	404.6	
9	351.8	404.6 × 0.8695 = 351.8
8	305.9	351.8 × 1.8695 = 305.9
7	266	305.9 × 2.8695 = 266.0
6	231.3	266.0 × 3.8695 = 231.3
5	201.1	231.3 × 4.8695 = 201.1
4	174.9	201.1 × 5.8695 = 174.9
3	152.1	174.9 × 6.8695 = 152.1
2	132.3	152.1 × 7.8695 = 132.3
1	115	132.3 × 8.8695 = 115.0

0	100	115.0 × 9.8695 = 100.0

As shown in Table 4, the discounted amount becomes smaller as the time period moves closer to the current time period. When we compounded Rs 100 over 10 years at a 15 percent interest rate, the value at the end of the period is Rs. 404.6. When we discount Rs. 404.6 over 10 years at a 15 percent interest rate, the present value or value today is Rs 100. The discounting impact is shown in Figure 3. The curve is the opposite of the compounding curve in Figure 1.

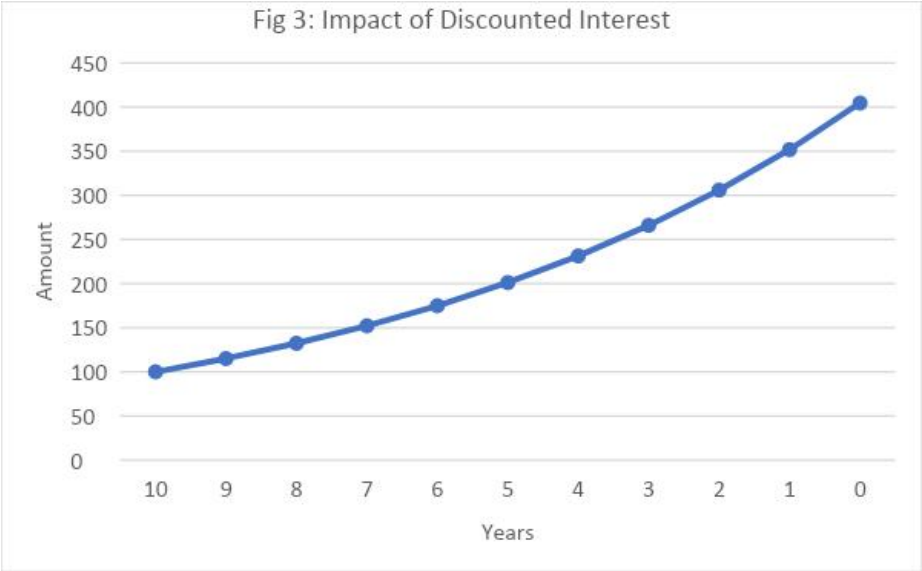

Fig 3: Impact of Discounted Interest

The impact of discounting using interest rates of 15 percent, 20 percent, and 10 percent is shown in Figure 4. The 15 percent interest rate results in a larger discounting impact than the 10 percent rate, just as the 15 percent interest rate results in a larger compounding impact as shown in Figure 2.

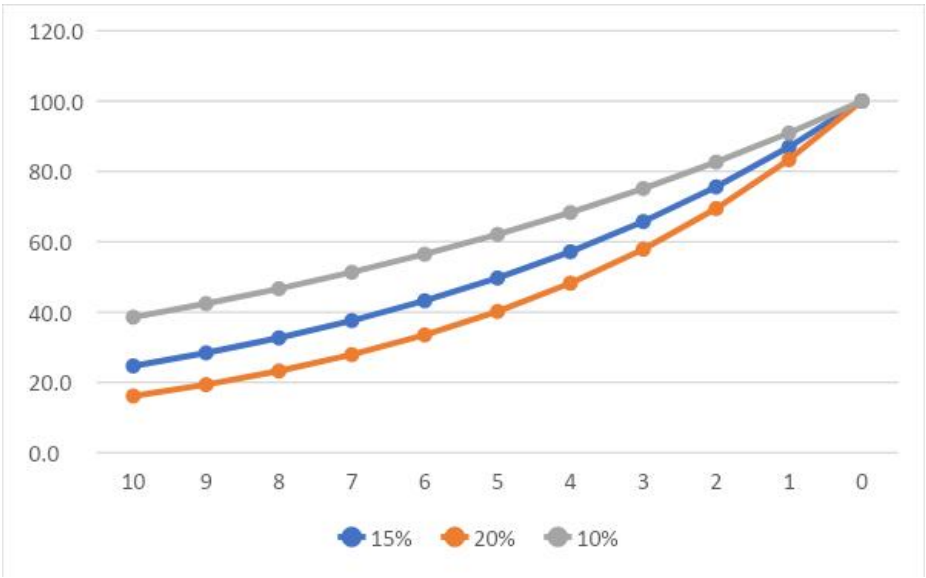

Fig 4: Impact of Discounted Interest

Now let's discuss how future value of a single mount and an annuity and present value of a single amount and an annuity is calculated one of the major problems faced by the financial manager is how to determine the present value of cash flows expected in the future.

4.8 Future Value

Future value id the amount of money an investment will grow to over some period of time at some given interest rate. In other words, future value is the cash value of an investment at some time in future.

Future Value of a Single Amount

Suppose you invest Rs 100 in a savings account that pays 10 percent interest per year. How much will you have in one year? You will have Rs 110. This Rs. 110 is equal to your original principal of Rs 100 plus Rs. 10 in interest that you earn. In general, if you invest for one period at an interest rate of r, your investment will grow to (1+ r) per rupee invested. In our example, r is 10 percent.

Future Value of a Single Amount for more than one Period

How much will be your investment of Rs 100 after two years, the interest rate is 10%? If you leave the entire Rs 110 in the bank, you will earn Rs 110 x 10% = Rs 11 in interest during the second year, so you will have a total of Rs 110 + Rs. 11 = Rs. 121. This Rs 121 is the future value of Rs 100 in two years at 10 percent.

Compounding: This process of leaving your money and any accumulated interest in an investment for more than one period, is called compounding. Compounding the interest means earning interest on interest.

We now take a closer look at how we calculated Rs 121 future value.

We multiplied Rs 110 by 1.1 to get Rs 121.

$$\text{Rs } 121 = \text{Rs } 110 \times 1.1$$

$$= (\text{Rs } 100 \times 1.1) \times 1.1$$

$$= \text{Rs } 100 \times 1.1^2$$

$$= \text{Rs } 100 \times 1.21$$

How much would our Rs 100 grow to after 3 years?

$$\text{Rs } 133.10 = \text{Rs } 121 \times 1.1$$

$$= (\text{Rs } 110 \times 1.1) \times 1.1$$

$$= (\text{Rs } 100 \times 1.1) \times 1.1 \times 1.1$$

$$= \text{Rs } 100 \times (1.1 \times 1.1 \times 1.1)$$

$$= \text{Rs } 100 \times 1.1^3$$

$$= \text{Rs } 100 \times 1.331$$

You're probably noticing a pattern in these calculations, so we can now go ahead and state the general result.

The future value of Re. 1 invested for periods *t* at a rate of *r* per year is:

$$\text{Future value} = \text{Re. } 1 \times (1 + r)^t$$

The expression $(1 + r)^t$ is called the Future Value Interest Factor for Re. 1 invested at *r* percent for *t* periods. What would your Rs. 100 be worth after five years? We can first compute the relevant future value factor as:

$$(1 + r)t = (1 + .10)5 = 1.15 = 1.6105$$

Thus, your Rs 100 will grow to:

Rs 100 x 1.6105 = Rs 161.05

The growth of your Rs. 100 each year is illustrated in the Table 1. Over the five-year span of this investment, the simple interest is Rs 100 x .10 = Rs 10 per year, so you accumulate Rs 50 this way. The other Rs 11.05 is from compounding.

Table 1: Future value of Rs 100 at 10 percent

Year	Beginning Amount	Simple Interest	Compound Interest	Total Interest	Ending Amount
1	100.00	10	0.00	10.00	110.00
2	110.00	10	1.00	11.00	121.00
3	121.00	10	2.10	12.10	133.10
4	133.10	10	3.31	13.31	146.41
5	146.41	10	4.64	14.64	161.05
Total		**50**	**11.05**	**61.05**	

Figure 05 illustrates the growth of the compound interest in Table 1. The amount of the compound interest keeps increasing because more and more interest builds up and there is thus more to compound.

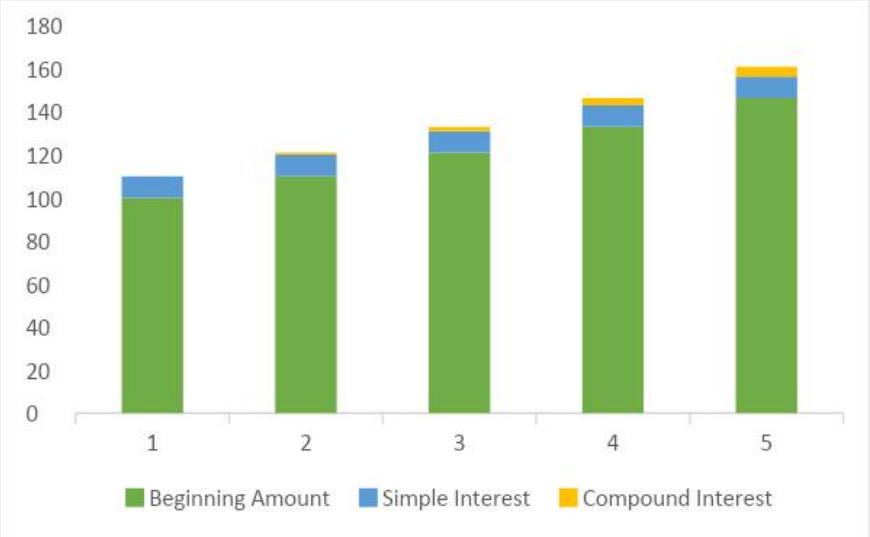

Fig 05: Future value, simple interest, and compound interest

Future values depend critically on the assumed interest rate, particularly for long-lived investments. Figure 2 illustrates this relationship by plotting the growth of Re. 1 for different rates and lengths of time. To solve future value problems, we need to come up with the relevant future value factors.

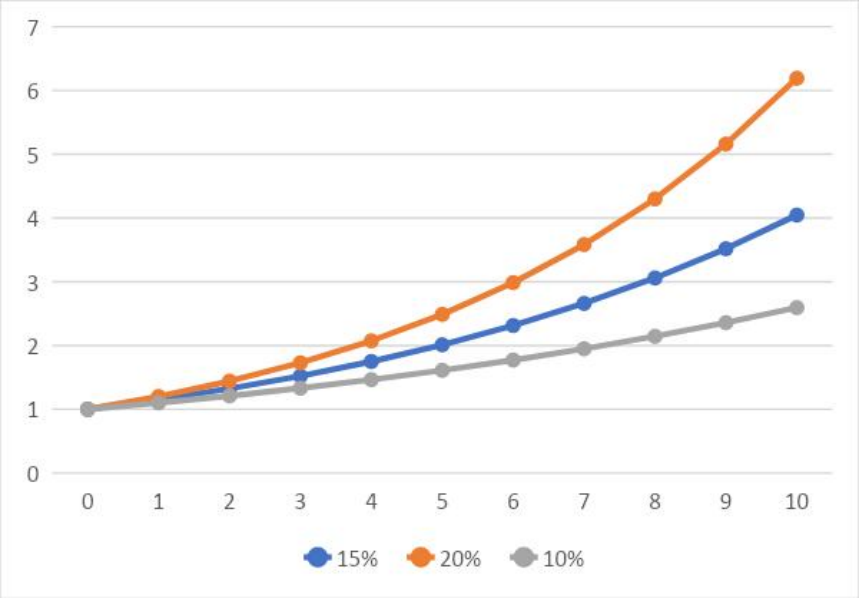

Fig 02: Future value of Re 1 for different periods and rates

Notice the future value of Re. 1 after 10 years is about Re. 6.20 at a 20 percent rate, but it is only about Re. 2.60 at 10 percent. This would work just fine, but it would get be very tedious for, say, a 30-year investment. Alternatively, you can use a table that contains future value factors for some common interest rates and time periods. Table 2 contains some of these factors.

Table 2: Future value interest factors

Year	Interest Rate			
	5%	10%	15%	20%
1	1.0500	1.1000	1.1500	1.2000
2	1.1025	1.2100	1.3225	1.4400
3	1.1576	1.3310	1.5209	1.7280
4	1.2155	1.4641	1.7490	2.0736
5	1.2763	1.6105	2.0114	2.4883

Power of Compound Interest

Suppose one of your ancestors had invested Rs. 5 for you at a 6 percent interest rate 200 years ago. How much would you have today? The future value factor is a substantial 1.06^{200} 115,125.9.

So, you would have

Rs. 5 x 115,125.9

= Rs. 575,629.5 today.

The effect of compounding is not great over short time periods, but it really starts to add up as the horizon grows.

Future Value of an Annuity

An annuity is a series of payments (or receipts) of fixed amount e.g., payment of premium in case of life policy and home loans etc. In case of regular annuity, the payment or receipt occurs at the end of each period. If the payment or receipt occurs at the beginning of each period it is called annuity due

Future Value of Regular (ordinary) Annuity

The compound value of an annuity is the total amount one would have at the end of the annuity period if the amount is invested at a certain rate of interest and is held to the end of the annuity period. A promise to pay Rs. 1000 a year for 5 years is a 5 year annuity. For example: If you deposit Rs. 5000 at the end of every year in a bank for 5 years and the bank is paying 10% interest, the future value of this annuity will be Rs. 30,525.5.

Rs. $5000(1.10)^4$+Rs. $5000(1.10)^3$ + Rs,$5000(1.10)^2$ + Rs. 5000(1.10)+ Rs 5,000

The above procedure can be expressed as:

$$FVA = A(1+i)n-1i$$

Where,

A = Periodic cash flow

I = Interest rate

N= Number of years

Taking the figures from Example:

$$= 5000(1+.10)5-10.10$$

$$= 5000(1.6105)-10.10$$

$$FVA = 5000 \times 0.61050.10$$

$$FVA = 5000 \times 6.105$$

$$FVA = Rs.\ 30,525$$

4.9 Present Value

Present value is just the opposite of future value.

In future value we do compounding of money, In present value concept we discount back to the present.

The process of reducing future income payments to their present value is called discounting.

The value today of the sum received in the future is called its present value.

Present Value of a Single Amount for one Period

You have seen that the future value of Re. 1 for one year at 10% is Rs. 1.10.

How much you have to invest today at 10% to get Re. 1 in one year?

You know the future value here is Re. 1, but what is the present value of Re. 1? You need Re. 1 at the end of the year, the present value will be:

PV x 1.1 = Re. 1,

Present Value = Re.1/1.1

= Re. 0.909

Present value is thus just the reverse of future value. Instead of compounding the money forward into the future, we discount it back to the present.

The present value of Re. 1 to be received in one period is generally given as:

$$PV = Re.\ 1 \times [1/(1 + r)]$$

$$= Re.\ 1/(1 + r)$$

If you want to know PV of Rs. 500 in one year at 8%, then:

$$PV = 500\ \ 11.08 = Rs.\ 462.5$$

Present Values for Multiple Periods

Suppose you need to have Rs. 1,000 in two years. If you can earn 7 percent, how much do you have to invest to make sure that you have the Rs. 1,000 when you need it?

In other words, it must be the case that:

$$Rs.\ 1{,}000 = PV \times 1.07 \times 1.07$$

$$= PV \times 1.07^2$$

$$= PV \times 1.1449$$

$$\text{Present value} = Rs.\ 1{,}000/1.1449$$

$$= Rs.\ 873.44$$

The present value of Re. 1 to be received t periods into the future at a discount rate of r is:

$$PV = Rs.\ 1 \times [1/(1 + r)^t]$$

$$= Rs.\ 1/(1 + r)^t$$

The quantity in brackets, $1/(1 + r)^t$, it is called a discount factor or Present Value Interest Factor.

Suppose you want to earn Rs. 1500 in three years at 7% rate of interest. How much should you invest to get Rs. 1,500 in three years?

$$PV = 15001(1.07)3$$

$$= 1500 \times 0.8163$$

$$= Rs.\ 1224$$

There are tables for present value factors just as there are tables for future value factors.

	Interest Rate			
Year	**5%**	**10%**	**15%**	**20%**
1	.9524	.9091	.8696	.8333
2	.9070	.8264	.7561	.6944
3	.8638	.7513	.6575	.5787

4	.8227	.6830	.5718	.4823
5	.7835	.6209	.4972	.4019

Present Values of Annuity

- Suppose we were examining an asset that promised to pay Rs. 500 at the end of each of the next three years.
- The cash flows from this asset are in the form of a three-year, Rs. 500 annuity.
- If we wanted to earn 10 percent on our money, how much would we offer for this annuity?
- It can be expressed as follows:

Rs 500 11.101+50011.102+50011.103

= Rs. 500 x 0.9091 + Rs. 500 x 0.8264 + Rs. 500 x 0.7513

= Rs. 454.55 + Rs. 413.22 + Rs. 375.66

Rs. 1,243.43

We will often encounter situations in which the number of cash flows is quite large. For example, home mortgage calls for monthly payments over 30 years, for a total of 360 payments. If we were trying to determine the present value of those payments, it would be useful to have a shortcut.

Annuity present value =C 1-Present Valuer

=C×1-1/1 + rtr

The term in parentheses on the first line is called the present value interest factor for annuities

Present value factor = $1/1.1^3$ = 1/1.331 = .75131

Annuity present value factor = (1 - Present value factor)/r

= (1 - .75131)/.10

= .248685/.10 = 2.48685

Annuity present value = Rs. 500 x 2.48685

= Rs. 1,243.43

4.10 Types of Annuity

An annuity is a series of payments (or receipts) of fixed amount e.g., payment of premium in case of life policy and home loans etc.

Cash flows are not only made in the end of the period, in practice, cash flows could take place at the beginning of the period. When you buy a car on an instalment basis, the dealer asks you to make the first payment immediately and rest of the instalments in the beginning of each period. It is common in lease or hire purchase contracts that payments are required to be made in the beginning of each period. Lease is a contract to pay rentals for the use of an asset.

Hire purchase contract, regular instalments are made for acquiring an asset. Lease or hire purchase payments are commonly required to be made in the beginning of each period. Lease is a contract to pay rentals for the use of an asset. In hire purchase contract, regular instalments are made for acquiring an asset.

Future Value of an Annuity Due

- Suppose you deposit Re. 1 in a savings account at the beginning of each year for 4 years to earn 6 per cent interest.
- How much will be the compound value at the end of 4 years?

If we deposit Re. 1 made at the end of each year, the compound value at the end of 4 years is:

$$= \text{Rs. } 4.375$$

$$F = 1 \times 1.06^3 + 1 \times 1.06^2 + 1 \times 1.06^1 + 1$$

$$= 1.191 + 1.124 + 1.06 + 1 = \text{Rs. } 4.637$$

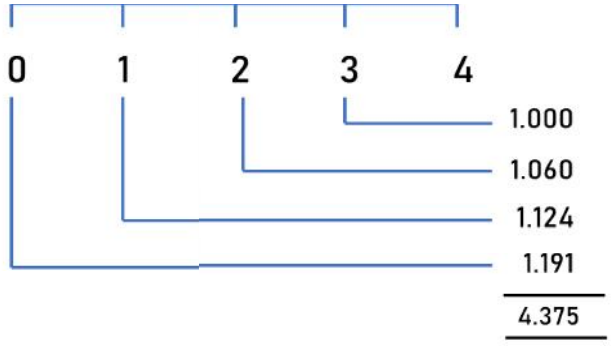

Fig 1: Compound value of an annuity of Re. 1

However, Re. 1 deposited in the beginning of each of year 1 through year 4 will earn interest respectively for 4 years, 3 years, 2 years and 1 year.

$$F = 1 \times 1.06^4 + 1 \times 1.06^3 + 1 \times 1.06^2 + 1 \times 1.06^1$$

$$= 1.262 + 1.191 + 1.124 + 1.06$$

$$= \text{Rs. } 4.637$$

Compound value of an annuity due is more than of an annuity as it earns extra interest for one year. If you multiply the compound value of an annuity by (1+ *i*), you would get the compound value of an annuity due.

Future value of an annuity due

$$= \text{Future value of an annuity} \times (1 + i)$$

$$= A \times CVFA_{ni} \times (1 + i)$$

$$= A1+in-1i(1+i)$$

$$\text{Thus, } 4.375 \times 1.06 = \text{Rs. } 4.637$$

Present Value of an Annuity Due

Let us consider a 4-year annuity of Re. 1 each year, the interest rate being 10 per cent. What is the present value of this annuity if each payment is made at the beginning of the year?

When payments of Re. 1 are made at the end of each year, then the present value of the annuity is:

$$1(1.10)1+1(1.10)2+1(1.10)3+1(1.10)4$$

$$0.909 + 0.826 + 0.751 + 0.683$$

= Rs. 3.169

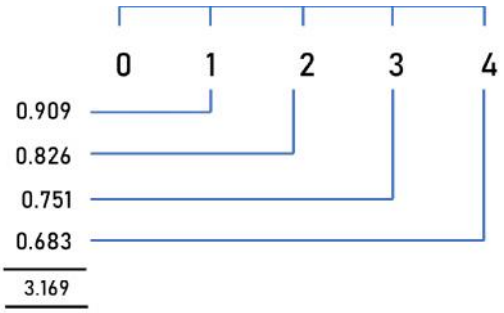

Fig 2: Present value of an annuity of Re. 1

If the first payment is made immediately, then its present value would be the same. Each year's cash payment will be discounted by one year less. Present value of an annuity due would be higher than the present value of an annuity.

Thus, the present value of the series of Re. 1 payments starting at the beginning of a period is:

$$PV= 1(1.10)0+1(1.10)1+1(1.10)2+1(1.10)3$$

$$= 1 + 0.909 + 0.826 + 0.751$$

$$= Rs. 3.487$$

The formula for the present value of an annuity due is:

$$= \text{Present value of an annuity} \times (1 + i)$$

$$P=A1i-1i1+in(1+i)$$

$$=A \times PVFAn,i\times(1+i)$$

Hence, the present value of Re. 1 paid at the beginning of each year for 4 years is:

$$1 \times 3.170 \times 1.10$$

$$= Rs. 3.487$$

4.11 Effective Interest Rate

We have assumed in the discussion so far that cash flows occurred once a year. In practice, cash flows could occur more than once a year. For example, banks may pay interest on savings account quarterly. On debentures and public deposits, companies may pay interest semi-annually.

The interest rate is generally specified on an annual basis which is known as the nominal interest rate. If compounding is done more than once a year, the actual annualized rate of interest would be higher than the nominal interest rate and it is called the Effective Interest Rate.

Suppose you invest Rs. 100 now in a bank, interest rate is 10 per cent annually. Bank will compound interest semi-annually. How much amount will you get after a year? Bank will calculate interest on Rs. 100 for first six months at 10 per cent. You will again receive interest for next six months at 10 per cent on the total amount accumulated at the end of first six months.

The ending amount of first six months or the beginning amount of the second six-month period will be:

$$Rs. 100 + Rs. 5 = Rs. 105$$

Then, the interest on Rs. 105 for next six months will be:

= Rs. 105 × 10% × ½ = Rs. 5.25

Amount at the end:

Rs. 100 + Rs. 5 + Rs. 5.25 = Rs. 110.25

If compoundedannually, you would have received:

Rs. 100 + 10% × Rs. 100 = Rs. 110

Interest amount is more under semi-annual compounding as you earned interest on interest. On an annual basis, you earned Rs. 10.25 on your deposit of Rs. 100.

So, the effective interest rate (EIR) is:

$$EIR=5+5.25100=10.25\%$$

The formula for calculating EIR can be written as:

$$EIR=1+imn\times m-1$$

Where,

i, is the annual nominal rate of interest

n, the number of years

m, the number of compounding per year

Rs. 100 compounded annually at 10.25 per cent, or Rs. 100 compounded semi-annually at 10 per cent will result into the same amount.

$$EIR=1+i21\times 2-1, =1+0.1022-1$$

$$=1.1025 -1$$

$$= 0.1025 \text{ or } 10.25\%$$

Example of Effective Rate of Interest

With an annual rate of interest of 13 per cent on a public deposit, what will be the effective rate of interest if the compounding is applied:

- Half-Yearly Compounding

$$EIR=1+i21\times 2-1$$

$$=1+0.1321\times 2-1$$

$$=(1.065)2-1$$

$$0.1342 \text{ or } 13.42\%$$

- Quarterly Compounding

$$EIR=1+i41\times 4-1$$

$$=1+0.1341\times 4-1$$

$$=(1.0325)4-1$$

$$0.1362 \text{ or } 13.62\%$$

- Monthly Compounding

$$EIR=1+i121\times 12-1$$

$$=1+0.1341\times 12-1$$

$$=(1.0325)4-1$$

$$0.1362 \text{ or } 13.62\%$$

- Weekly Compounding

$$EIR=1+i521\times 52-1$$

$$=1+0.13521\times52-1$$

$$=(1.0025)52-1$$

$$0.1382 \text{ or } 13.82\%$$

Summary

- Time value of money means that the value of a unit of money is different in different time periods. The value of a sum of money received today is more than its value received after some time.
- The time preference for money is generally expressed by an interest rate. If the time preference rate is 5 percent, it means that an investor can forego the opportunity of receiving Rs. 100 if he/she is offered Rs. 105 after one year.
- Compounding is the impact of the time value of money (e.g., interest rate) over multiple periods into the future, where the interest is added to the original amount. For example, if you have Rs 1,000 and invest it at 10 percent per year for 20 years, its value after 20 years is Rs 6,727.
- Discounting is the opposite of compounding. If we start with a future value of Rs 404.6 at the end of 10 years in the future, and discount it back to today at an interest rate of 15 percent, the present value is Rs 100.
- Future value is the amount of money an investment will grow to over some period of time at some given interest rate. In other words, future value is the cash value of an investment at some time in future.
- Present value is just the opposite of future value. In future value we do compounding of money, in present value concept, we discount back to the present. The process of reducing future income payments to their present value is called discounting.
- An annuity is a series of payments (or receipts) of fixed amount e.g., payment of premium in case of life policy and home loans etc.
- Regular annuity and Annuity due are two types of Annuity
- The interest rate is generally specified on an annual basis which is known as the nominal interest rate. If compounding is done more than once a year, the actual annualized rate of interest would be higher than the nominal interest rate and it is called the Effective Interest Rate.

Keywords

Corporate finance, Financial Management, Finance Functions, Profit maximization, Wealth maximization, Agency issues, Business Ethics, Social responsibility.

Self Assessment

1. The reason/s for individual's time preference for money is/are:

A. Preference for consumption
B. Investment opportunities
C. Uncertainty with the future payment
D. All of the above

2. If you have Rs 100 and invest it at 10 percent per year for 5 years, its value after 5 years is:

A. Rs. 161.05
B. Rs. 146.4
C. Rs.177.2
D. Rs.155.5

3. Time value of money indicates that

A. A unit of money obtained today is worth more than a unit of money obtained in future
B. A unit of money obtained today is worth less than a unit of money obtained in future
C. There is no difference in the value of money obtained today and tomorrow
D. None of the above

4. If the nominal rate of interest is 10% per annum and there is quarterly compounding, the effective rate of interest will be:
A. 10% per annum
B. 10.10 per annum
C. 10.25%per annum
D. 10.38% per annum

5. A diagram for visualizing future cash flows is known as
A. a future value vector.
B. a cash flow chart.
C. an FV/PV plot.
D. a timeline.

6. Total simple interest and compound interest on Rs 100 invested at 10 per cent for 5 years are:
A. Rs. 50, Rs. 61.05
B. Rs. 50, Rs. 55
C. Rs. 40, Rs. 50
D. Rs. 50, Rs. 66.06

7. A 5-year ordinary annuity has a present value of Rs. 1,000. If the interest rate is 8 per cent, the amount of each annuity payment is closest to which of the following?
A. Rs. 250.44
B. Rs. 231.91
C. Rs. 181.62
D. Rs. 184.08

8. The interest rate used in the present value calculation is often referred to as?
A. Discount rate
B. Inflation rate
C. Nominal rate
D. None of the given option

9. In_____, payments or receipts occur at the end of each period. In_____, Payments or receipts occur at beginning of each period?
A. Ordinary annuity, Annuity due
B. Annuity due, Ordinary annuity
C. Ordinary annuity, Annuity due
D. None

10. Present Value of Rs. 500 in one year at 8% is:
A. 462.5
B. 455.5
C. 472.2
D. 481.1

11. To increase a given present value, the discount rate should be adjusted
A. upward
B. downward
C. True
D. False

12. In 3 years, you are to receive Rs. 5,000. If the interest rate were to suddenly increase, the present value of that future amount would
A. Decrease
B. Increase
C. cannot be determined without more information.
D. remain unchanged.

13. Suppose you deposit Re. 1 in a savings account at the beginning of each year for 4 years to earn 6 per cent interest. How much will be the compound value at the end of 4 years:
A. Rs. 4.637
B. Rs. 4.375

C. Rs. 4.523
D. Rs. 4.432

14. What is the present value of this annuity if Re. 1 each payment is made at the beginning of the year for 4 years, the interest rate being 10 per cent?
A. 3.487
B. 3.169
C. 3.321
D. 3.211

15. With an annual rate of interest of 13 per cent on a public deposit, what will be the effective rate of interest if the compounding is applied Half yearly?
A. 13.42%
B. 13.62%
C. 13.82%
D. 13.12%

Answers for Self Assessment

1.	D	2.	A	3.	A	4.	D	5.	D
6.	A	7.	A	8.	A	9.	A	10.	A
11.	B	12.	A	13.	A	14.	A	15.	A

Review Questions

1. Briefly explain and illustrate the concept of 'time value of money'.
2. Explain the difference between the future value and present value?
3. Distinguish between nominal rates of interest and effective rate of interest
4. An investor has two options to choose from: (a) Rs 6,000 after 1 year; (b) Rs 9,000 after 4 years. Assuming a discount rate of (i) 10 percent and (ii) 20 percent, which alternative should he opt for?
5. Compute the future values of (1) an initial Rs 100 compounded annually for 10 years at 10 per cent and (2) an annuity of Rs 100 for 10 years at 10 per cent

Further Readings

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Unit 05: Investment Decisions - 1

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the nature of capital budgeting decisions.
- explain the importance of capital budgeting decisions.
- describe the types of capital budgeting decisions.
- understand the concept, advantage and limitations of the payback.
- illustrate the computation of the payback.
- illustrate the computation of the discounted payback.
- understand the concept of ARR.
- explain the advantage and limitations of the ARR technique.
- illustrate the computation of ARR technique.

Introduction

As we discussed in first unit that the financial management can be divided into three major decisions in a firm (i) The investment decision, (ii) The financing decision, and (iii) The dividend decision. The investment decision relates to the selection of assets in which funds will be invested by a firm. The assets that can be purchased can be classified into two broad groups: Long-term assets which yield a return over a period of time in future.Short-term assets or current assets, are those assets which in the normal course of business are convertible into cash generally within a year.

5.1 Nature of Capital Budgeting Decisions

The first of these involving the first category of assets is popularly known in financial literature as capital budgeting. A capital budgeting decision may be defined as the firm's decision to invest its funds in the long-term assets in expectation of future cash inflows over a series of years.Issues like whether or not a firm should launch a new product or enter a new market. Decisions such as these will determine the nature of a firm's operations and products for years to come, mainly because fixed asset investments are generally long-lived and not easily reversed once they are made.

Features of Investment decisions

- Investment decisions in a firm involves the exchange of current funds for acquiring assets like plant and machinery which will provide benefits in the future period.
- In investment decision, the funds are invested in long-term assets which are used for a period longer thana single year.
- The benefits of acquiring these assets will occur to the firm over a series of years in the future.

5.2 Importance of Investment Decisions

- **Growth:**A firm's decision to invest in long-term assets like building of a new plant or launching a new product has significant impact on the rate of its growth. Right decision would lead to the rise in the future profits and growth whereas the unprofitable expansion of assets will result in heavy operating costs to the firm.
- **Risk:** The firm will become riskier, if the adoption of an investment increases the average gains but causes frequent fluctuations in its earnings.
- **Funding:** Investment decisions involves commitment of large amount of funds.It is important for the firm to plan its investment programs very carefully.
- **Irreversibility:**These decisions are usually irreversible in nature i.e., it's not easy to find a market for capital items once they have been acquired. The firm will incur heavy losses if such assets are scrapped.
- **Complexity:** It is very difficult to accurately estimate the future cash flows of an investment correctly.Variousfactors cause the uncertainty in cash flow estimation.

5.3 Types of Decisions

The investment decisions can be divided into two decisions given below:

Expansion and Diversification

The expansion decisions of firm relate to the expansion and growth of the firm. A company may add capacity to its existing product lines to expand existing operations. For example, a firm may increase its plant capacity to manufacture more product. Its related diversification. A firm may also expand its activities in a new business. Expansion of a new business requires investment in new products and a new kind of production activity within the firm. If a battery manufacturing company invests in a new plant and machinery to produce pharmaceuticals, which the firm has not manufactured before, this represents expansion of new business or unrelated diversification.

Replacement and Modernization

The objective of modernization and replacement decisions is to improve operating efficiency of the firm. For e.g. If a company changes from semi-automatic equipment to fully automatic equipment, it is an example of modernization and replacement. Replacement decisions help to introduce more efficient and economical assets for e.g., replacement of old high energy consuming machinery for more energy efficient machinery.

5.4 Types of Decisions

The investment decisionscan be mutually exclusive investment decisions, independent investments or contingent investments decisions.

Mutually Exclusive Investments

Mutually exclusive investments are those investment which serve the same purpose and compete with each other. For example, decision related to acquiring machinery out of two alternatives whichwill do the same work. If one investment is undertaken, others will have to be excluded.

Independent Investments

Independent investments are those investments which do not compete with each other and they serve different purposes. Depending on their profitability and availability of funds, the company can undertake both investments.For example, company may be considering expansion of its plant capacity to manufacture additional units and acquire a new plant as well as a new transport vehicle.

Contingent Investments

Contingent investments are dependent projects, the choice of undertaking one investment necessitates undertaking one or more other investments. In this type of investment, the total expenditure will be treated as one single investment.For example, if a company decides to build a factory in a remote area it may have to invest in houses, roads schools, etc., for the employees.

5.5 Investment Evaluation Criteria

Three steps are involved in the evaluation of an investment:

1. The first step is the correct estimation of future cash flows from the asset.
2. Second step involves the estimation of the required rate of return from the investment
3. The final step in the application of a decision rule on the investment alternatives to take a decision.

Evaluation Criteria

The evaluation criteria can be divided into two categories viz,Non-discounted Cash Flow criteria and discounted cash flow criteria. The non-discounted cash flow criteriaignore the time value of money and thus doesn't discount the cashflows whereas the discounted cashflow criteria considers the time value of money and hence, discounts the cashflows.

- Non-discounted Cash Flow Criteria
  - Payback (PB)
  - Discounted payback
  - Accounting rate of return (ARR)
- Discounted Cash Flow Criteria
  - Net present value (NPV)
  - Internal rate of return (IRR)
  - Profitability index (PI)

Cash Inflow vs Cash Outflow

Cash inflow is the money going into a business. Cash outflow is the money leaving the business. When a firm acquires any asset or purchases the raw material, cash goes out from the business whereasa cash inflow happens in case of sales in business or sale of any old machinery etc. Any business is considered healthy if its cash inflow is greater than its cash outflow.

5.6 Definition of Payback

This is the most basic investment criteria. Payback is the length of time it takes to recover the initial investment.Payback is the number of years required to recover the original cash outlay invested in a project. If a project generates constant annual cash inflows, the payback period can be computed by dividing cash outlay by the annual cash inflow.

$$Payback = \frac{C_0}{C} = \frac{Initial\ Investment}{Annual\ Cash\ Inflow}$$

For e.g., suppose a project requires an outlay of Rs. 60,000 and yields annual cash inflow of Rs. 15000 for 6 years. The payback period for the project is:

$$Payback = \frac{Rs.\ 60,000}{Rs.\ 15,000}$$

Unequal cash flows

In case of unequal cash inflows, the payback period can be found out by adding up the cash inflows until the total is equal to the initial cash outlay.

Illustration: Unequal cash flows

Suppose that a project requires a cash outlay of Rs 40,000, and generates cash inflows of Rs 16,000; Rs 14,000; Rs 8,000; and Rs 6,000 during the next 4 years. What is the project's payback?

Solution

When we add up the cash inflows, we find that in the first three years Rs. 38,000 of the original outlay is recovered. In the fourth-year cash inflow generated is Rs. 6,000 and only Rs. 2,000 of the original outlay remains to be recovered. Assuming that the cash inflows occur evenly during the year, the time required to recover Rs. 2,000 will be

(Rs. 2,000/ Rs. 6,000) × 12 months

= 4 months.

Thus, the payback period is 3 years and 4 months.

Acceptance Rule

Under this method, the projects payback is compared with a standard payback. As a ranking method, it gives highest ranking to the project, which has the shortest payback period.

Advantages of Payback

The payback method of project evaluation has various advantages such as:

- **Simplicity:** The most significant merit of payback is that it is simple to understand and easy to calculate.
- **Cost effective:** This method costs less than majority of the complex techniques.
- **Short-term effects:** A company can have more favorable earnings per share by setting up a shorter standard payback period.
- **Risk shield:** The risk of the project can be mitigated by having a shorter standard payback period. It is a means of establishing an upper limit on the acceptable degree of risk.
- **Liquidity:**It gives an insight into the liquidity of the project. The funds so released can be put to other uses.

Limitations of Payback

The payback has several limitations also given as under:

- **Cash flows after payback:** Payback fails to take account of the cash inflows earned after the payback period.
- **Cash flows ignored:**It does not consider all cash inflows yielded by the project i.e., the cashflows occurring after the payback period is over.
- **Cash flow patterns:** Payback ignores the pattern of cash inflows.It gives equal weights to returns of equal amounts even though they occur in different time periods. For e.g. in the following table, the cashflows are not identical in the two projects yet the payback is equal.

Project	C0	C1	C2	Payback
A	-3000	2000	1000	2 Years
B	-3000	1000	2000	2 Years

- **Administrative difficulties:** Difficulty in setting the standard payback period.There is no rational basis for setting the standard period.
- **Inconsistent with shareholder value:**It is not in line with the objective of maximizing the market value of shares.

5.7 Discounted payback period

Another technique of project evaluation is the discounted payback period. Discounted payback period is the number of periods taken in recovering the investment outlay on the present value basis i.e. The cashflows are first discounted on the basis of appropriate discount rate and then the payback is calculated. One of the limitations of the payback method is that it does not discount the cash flows and hence may lead to incorrect decisions.

Illustration: Discounted payback period

Projects X and Y involve the same outlay of Rs. 4,000 each. The opportunity cost of capital may be assumed as 10 per cent.The cash flows of the projects and their discounted payback periods are shown in Table 1.The projects indicated are of same desirability by the simple payback period.

Table 1: Discounted Payback

	Cash Flows							
	C0	C1	C2	C3	C4	Simple PB	Discounted PB	NPV of 10%
P	-4,000	3,000	1,000	1,000	1,000	2 Years	-	-
PV of cash flows	-4,000	2,727	826	751	683	-	2.6 years	987
Q	-4,000	0	4,000	1,000	2,000	2 years	-	-
PV of cash flows	-4,000	0	3,304	751	1,366	-	2.9 Years	1,421

When cash flows are discounted to calculate the discounted payback period, Project P recovers the investment outlay faster than Project Q. Discounted payback period for a project will be always higher than simple payback period because its calculation is based on the discounted cash flows.

Discounted payback rule is better as it discounts the cash flows until the outlay is recovered. It can be seen in our example that if we use the NPV rule, Project Q is better.The payback period is a kind of "break-even" measure. As it is so simple, companies use it as a screen for dealing with the minor investment decisions they have to make.

5.8 Accounting Rate of Return

Accounting rate of return is another technique of capital budgeting. The accounting rate of return is the ratio of the average after tax profit divided by the average investment. It is also known as the return on investment (ROI). Accounting rate of return uses accounting information to measure the profitability of an investment. The average investment would be equal to half of the original investment if it were depreciated constantly. The accounting rate of return can be determined by the following equation:

$$ARR = \frac{Average\ Income}{Average\ Investment}$$

or

$$ARR = \frac{[\sum_{i=1}^{n} EBIT_i(1-T)]/n}{(I_0 + I_n)/2}$$

Where,

- EBIT = Earnings before interest and taxes,
- T = Tax rate,
- I_0 = Book value of investment in the beginning,
- I_n = Book value of investment at the end
- n = Number of years

For e.g. If the Average annual profit for a project over the life of the investment is Rs. 20,000.Average investment value in a given year is Rs. 100,000.

ARR would be calculated as:

= 20,000 / 1,00,000

= 20%

Steps in calculating ARR

The steps involved in the calculation of this technique are given below:

1. **Calculate the numerator:**

   Calculate the profit for the whole project, including costs such as depreciation, amortization etc.Calculate the average annual profit, by dividing the overall profit over the whole project by the life of the project.

2. **Calculate the denominator**

   Look in the question to see which definition of investment is to be used. The investment figure can either be the initial investment, or the average investment.

3. **Calculate the accounting rate of return.**

Illustration: Accounting Rate of Return

A project will cost Rs. 40,000. Its stream of earnings before depreciation, interest and taxes during five years is expected to be Rs. 10,000, Rs. 12,000, Rs. 14,000, Rs. 16,000 and Rs. 20,000. Assume a 50 per cent tax rate and depreciation on straight-line basis.

Table 1: Calculation of Accounting Rate of Return

Period	1	2	3	4	5	Average
EBDIT	10,000	12,000	14,000	16,000	20,000	14,400
Depreciation	8,000	8,000	8,000	8,000	8,000	8,000
EBIT	2,000	4,000	6,000	8,000	12,000	6,400
Taxes at 50%	1,000	2,000	3,000	4,000	6,000	3,200
EBIT(1-T)	**1,000**	**2,000**	**3,000**	**4,000**	**6,000**	**3,200**
Book value of Invest.						
Beginning	40,000	32,000	24,000	16,000	8,000	
End	32,000	24,000	16,000	8,000	-	
Average	**36,000**	**28,000**	**20,000**	**12,000**	**4,000**	**20,000**

$$ARR = \frac{Average\ Income}{Average\ Investment}$$

$$= \frac{3,200}{20,000} \times 100$$

= 16 per cent

Example: Accounting Rate of Return

Another variation of the ARR method is to divide average earnings after taxes by the original cost of the project instead of the average cost. Thus, according to this version, the ARR will be:

Rs. 3,200 ÷ Rs. 40,000 × 100

= 8 per cent

Another variation of the ARR method is to divide average earnings after taxes by the original cost of the project instead of the average cost. Thus, according to this version, the ARR will be:

Rs. 3,200 ÷ Rs. 40,000 × 100

= 8 per cent

Acceptance Rule

The acceptance rule according to the Accounting Rate of Return method is given below:

- Accept all those projects whose ARR is higher than the minimum rate established by the management.
- Reject those projects which have ARR less than the minimum rate.

According to this method a project is ranked as number one if it has highest ARR.

Advantages of Accounting Rate of Return:

There are various advantages of the Accounting Rate of Return method such as:

- **Simplicity:** This method is simple to understand and apply.
- **Accounting data:**The Accounting Rate ofReturn can be readily calculated from the accounting data of the firm.
- **Accounting profitability:**The Accounting Rate of Return rule considers the entire stream of income in calculating the project's profitability.

Limitations of Accounting Rate of Return:

TheAccounting Rate of Return method suffers from various limitations given below:

- **Cash flows ignored:** The Accounting Rate of Returnmethod uses accounting profits not cash flows, in appraising the projects. It is not correct to rely on accounting profit for measuring the acceptability of the investment projects.
- **Time value ignored:**The averaging of income ignores the time value of money.
- **Arbitrary cut-off:**Generally, the cut-off standard is the firm's current return on its assets (book-value). Because of this, the growth companies earning very high rates on their existing assets may reject profitable projects.

Illustration: Accounting Rate of Return

A project requires an initial investment in a machine of Rs. 40,000. Net cash inflows of Rs. 15,000 will be generated for each of the first two years.Rs. 5,000 in each of years three and four and Rs. 35,000 in the year five. After which time, the machine will be sold for Rs. 5,000.

Solution:

1. Calculating the numerator:

We need the average annual accounting profit. To find this, the profit for the whole project needs to be calculated, which is then divided by the number of years.

Cash inflow years 1 and 2 (Rs. 15,000 x 2)	30,000
Cash inflow years 3 and 4 (Rs. 5,000 x 2)	10,000
Cash inflow year 5	35,000
Depreciation (Rs. 40,000 – Rs. 5,000)	-35,000
Total profit for the project	40,000

The Average Profit is Rs. 8,000

(Rs. 40,000/5)

2. Calculating the denominator:

Initial investment is Rs. 40,000.

Average investment is (the initial investment + scrap value)/2

(Rs. 40,000 + Rs. 5,000)/2

= Rs. 22,500

3. Calculating the accounting rate of return:

The Accounting Rate of Returncan now be calculated as either:

(Rs. 8,000/Rs. 40,000) x 100%

= 20% or,

(Rs. 8,000/Rs. 22,500) x 100%

= 36%

Summary

- A capital budgeting decision may be defined as the firm's decision to invest its funds in the long-term assets in expectation of future cash inflows over a series of years. Issues like whether or not a firm should launch a new product or enter a new market.
- Investment decisions can be of different types such as Decisions Expansion and Diversification or Replacement and Modernization. They can be classified as Mutually Exclusive Investments, Independent Investment and Contingent Investments
- Payback is the length of time it takes to recover the initial investment. Payback is the number of years required to recover the original cash outlay invested in a project. If a project generates constant annual cash inflows, the payback period can be computed by dividing cash outlay by the annual cash inflow.

- A capital budgeting decision may be defined as the firm's decision to invest its funds in the long-term assets in expectation of future cash inflows over a series of years. Issues like whether or not a firm should launch a new product or enter a new market.

$$Payback = \frac{C_0}{C} = \frac{Initial\ Investment}{Annual\ Cash\ Inflow}$$

- The acceptance rule under payback: projects payback is compared with a standard payback. As a ranking method, it gives highest ranking to the project, which has the shortest payback period.
- Discounted payback period is the number of periods taken in recovering the investment outlay on the present value basis i.e. The cashflows are first discounted on the basis of appropriate discount rate and then the payback is calculated. One of the limitations of the payback method is that it does not discount the cash flows and hence may lead to incorrect decisions.
- Accounting rate of return is another technique of capital budgeting. The accounting rate of return is the ratio of the average after tax profit divided by the average investment. It is also known as the return on investment (ROI). Accounting rate of return uses accounting information to measure the profitability of an investment. The average investment would be equal to half of the original investment if it were depreciated constantly. The accounting rate of return can be determined by the following equation:

$$ARR = \frac{Average\ Income}{Average\ Investment}$$

- Steps in calculating ARR
  1. Calculate the numerator:
  2. Calculate the denominator
  3. Calculate the accounting rate of return.
- The acceptance rule under ARR is Accept all those projects whose ARR is higher than the minimum rate established by the management, reject those projects which have ARR less than the minimum rate, according to this method a project is ranked as number one if it has highest ARR.

Keywords

Corporate finance, Financial Management, Capital budgeting, Investment decisions, Payback, discounted payback

Self Assessment

1. Capital budgeting is also known as:

A. Investment decisions making
B. Planning capital expenditure
C. Both of the above
D. None of the above.

2. Capital budgeting decisions are of:

A. Long-term nature
B. Short-term nature
C. Both of the above
D. None of the above

3. Which of the following is not a capital budgeting decision?
A. Expansion Program
B. Acquisition of long-term assets
C. Replacement of an existing Asset
D. Inventory control.

4. Capital Budgeting Decisions are based on:
A. Incremental Cash Flows
B. Incremental Profit
C. Incremental Assets
D. Decremental Assets.

5. Capital Budgeting Decisions are:
A. Reversible
B. Irreversible
C. Unimportant
D. All of the above

6. The method, which calculates the time to recover initial investment of project in form of expected cash flows is known as
A. Net value cash flow method
B. Payback method
C. Single cash flow method
D. Lean cash flow method

7. Which of the following method of capital budgeting does not take into account the profit of the entire life of the project?
A. Payback period method
B. Accounting rate of return method
C. Net present value method
D. Profitability index

8. If the net initial investment is Rs. 68,50,000 and the annual cash flows is Rs. 20,50,000, then payback period will be
A. years
B. 4.34 years
C. 5.34 years
D. 6.34 years

9. Which of the following will not be a relevant factor when using the payback method of capital investment appraisal?

A. Annual cashflows

B. The cash flows generated by the asset up to the payback period

C. The cost of the asset

D. The total cash flows generated by the asset

10. An asset costs Rs. 2,10,000 with Rs. 30,000 salvage value at the end of its 10-year life. If annual cash inflows are Rs. 30,000, the cash payback period is

A. 8 years

B. 7 years

C. 6 years

D. 5 years

11. Which of the following is not an advantage of the accounting rate of return (ARR) method of investment appraisal?

A. There is comparability between the ARR and the ROCE ratio used in financial accounting

B. The ratio takes account of the overall profit that is generated by the investment

C. It takes into account the time value of money by allowing for depreciation in the equation

D. It is easy to understand

12. If the Average annual profit for a project over the life of the investment is Rs. 20,000. Average investment value in a given year is Rs. 100,000. ARR would be:

A. 20%

B. 10%

C. 15%

D. 8%

13. The accounting rate of return

A. Is synonymous with the internal rate of return

B. Focuses on income as opposed to cash flows

C. Is inconsistent with the divisional performance measure known as return on investment

D. Recognizes the time value of money

14. Advantages of ARR are:

A. Simplicity of calculation

B. Usage of Accounting data

C. It considers the entire stream of income

D. All of the above

15. Formula of Accounting rate of return is:

A. Average income/Average investment

B. Average investment/ Average income
C. Annual cashflow/Average investment
D. None of the above

Answers for Self Assessment

1.	C	2.	A	3.	D	4.	A	5.	B
6.	B	7.	A	8.	A	9.	D	10.	B
11.	C	12.	A	13.	D	14.	D	15.	A

Review Questions

1. Define Investment decisions
2. Explain Payback method
3. How Payback is different than Discounted Payback method?
4. What are the advantages of ARR over payback method?
5. List the steps in the calculation of ARR of a project.

Further Readings

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2. Pandey, I.M. (2015). Financial Management (10th Ed). New Delphi, India, Vikas Publishing
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Unit 06: Investment Decisions – 2

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of NPV
- explain the advantage and limitations of the NPV technique
- illustrate the computation of NPV technique
- explain the concept of IRR.
- evaluate the advantage and limitations of the IRR technique
- illustrate the computation of IRR
- understand the concept of PI.
- explain the advantage and limitations of the PI technique.
- illustrate the computation of PI.
- understand cash flows estimation process
- discuss the approach for calculating incremental cash flows
- explain the difference between cash Flow and Profit
- understand the concept of NPV profile
- compare NPV and IRR
- explain the conflict between NPV and IRR
- analyze risk involved in capital budgeting
- explain certainty-equivalent Approach
- explain Sensitivity Analysis

Introduction

In the previous chapter, we discussed about the investment decisions of a firm and also studied three popular techniques of capital budgetingnamely Payback, Discounted Payback and Accounting Rate Return. In the chapter we will continue our discussion on the capital budgeting techniques and will examine three important capital budgeting techniques namely Net Present Value, Profitability Index, and Internal Rate of return. These all are discounting cash flow techniques i.e.; they take into account the time value of money. We will evaluate each one these methods, their advantages as well as limitation. Moreover, cash flow estimation process will be discussed and, in the end, the chapter will explore the risk involved in the capital budgeting.

6.1 Net Present Value

The prime motive of a firm's is to maximize the shareholder's wealth. Shareholder's wealth can be increased by undertaking the projects which results in the positive net present value. Net present value (NPV) of a project is the difference between the present value of cash inflows and the present value of cash outflows.

Let's say you are planning to construct an office building. The cost of land for the office building would be Rs. 500,000 and construction would cost Rs. 30,00,000. After a year, you can sell the building for Rs. 40,00,000. Earlier you learned how to discount future cash payments to find their present value. We now apply these ideas to evaluate a simple investment proposal.So, you would be investing Rs. 35,00,000 now in the expectation of realizing Rs. 40,00,000 at the end of the year. You should go ahead if the present value of the Rs. 40,00,000 payoff is greater than the investment of Rs. 35,00,000.

Assume that the Rs. 40,00,000 return is certain that means you are sure about it. The office building is not the only way to obtain Rs. 40,00,000 a year from now. You can invest the amount in a Fixed Deposit (FD). Suppose the FD offers interest of 7 percent on the amount invested. How much would you have to invest in it in order to receive Rs. 40,00,000 at the end of the year?

You would have to invest:

$$\text{Rs. } 40{,}00{,}000 \times 1/1.07$$

$$= \text{Rs. } 40{,}00{,}000 \times 0.935$$

$$= \text{Rs. } 37{,}38{,}320$$

The present value of the Rs. 40,00,000 payoffs from the office building is Rs. 37,38,320.Assume that as soon as you have purchased the land and laid out the money for construction, you decide to sell your project. How much could you sell it for? As the property will be worth Rs. 40,00,000 in a year, customer would be willing to pay maximum of Rs. 37,38,320 for it now. That's all it would cost them to get the same Rs. 40,00,000 payoffs by investing in a FD.The Rs. 37,38,320 present value is the only price that satisfies both buyer and seller and is also its market price or market value.

To calculate present value, we discounted the expected future payoff by the rate of return offered by comparable investment alternatives. The discount rate (7 percent) in our example is known as the opportunity cost of capital because it is the return that is being given up by investing in the project.The building is worth Rs. 37,38,320, but you invested Rs. 35,00,000, so your net present value is Rs. 2,38,320. NPV is found by subtracting the Initial investment from the present value of the project cash flows:

$$\text{NPV} = \text{PV} - \text{required investment.}$$

$$= \text{Rs. } 37{,}38{,}320 - \text{Rs. } 35{,}00{,}000$$

$$= \text{Rs. } 2{,}38{,}320$$

The net present value rule states that financial managers increase shareholders' wealth by accepting all projects that are worth more than they cost. Therefore, they should accept all projects with a positive net present value.NPV is a Discounted Cash Flow technique that recognizes the time value of money. According to NPV, cash flows arising at different time periods differ in value.They are comparable only when their equivalents present values are found out.

Steps in the calculation of Net Present Value (NPV)

There are various steps involved in the calculation of net present value of a project. These steps are given below:

1. Forecast future cash flows of the project based on realistic assumptions.
2. Identify an appropriate discount rate to discount the estimated cash flows. The discount rate is the project's opportunity cost of capital.
3. Calculatethe present value of cash flows using the opportunity cost of capital as the discount rate i.e., discount each of the cash flow by the selected discount rate.
4. Finally, subtractthe present value of cash outflows from present value of cash inflows to find the net present value of the project.

Formula of Net Present Value (NPV)

The formula to calculate the Net Present Value is given as:

$$NPV = \left[\frac{C_1}{(1+k)^1} + \frac{C_2}{(1+k)^2} + \frac{C_3}{(1+k)^3} + \cdots + \frac{C_n}{(1+k)^n}\right] - C_0$$

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

Where,

- C_1, C_2... = net cash inflows in year 1, 2...
- k = opportunity cost of capital
- C_0 = the initial cost of the investment
- n = expected life of the investment

Illustration: Calculating Net Present Value

Let's assume that Project A costs Rs. 2,500 now and is expected to generate year-end cash inflows of Rs. 900, Rs. 800, Rs. 700, Rs. 600 and Rs. 500 in years 1 through 5. The opportunity cost of the capital may be assumed to be 10 per cent.

Solution:

$$NPV = \left[\frac{900}{(1+0.10)^1} + \frac{800}{(1+0.10)^2} + \frac{700}{(1+0.10)^3} + \frac{600}{(1+0.10)^4} + \frac{500}{(1+0.10)^5}\right] - 2500$$

$$= [900 \times 0.909 + 800 \times 0.826 + 700 \times 0.751 + 600 \times 0.683 + 500 \times 0.620] - 2500$$

$$= 2{,}725 - 2500 = +225$$

Project A's present value of cash inflows (Rs. 2,725) is greater than that of cash outflow (Rs. 2,500) and it generates a positive net present value.

NPV = + Rs. 225

Project A adds to the wealth of owners; therefore, it should be accepted.

Importance ofNet Present Value (NPV):

You may ask why should a financial manager invest Rs. 2,500 in Project A? Project A should be undertaken if it is best for the company's shareholders. The shareholders would like their shares to be as valuable as possible. Let's assume that the total market value of a hypothetical company is Rs. 10,000, which includes Rs. 2,500 cash that can be invested in Project A.

Thus, the value of the company's other assets must be Rs. 7,500. The company has to decide whether it should spend cash and accept Project A or to keep the cash and reject Project A. Project A is desirable since its Present Value (Rs. 2,725) is greater than the Rs. 2,500 cash. If Project A is accepted, the total market value of the firm will be: Rs. 7,500 + Present Value of Project A

= Rs. 7,500 + Rs. 2,725 = Rs. 10,225

an increase by Rs. 225

The company's total market value would remain only Rs. 10,000, if Project A was rejected.

Acceptance Rule

- If NPV is positive i.e., NPV > 0: Accept the project
- If NPV is negative i.e., NPV < 0: Reject the project
- If When NPV is zero i.e., NPV = 0: May accept or reject the project

The positive net present value means that the project generates cash inflows at a rate higher than the opportunity cost of capital. A zero NPV means that project generates cash flows at a rate just equal to the opportunity cost of capital.In case of multiple projects which are mutually exclusive in nature; the project with the higher NPV should be selected. While ranking the projects, first rank will be given to the project with highest positive net present value.

Advantages of NPV

The net present value technique is considered one of the most important technique of capital budgeting due to its advantages which are given below:

- **Time value:**In Net Present Value method, cash flows are discounted to the present value. i.e., this technique recognizes the time value of money.
- **Measure of true profitability:**It uses all cash flows occurring over the entire life of the project in calculating its worth.
- **Value-additivity:**The NPVs of projects can be added. It means that if we know the NPVs of individual projects, the value of the firm will increase by the sum of their NPVs.
- **Shareholder value:** The NPV method is consistent with the objective of the shareholder value maximization.

Limitations of NPV

The NPV method however has few limitations also as given below:

- **Cash flow estimation:** It is very difficult to accurately predict the future cash flows of the firm due to uncertainty.
- **Discount rate:**similarly, it is not easy to measure the discount rate in practical world.
- **Ranking of projects:** It should be noted that the ranking of investment projects as per the NPV rule is not independent of the discount rates.

Example: NPV

Suppose we are considering to launch a new consumer product. Expected cash flows over the five-year life of the project will be Rs. 2,000 in the first two years, Rs. 4,000 in the next two, and Rs. 5,000

in the last year. It will cost about Rs. 10,000 to begin production. We use a 10 percent discount rate to evaluate new products.

We can calculate the total value of the product by discounting the cash flows back to the present:

$$\text{Present Value} = (2000/1.1) + (2000/1.1^2) + (4000/1.1^3) + (4000/1.1^4) + (5000/1.1^5)$$

$$= \text{Rs. } 1{,}818 + \text{Rs. } 1{,}653 + \text{Rs. } 3{,}005 + \text{Rs. } 2{,}732 + \text{Rs. } 3{,}105$$

$$= \text{Rs. } 12{,}313$$

The present value of the expected cash flows is Rs. 12,313, but the cost of getting those cash flows is only Rs. 10,000, so the NPV is

$$\text{Rs. } 12{,}313 - \text{Rs. } 10{,}000 = \text{Rs. } 2{,}313.$$

This is positive, so, we should take on the project.

6.2 Internal Rate of Return

There is another important capital budgeting technique based on discounted cash flow method called IRR or the internal rate of return technique.The internal rate of return (IRR) is the annual rate of growth that an investment is expected to generate. IRR is calculated using the same concept as net present value (NPV), except it sets the NPV equal to zero. The rate of return is the discount rate which makes NPV = 0.

Let's assume that you deposit Rs. 10,000 with a bank and would get back Rs. 10,800 after one year. The true rate of return on your investment would be:

$$Rate\ of\ return = \frac{10800 - 10000}{10000}$$

$$= \frac{10800}{10000} - 10000$$

$$= 1.08 - 1$$

$$= 0.08\ or\ 8\%$$

The amount that you would obtain in the future (Rs. 10,800) would consist of your investment (Rs. 10,000) plus return on your investment (0.08 × Rs. 10,000):

$$10{,}000\ (1.08) = 10{,}800$$

$$10{,}000 = 10{,}800/(1.08)$$

IRR can be determined by solving the following equation for *r*:

$$C_0 = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \cdots + \frac{C_n}{(1+r)^n}$$

$$\sum_{t=1}^{n} \frac{C_t}{(1+r)^t} - C_0 = 0$$

You may notice that the IRR equation is the same as the one used for the NPV method. In the NPV method, the required rate of return, *k*, is known and the net present value is found, while in the IRR method the value of *r* has to be determined at which the net present value becomes zero.

Uneven Cash Flows: Calculating IRR by Trial and Error

To calculate IRR in case of uneven cash flows, start with selecting any discount rate to compute the present value of cash inflows. If the calculated present value of the expected cash inflow is lower than the present value of cash outflows, a lower rate should be tried. On the other hand, a higher value should be tried if the present value of inflows is higher than the present value of outflows.This process will be repeated unless the net present value becomes zero. A project costs Rs. 16,000 and is expected to generate cash inflows of Rs. 8,000, Rs. 7,000 and Rs. 6,000 at the end of each year for next 3 years.

We know that IRR is the rate at which project will have a zero NPV. As a first step, we try (arbitrarily) a 20 per cent discount rate. The project's NPV at 20 per cent is:

$$\text{NPV} = -16{,}000 + 8{,}000(\text{PVF}_{1,\,0.20}) + 7{,}000(\text{PVF}_{2,\,0.20}) + 6000\ (\text{PVF}_{3,\,0.20})$$

$$= -16{,}000 + 8{,}000 \text{ x } 0.833 + 7{,}000 \text{ x } 0.694 + 6{,}000 \text{ x } 0.579$$

$$= -16{,}000 + 14{,}996 = -\text{ Rs. } 1{,}004$$

A negative NPV of Rs. 1,004 at 20 per cent indicates that the project's true rate of return is lower than 20 per cent. Let us try 16 per cent as the discount rate.

At 16 per cent, the project's NPV is:

$$\text{NPV} = -16{,}000 + 8{,}000(\text{PVF}_{1,\,0.16}) + 7{,}000(\text{PVF}_{2,\,0.16}) + 6000(\text{PFV}_{3,\,0.16})$$

$$\text{NPV} = -16000 + 8{,}000 \text{ x } 0.862 + 7{,}000 \text{ x } 0.743 + 6000 \text{ x } 0.641$$

$$= -16{,}000 + 15{,}943$$

$$= -\text{ Rs. } 57$$

Since the project's NPV is still negative at 16 per cent, a rate lower than 16 per cent should be tried.

When we select 15 per cent as the trial rate:

$$\text{NPV} = -16{,}000 + 8{,}000(\text{PVF}_{1,0.15}) + 7{,}000(\text{PVF}_{2,0.15}) + 6000\ (\text{PVF}_{3,0.15})$$

$$= -16{,}000 + 8{,}000 \text{ x } 0.870 + 7{,}000 \text{ x } 0.756 + 6{,}000 \text{ x } 0.658$$

$$= -16{,}000 + 16{,}200$$

$$= \text{Rs. } 200$$

The true rate of return should lie between 15–16 per cent.

We can find out a close approximation of the rate of return by the method of linear interpolation as follows:

		Difference
PV required	16,000	200
PV at lower rate, 15%	16,200	257
PV at higher rate, 16%	15,943	

$r = 15\% + (16\% - 15\%)200/257$

$= 15\% + 0.80\% = 15.8\%$

AcceptanceRule:

The acceptance rule according to IRR technique are:

- Accept the project when *r*is greater than *k*
- Reject the project when *r*is less than*k*
- May accept the project when *r*is equal to*k*

Advantages of IRR method:

- **Time value:**IRR recognizes the time value of money.
- **Profitability measure:**It considers all cash flows occurring over the entire life of the project to calculate its rate of return.
- **Acceptance rule:**It generally gives the same acceptance rule as the NPV method.
- **Shareholder value:**It is consistent with the Shareholder Wealth Maximization objective.

Limitations

- **Multiple rates:**A project may have multiple rates, or it may not have a unique rate of return.
- **Mutually exclusive projects:**It may also fail to indicate a correct choice between mutually exclusive projects under certain situations.

Illustration: Invest $ 2,000 now, receive 3 yearly payments of $ 100 each, plus $2,500 in the 3rd year.Let us try 10% interest:

PV of Outflow = -$2,000

Year 1: PV = $100/1.10 = $90.91

Year 2: PV = $100/$1.10^2$ = $82.64

Year 3: PV = $100/$1.10^3$ = $75.13

Year 3 (final payment): PV = $2,500 / 1.10^3 = $1,878.29

Adding all gives:

NPV = -$2,000 + $90.91 + $82.64 + $75.13 + $1,878.29

= $126.97

Let's try 12% interest rate:

Now: PV = -$2,000

Year 1: PV = $100 / 1.12 = $89.29

Year 2: PV = $100 / 1.12^2 = $79.72

Year 3: PV = $100 / 1.12^3 = $71.18

Year 3 (final payment): PV = $2,500/1.12^3 = $1,779.45

Adding up:

NPV = -$2,000 + $89.29 + $79.72 + $71.18 + $1,779.45

= $19.64

At 12.4% interest rate

Now: PV = -$2,000

Year 1: PV = $100 / 1.124 = $88.97

Year 2: PV = $100 / 1.124^2 = $79.15

Year 3: PV = $100 / 1.124^3 = $70.42

Year 3 (final payment): PV = $2,500 / 1.124^3 = $1,760.52

Adding all gives:

NPV = -$2,000 + $88.97 + $79.15 + $70.42 + $1,760.52

= -$0.94

A project has a total up-front cost of $. 435.44. The cash flows are $100 in the first year, $ 200 in the second year, and $ 300 in the third year. What's the IRR? If we require an 18 percent return, should we take this investment? We'll describe the NPV profile and find the IRR by calculating some NPVs at different discount rates.

Beginning with 0 percent, we have:

Discount	Rate NPV
0%	164.56
5%	100.36
10%	46.151
15%	0.00
20%	-39.61

The NPV is zero at 15 percent, so 15 percent is the IRR. If we require an 18 percent return, then we should not take the investment. The reason is that the NPV is negative at 18 percent (verify that it is $ 24.47). The IRR rule tells us the same thing in this case. We shouldn't take this investment because its 15 percent return is below our required 18 percent return.

6.3 Profitability Index (PI)

Profitability index is another discounted cash flow capital budgeting technique.The Profitability Index (PI) measures the ratio between the present value of future cash flows and the initial investment.

Formula

The formula for calculating benefit-cost ratio or profitability index is as follows:

$$PI = \frac{PV\ of\ Cash\ inflows}{Initial\ cash\ outlay} = \frac{PV(C_t)}{C_0}$$

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

Illustration:

The initial cash outlay of a project is Rs. 100,000 and it can generate cash inflow of Rs. 40,000, Rs. 30,000, Rs. 50,000 and Rs. 20,000 in year 1 through 4. Assume a 10 per cent rate of discount.

$$PV = 40{,}000(PVF_{1,0.10}) + 30{,}000(PVF_{2,0.10})$$

$$+ 50{,}000(PVF_{3,0.10}) + 20{,}000(PVF_{4,0.10})$$

$$= 40{,}000 \times 0.909 + 30{,}000 \times 0.826 + 50{,}000 \times 0.751 + 20{,}000 \times 0.68$$

$$NPV = 112{,}350 - 100{,}000 = 12{,}350$$

$$PI = 112{,}350/100{,}000 = 1.1235$$

Acceptance Rule;

The acceptance rule according to Profitability Index (PI) technique are:

- Accept the project when PI is greater than 1 (PI > 1)
- Reject the project when PI is less than 1 (PI < 1)
- May accept the project when PI is equal to 1 (PI = 1)

Advantages:

The advantages of Profitability Index (PI) technique are:

- **Time value:**It recognizes the time value of money.
- **Value maximization:**It is consistent with the shareholder value maximization principle.
- **Relative profitability:**In the PI method, since the present value of cash inflows is divided by the initial cash outflow, it is a relative measure of a project's profitability.

Limitations

The limitations of the Profitability Index (PI) are:

- **Cash flows estimation:**This technique requires calculation of cash flows which is a difficult task.
- **Discount rate estimation:**Similarly, it requires estimation of the discount rate for discounting the cashflows.

Illustration: Calculate Profitability Index of Project X and Project Y, if the discounting rate is 10%

Year (t)	Project X	Project Y
0	-2000	-2000
1	1000	200
2	800	600
3	600	800
4	200	1200

Solution:

PV of Cash Flows of Project X:

$$= \frac{1000}{(1.1)^1} + \frac{800}{(1.1)^2} + \frac{600}{(1.1)^3} + \frac{200}{(1.1)^4} = 2{,}157.64$$

$$PI_X = \frac{2157.64}{2000} = 1.079$$

PV of cash flows of Project Y:

$$= \frac{200}{(1.1)^1} + \frac{600}{(1.1)^2} + \frac{800}{(1.1)^3} + \frac{1200}{(1.1)^4} = 2{,}098.36$$

$$PI_Y = \frac{2098.36}{2000} = 1.049$$

Project X has higher PI.If Project X and Y are independent, accept both projects because PI > 1 for both projects.

Illustration: Company XYZ is considering two projects, Project A and Project B:

Project A:

Year	Cash Flow
0	-1500,000
1	150,000
2	300,000
3	500,000
4	200,000
5	600,000
6	500,000
7	100,000

Project B:

Year	Cash Flow
0	-3000000
1	100000
2	500000
3	1000000
4	1500000
5	200000
6	500000
7	1000000

The appropriate discount rate for this project is 13%. Company A is only able to undertake one project. Using the profitability index method, which project should the company undertake?

Solution:

Project A

Year	Cash Flow	Present Value

0	-1500000	-1500000
1	150000	136363.6
2	300000	247933.9
3	500000	375657.4
4	200000	136602.7
5	600000	372552.8
6	500000	282237
7	100000	51315.81

$$PI = \frac{PV\ of\ Cash\ inflows}{Initial\ cash\ outlay} = \frac{PV(C_t)}{C_0}$$

$$PI = \frac{16,02,663}{15,00,000}$$

PI = 1.07

Project B

Year	Cash Flow	Present Value
0	-3000000	-3000000
1	100000	88495.58
2	500000	391573.3
3	1000000	693050.2
4	1500000	919978.1
5	200000	108552
6	500000	240159.3
7	1000000	425060.6

$$PI = \frac{PV\ of\ Cash\ inflows}{Initial\ cash\ outlay} = \frac{PV(C_t)}{C_0}$$

$$PI = \frac{28,66,869}{30,00,000}$$

PI = 0.96

Project A: PI = 1.07

Project B: PI = 0.96

Thus, Project A should be selected as PI is higher for Project A

6.4 Cash Flow Estimation

The difficulty in estimating cash flows arises because of uncertainty and accounting ambiguities.Events affecting investment opportunities change rapidly and unexpectedly. Mostly

accounting data forms the basis for estimating cash flows. Accounting data are the result of arbitrary assumptions, choices and allocations.

Cash Flow V/S Profit

Cash flow is not the same thing as profit, at least, for two reasons. First, profit, as measured by an accountant, is based on accrual concept—In other words, profit includes cash revenues as well as receivables and excludes cash expenses as well as payable.Second, for computing profit, expenditures are arbitrarily divided into revenue and capital expenditures.Revenue expenditures are entirely charged to profits while capital expenditures are not.

$$\text{Profit} = \text{REV} - \text{EXP} - \text{DEP} \quad (1)$$

$$\text{CF} = \text{REV} - \text{EXP} - \text{CAPEX} \quad (2)$$

We can obtain the following definition of cash flows if we adjust Equation (2) for relationships given in Equation (1):

$$\text{CF} = (\text{REV} - \text{EXP} - \text{DEP}) + \text{DEP} - \text{CAPEX}$$

$$\text{CF} = \text{Profit} + \text{DEP} - \text{CAPEX} \quad (3)$$

Incremental Cash Flows

The estimates of amounts and timing of cash flows resulting from the investment should be carefully made on an incremental basis

- Absolute Cash Flows
- Relative Cash Flows

Components of Cash flows

A typical investment will have three components of cash flows:

- Initial investment
- Annual net cash flows
- Terminal cash flows

Initial outlay

Initial investment is the net cash outlay in the period in which an asset is purchased. A major element of the initial investment is the gross outlay or original value (OV) of the asset, which comprises of its cost and freight and installation charges.When an asset is purchased for expanding revenues, it may require a lump sum investment in net working capital also.

Thus, initial investment will be equal to: gross investment plus increase in net working capital. In case of replacement decisions, the existing asset will have to be sold if the new asset is acquired.The sale of the existing asset provides cash inflow. The cash proceeds from the sale of the existing assets should be subtracted to arrive at the initial investment. For expansion projects, this will consist of the cash flows resulting from acquiring the new asset and will consist of: The Purchase price of the new asset, Installation costs of the new asset e.g., transportation, shipping, handling etc.

For expansion projects, this will consist of the cash flows resulting from acquiring the new asset and will consist of:Increases in working capital requirements e.g., inventory i.e., raw materials, finished goods etc.After-tax non-capital expenditures e.g., costs to train employees to operate asset. For the replacement project, we would also have to incorporate:

After-tax cash flows resulting from the sale of the existing asset.

- Proceeds of sale xxx

- Less: Current Book Value xxx
- Profit/Loss xxx/(xxx)
- Tax/Tax Credit xxx/(xxx)
- After tax cash inflow (1) - (4) xxx

Net Cash Flows

An investment is expected to generate annual cash flows from operations after the initial cash outlay has been made.Net cash flows will mostly consist of annual cash flows occurring from the operation of an investment, but it is also affected by changes in net working capital and capital expenditures during the life of the investment.

Annual After-tax Operating Cash Flows

(^ = incremental and T = Tax rate)

1)	^Revenues	xxx
2)	Less: ^Costs	xxx
3)	Less: ^Depreciation	xxx
4)	^Profit before Tax	xxx
5)	Less: ^Tax	xxx
6)	^Profit after Tax	xxx
7)	Add: ^Depreciation	xxx
8)	After tax cash flow (6) + (7)	xxx

or

1)	(^Revenues - ^Costs)(1 - T)	xxx
2)	Add: (^Depreciation)(T)	xxx
3)	After tax cash flow (1) + (2)	xxx

Interest expenses are not to be included as costs. In other words, they are not to be deducted from incremental Revenues when determining incremental Profit before tax (as normal accounting rules stipulate). To do this would be double counting as interest expense (cost of debt) is already accounted for in the cost of capital (which is used to discount the cash flows).

Terminal cash flows

For both the expansion and replacement projects this will comprises of those cash flows that occur as a result of termination of the new project. These may include:

a) The after-tax cash flows resulting from the sale of the new asset (calculation is similar to above, see Initial outlay)

For both the expansion and replacement projects this will comprises of those cash flows that occur as a result of termination of the new project. These may include:

a) Recovery of working capital, i.e., the working capital cash outflows experienced in the initial outlay will be recovered.

b) Any other after-tax cleanup costs.

Other Types of Cash Flows:

Sunk costs:

Sunk costs are cash outlays incurred in the past. They are the results of past decisions, and cannot be changed by future decisions. Since they do not influence future decisions, they are irrelevant costs.

Opportunity Costs:

In Economics, this is referred to as benefits foregone. Opportunity costs are benefits that are not going to be achieved due to a particular action/decision. These must be accounted for in the capital budgeting decision as cash outflows, on an after-tax basis.

Externalities

The increased revenues or the cost savings derived by the new project could result increased revenues for other existing projects/products in a company. In this case, the increased revenues of the other existing projects/products would be treated as additional increased revenues for the new project.

 **Example:**

Company ABC is considering the purchase of an industrial incubator for the production of day-old chicks. The firm does not currently own such a machine. A consultant was paid Rs.250,000 six months ago to estimate the relevant cash flows which are summarized as follows:

The incubator would save Rs. 500,000 per year in costs and provide additional revenues of Rs. 400,000 annually. It would cost Rs. 1,400,000 and installation and shipping costs would amount to Rs. 300,000 and Rs. 100,00 respectively. ABC would need to train its staff to operate the incubator at an after-tax cost of Rs. 200,000. The firm would also need to increase its stock of eggs at the hatchery by Rs. 500,000.

The company plans to issue debt to fund the project and this will increase interest expenses by Rs. 465,000 per year. The machine will be depreciated towards a salvage value of Rs. 400,000 over its useful life of 5 years. At the end of the machine's useful life, it is expected that it can be sold for Rs. 500,000. The Government's Tax Department will also give the firm a tax credit of Rs. 74,993 at the end of the project as agreed with the firm for partial recovery of import duties.

Company ABC has a cost of capital of 20% and a tax rate of 33.33 %

- Calculate the NPV.
- Calculate the PI of the project?
- Should the project be accepted?

Solution

- Initial Outlay:

New Machine	
Cost	1400000
Installation	300000
Shipping	100000
	1800000
After Tax Training	200000
Increase in WC	500000
	2500000

Annual after-tax cash flows:

(^R-^C)(1-T) (400,000- - 500,000)(1-0.33) = 600,030

^D(T) 280,000(0.333) = 93,324

693,354

- Terminal cash flow:

Sale of New Machine		
Proceeds	500,000	
NBV	400,000	
Profit	100,000	
Tax (33.3%)	33,333	
New Cash Flow		466667
Govt Tax Credit		74993
Recovery of working Capital		500000
		1041,660

(a) NPV

$$NPV = (2500000) + 693354(PVIFA_{0.20\,5}) + 1041660(PVIF_{0.20\,5})$$

$$= (2500000) + 693354(2.9906) + 1041660(0.4019)$$

$$= (2,500,000) + 2,073,544.47 + 418,643.15$$

$$= (Rs.\ 7812.38)$$

(b) PI

$$\frac{2,073,544.47 + 418,643.15}{2,500,000}$$

$$\frac{2,492,187.62}{2,500,000} = 0.9969$$

(c) The project should not be accepted as the NPV is negative and PI is less than 1.

6.5 NPV vs IRR

Net Present Value (NPV) and Internal Rate of Return (IRR) are two of the most widely used investment analysis techniques.They are similar because both are cash flow models.The NPV is an absolute measure, i.e., it is the amount in Rupees/dollars etc. of value added or lost by engaging in a project.IRR is a relative measure, i.e., it is the rate of return a project offers over its life, in percentages.

Net Present Value Profile

NPV profile is a graphical representation of the relationship between an investment's NPVs and various discount rates.NPV Profile plots different NPVs on the vertical axis, or y-axis, and the discount rates on the horizontal axis, or x-axis.

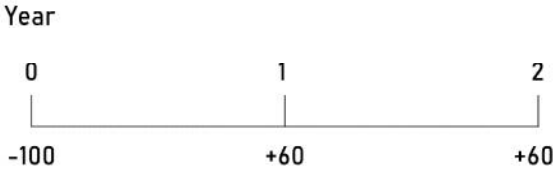

Fig. 1: Cashflows of a Project A

Table 1: NPV at different discount rates

Discount Rate	NPV
0%	20.00
5%	11.56
10	4.13
15	-2.46
20	-8.33

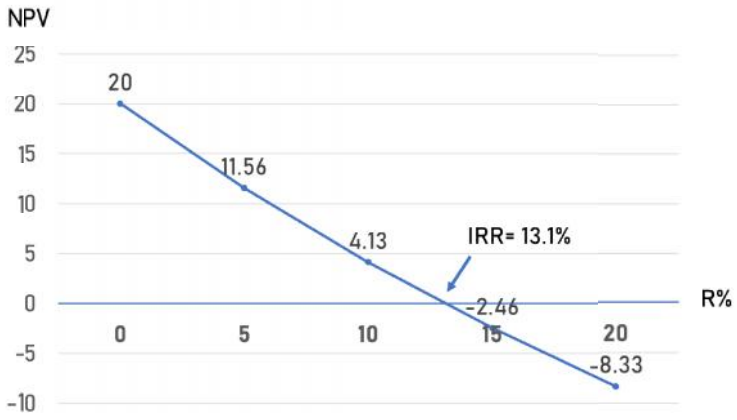

Fig.2: NPV profile

NPV VS IRR conflict

IRR and NPV rules always lead to the same decisions as long as two conditions are met.The project's cash flows must be conventional. The project must be independent i.e., Decision to accept or reject this project does not affect the decision to accept or reject any other.

Conventional Project

A conventional investment: whose cash flows take the pattern of an initial cash outlay followed by cash inflows. (– + + +).A non-conventional investment, which has cash outflows mingled with cash inflows throughout the life of the project. (– + + + – ++ – +).

Pitfall 1: Non-conventional Cash Flows

Suppose we have a mining project that requires a 60 Lacs investment. Cash flow in the first year will be 1.55 Crore. In the second year, the mine will be depleted, but we will have to spend 1 Crore to restore the terrain.

Non-conventional Cash Flows

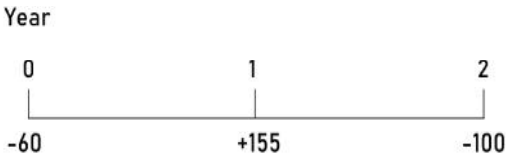

Fig 3: Cash flows of Mining Project

Table 2: Discount Rate and NPV

Discount Rate	NPV
0%	-5.00
10	-1.74
20	-0.28
30	0.06
40	-0.31

NPV VS IRR

First, as the discount rate increases from 0 percent to 30 percent, the NPV starts with negative and becomes positive. This seems opposite because the NPV is rising as the discount rate rises. It then starts getting smaller and becomes negative again.

Fig 4: NPV Profile

NPV VS IRR

In Fig 4, NPV is 0 when the discount rate is 25%. The NPV is also zero at 33.33%. Which of these is correct?This is multiple rates of return problem. If our required return is 10 percent. Should we take this investment? Both IRRs are greater than 10 percent, so, by the IRR rule, maybe we should. NPV is positive only if our required return is between 25% and 33.33%.In nutshell, when the cash flows aren't conventional, problem arises with the IRR.

Pitfall 2: Mutually Exclusive Investment

Mutually exclusive investment decisions are a situation in which taking one investment prevents the taking of another.

Mutually Exclusive Investment

Given two or more mutually exclusive Projects which one is the best? Can we also say that the best one has the highest return?

Cashflows of Project A and Project B

Table 3: Cashflows of Project A and Project B

Year	Project A	Project B
0	-100	-100
1	50	20
2	40	40
3	40	50
4	30	60

The IRR for A is 24%.IRR for B is 21%. Project A seems better because of its higher return.

Table 4: NPV of Project A and Project B

Discount Rate	NPV A	NPV B
0%	60.00	70.00
5	43.13	47.88
10	29.06	29.79
15	17.18	14.82
20	7.06	2.31
25	-1.63	-8.22

In our example, the NPV and IRR rankings conflict for some discount rates. If our required return is 10 percent, B has the higher NPV and is the better of the two even though A has the higher return.Fig 5 shows the conflict between the IRR and NPV for mutually exclusive investments.The NPV profiles cross at about 11 percent.At any discount rate less than 11 percent, the NPV for B is higher.At any rate greater than 11 percent, Project A has the greater NPV.

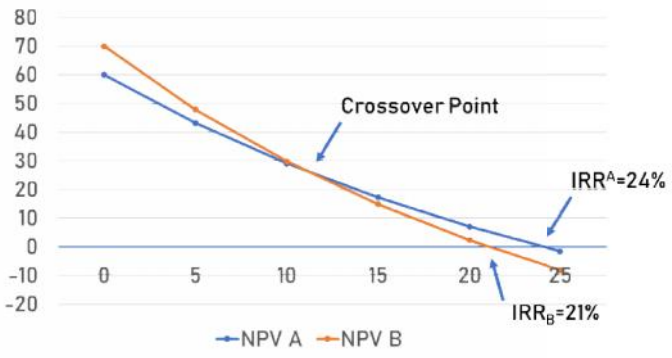

Fig. 5: NPV profiles for mutually exclusive investments

This example shows that when we have mutually exclusive projects, we shouldn't rank them based on their returns. When we are comparing projects to determine which is best, judging through IRRs can be misleading.Rather, we need to look at the relative NPVs to avoid the possibility of choosing incorrectly. Suppose you have two investments. One has a 10% return and makes you Rs. 100 richer immediately. The other has a 20% return and makes you Rs. 50 richer immediately. Which one will you choose? We would choose Rs. 100 than Rs. 50, although the returns, is greater in case of second.

6.6 Risk involved in Capital Budgeting

Risk arises in the investment evaluation because the forecasts of cash flows can go wrong.Risk can be defined as variability of returns (NPV or IRR) of an investment project. Standard deviation is a commonly used measure of variability.Firm cannot predict the occurrence of possible future events with certainty. The uncertain economic conditions are the sources of uncertainty in the cash flows.

For example, a company wants to market a new product to their prospective customers. Demand may be very high if the country experiences higher economic growth. On the other hand, adverse economic events may trigger economic slowdown. This may bring down the estimated cash flows

Events influencing the investmentforecasts:

- **General economic conditions**: Events which influence the general level of business activity such as economic and political situations, monetary and fiscal policies, etc.
- **Industry factors:**This category of events may affect all companies in an industry like industrial relations in the industry, by innovations, by change in material cost, etc.
- **Company factors:**This category of events may affect only the company like change in management, strike in the company etc.

6.7 Techniques of Risk Analysis

Certainty Equivalent

Common procedure for dealing with risk in capital budgeting is to reduce the forecasts of cash flows to some conservative levels. For example, if an investor expects a cash flow of Rs. 30,000 next year, he will apply an intuitive correction factor and may work with Rs. 20,000 to be on the safe side. There is a certainty-equivalent cash flow.

The certainty equivalent approach may be expressed as:

$$NPV = \sum_{t=0}^{n} \frac{\alpha_t \, NCF_t}{(1 + kf)^t}$$

Where:

- NCF_t= Forecasts of net cash flow without risk adjustment.
- α_t = The certainty-equivalent coefficient
- k_f = risk-free rate

The certainty-equivalent coefficient, α_t, assumes a value between 0 and 1, and varies inversely with risk. A lower α_t will be used if greater risk is perceived and a higher α_t will be used if lower risk is expected.The manager subjectively or objectively establishes the coefficients. These coefficients reflect the decision maker's confidence in obtaining a particular cash flow in period *t*.

For example, a expected cash flow for the next year is Rs. 40,000, but if the investor thinks that only 80% of it is a certain amount, then the certainty-equivalent coefficient will be 0.80. He considers only Rs. 32,000 as the certain cash flow. To obtain certain cash flows, we will multiply estimated cash flows by the certainty-equivalent coefficients.

The certainty-equivalent coefficient can be determined as a relationship between the certain cash flows and the risky cash flows.

$$\alpha_t = \frac{NCF_t}{NCF_t} = \frac{Certain\ net\ cash\ flow}{Risky\ net\ cash\ flow}$$

For example, expected risky cash flow is of Rs. 40,000 in period *t* and certain cash flow of Rs. 30,000 is equally desirable, then α_t will be 0.75

= 30,000/40,000.

If Investment outlay is Rs. 45,00,000 and risk-free rate is 5%, calculate NPV under certainty equivalent technique.

Year	Expected Cash flow (Rs.)	Certainty Equivalent Coefficient
1	10,00,000	0.90
2	15,00,000	0.85
3	20,00,000	0.82
4	25,00,000	0.78

$$NPV = \frac{1000000 \times (0.90)}{(1.05)} + \frac{1500000 \times (0.85)}{1.05^2} + \frac{2000000 \times (0.82)}{1.05^3} + \frac{2500000 \times (0.78)}{1.05^4} - 45{,}00{,}000$$

= Rs. 5,34,570

Advantages of Certainty Equivalent Method:

The advantages of this method are:

- Simple and easy to understand and apply.
- It can easily be calculated for different risk levels applicable to different cash flows.

Disadvantages of Certainty Equivalent Method:

- Certainty Equivalents are subjective and vary as per each individual's estimate.
- The risk perception of the shareholders who are the money lenders for the project is ignored.
- The forecaster, expecting the reduction that will be made in his forecasts, may inflate them in anticipation.

6.8 Sensitivity Analysis

Sensitivity analysis is a way of analyzing change in the project's NPV (or IRR) for a given change in one of the variables. It indicates how sensitive a project's NPV (or IRR) is to changes in particular variables. The more sensitive the NPV, the more critical is the variable.

Steps in Sensitivity Analysis

a) Identification of all those variables, which have an influence on the project's NPV (or IRR).
b) Definition of the underlying mathematical relationship between the variables.
c) Analysis of the impact of the change in each of the variables on the project's NPV.

Sensitivity analysis

The decision maker computes the project's NPV (or IRR) for each forecast under three cases:

- Pessimistic,
- Expected and
- Optimistic.

Example:

XYZ Company is planning to install a plant costing Rs. 10 million to increase its production capacity. The expected values of the underlying variables are given in Table 1.Salvage value is assumed to be 0.

Table 1: Expected Values of Variables

1. Investment ('000)	14,000
2. Sales volume (units '000)	1,000
3. Unit selling price	20
4. Unit variable cost	10
5. Annual fixed costs ('000)	5,000
6. Depreciation (straight line)	2,000
7. Corporate tax rate	30%
8. Discount rate	12%

$$NCF = 1{,}000\ (20 - 10) - 5{,}000)]\ (1 - 0.30) + 0.30 \times 2{,}000$$

$$= \text{Rs. } 4{,}100$$

NPV of an annuity of 7 years at 12 per cent discount rate and IRR are:

NPV = +4,711

IRR = 22%

As the NPV is positive (or IRR > discount rate), the project can be accepted.

Before taking a decision, finance manager may like to know whether the NPV changes, if the forecasts go wrong. A sensitivity analysis can be conducted with regard to volume, price, costs, etc. In order to do so, we must obtain pessimistic and optimistic estimates of the underlying variables.

Table 2: Forecasts Under Different Assumptions

Variable	Pessimistic	Expected	Optimistic
Volume (units '000)	850	1,000	1,150
Units selling price (Rs.)	17	20	23
Units variable cost (Rs.)	11.50	10	8.50
Annual fixed costs	5,750	5,000	4,250

(`'000)			

Table 3: Sensitivity Analysis Under Different Assumptions

	Net Present Value		
Variable	**Pessimistic**	**Expected**	**Optimistic**
Volume	(81)	4,711	9,503
Units selling price	(4,872)	4,711	14,295
Units variable cost	(81)	4,711	9,503
Annual fixed costs	2,315	4,711	7,107

Table 3 shows the project's NPV when each variable is set to its pessimistic, expected and optimistic values. The most critical variables are sales volume and unit selling price.

Advantages of Sensitivity Analysis:

- It is a simple technique
- It compels the decision maker to identify the variables, which affect the cash flow forecasts.
- It Indicates the critical variables for which additional information may be obtained.

Disadvantage of Sensitivity Analysis

- It does not provide clear-cut results as the terms 'optimistic' and 'pessimistic' could mean different things to different persons.
- It fails to focus on the interrelationship between variables.

Summary

- Net present value (NPV) of a project is the difference between the present value of cash inflows and the present value of cash outflows. The net present value rule states that financial managers increase shareholders' wealth by accepting all projects that are worth more than they cost. Therefore, they should accept all projects with a positive net present value. NPV is a Discounted Cash Flow technique that recognizes the time value of money.
- Internal Rate of Return: There is another important capital budgeting technique based on discounted cash flow method called IRR or the internal rate of return technique. The internal rate of return (IRR) is the annual rate of growth that an investment is expected to generate. IRR is calculated using the same concept as net present value (NPV), except it sets the NPV equal to zero. The rate of return is the discount rate which makes NPV = 0.
- Profitability index is another discounted cash flow capital budgeting technique. The Profitability Index (PI) measures the ratio between the present value of future cash flows and the initial investment.
- Cash Flow Estimation: The difficulty in estimating cash flows arises because of uncertainty and accounting ambiguities. Events affecting investment opportunities change rapidly and unexpectedly. Mostly accounting data forms the basis for estimating cash flows. Accounting data are the result of arbitrary assumptions, choices and allocations.
- Net Present Value (NPV) and Internal Rate of Return (IRR) are two of the most widely used investment analysis techniques. They are similar because both are cash flow models.

The NPV is an absolute measure, i.e., it is the amount in Rupees/dollars etc. of value added or lost by engaging in a project. IRR is a relative measure, i.e., it is the rate of return a project offers over its life, in percentages.

- NPV VS IRR conflict: IRR and NPV rules always lead to the same decisions as long as two conditions are met. The project's cash flows must be conventional. The project must be independent i.e., Decision to accept or reject this project does not affect the decision to accept or reject any other.
- Risk can be defined as variability of returns (NPV or IRR) of an investment project. Standard deviation is a commonly used measure of variability. Firm cannot predict the occurrence of possible future events with certainty. The uncertain economic conditions are the sources of uncertainty in the cash flows. Certainty Equivalent and Sensitivity Analysis are examples of the risk evaluation techniques.

Keywords

Investment decisions, Capital Budgeting, Discounted cash flow technique, Net Present Value, Internal Rate of Return, Profitability Index, Cash flow estimation, Risk evaluation.

Self Assessment

1. The first step in calculation of net present value is to find out

A. Present value of equity
B. Future value of equity
C. Present value cash flow
D. Future value of cash flow

2. In capital budgeting, a technique which is based upon discounted cash flow is classified as

A. net present value method
B. net future value method
C. net capital budgeting method
D. net equity budgeting method

3. The decision rule for net present value is to:

A. accept all projects with cash inflows exceeding initial cost
B. reject all projects with rates of return exceeding the opportunity cost of capital
C. accept all projects with positive net present values
D. reject all projects lasting longer than 10 years

4. The internal rate of return can best be described as:

A. the discount rate at which a set of cash flows have a positive net present value.
B. the rate which the business has to pay to raise finance for an investment.
C. the return required by the managers of the business.
D. the discount rate at which a set of cash flows have a zero net present value.

5. The acceptance rule in case of IRR technique is:

A. Accept the project when r > k
B. Reject the project when r > k
C. Reject the project when r = k
D. None of the above

6. The acceptance rule in case of IRR technique is:
A. Accept the project when r > k
B. Reject the project when r > k
C. Reject the project when r = k
D. None of the above

7. If a firm has to select only one project out of multiple projects, then according to the PI rule:
A. Accept the project with higher PI
B. Accept the Project with lower PI
C. Accept the project having PI closer to 1
D. Accept the project with PI equal to 0

8. A profitability index of 0.95 for a project means that:
A. the present value of benefits is 95% greater than the project's costs.
B. the project's NPV is greater than zero
C. the project returns 95 cents in present value for each current rupee invested
D. the payback period is less than one year

9. A project's *profitability index* is equal to the ratio of the ____ of a project's future cash flows to the project's ____.
A. present value; initial cash outlay
B. net present value; initial cash outlay
C. present value; depreciable basis
D. net present value; depreciable basis

10. If capital is to be allocated for only the current period, a firm should probably first consider selecting projects by descending order of _____.
A. net present value
B. payback period
C. internal rate of return
D. profitability index

11. A typical investment will have following component/s of cash flows:
A. Initial investment
B. Annual net cash flows
C. Terminal cash flows
D. All of the above

12. A cost incurred in the past that cannot be changed by any future action is:

A. Opportunity cost

B. Sunk cost

C. Relevant cost

D. Avoidable cost

13. Opportunity cost is_____?

A. the cost incurred in the past before we make a decision about what to do in the future.

B. a cost that cannot be avoided.

C. that which we forgo while taking a decision.

D. the additional benefit of buying an additional unit of a product

14. In the case of conflict, why is the NPV method preferred over IRR?

A. IRR is not always a reliable method especially in case of non-conventional cash-flow.

B. NPV has a simpler assumption for the discount rate

C. NPV has more probability of indicating to undertake a project

D. NPV is the robust formula for capital budgeting

15. In certainty-equivalent approach, risk adjusted cash flows are discounted at

A. Accounting Rate of Return

B. Internal Rate of Return

C. Hurdle Rate

D. Risk-free Rate

Answers for Self Assessment

1.	C	2.	A	3.	C	4.	D	5.	A
6.	A	7.	A	8.	C	9.	A	10.	D
11.	D	12.	B	13.	C	14.	A	15.	D

Review Questions

1. Do the profitability index and the NPV criterion of evaluating investment proposals lead to the same acceptance-rejection and ranking decisions?
2. Explain the NPV-IRR conflict.
3. What does the profitability index signify? What is the criterion for judging the worth of investments in the capital budgeting technique based on the profitability index?
4. Company ABC is considering a project with the following expected cash flows:

Year	Project Cash

	Flow
0	- Rs. 70 Lac
1	20 Lac
2	37 Lac
3	22.5 Lac
4	70 Lac

The project's WACC is 10 percent. What is the project's discounted payback?

5. Company XYZ Ltd. is considering two mutually exclusive investment proposals for its expansion programme. Proposal X requires an initial investment of Rs 75000 and yearly cash operating costs of Rs 5,000. Proposal Y requires an initial investment of Rs 50,000 and yearly cash operating costs of Rs 10,000. The life of the equipment used in both the investment proposals will be 10 years, with no salvage value; depreciation is on the straight-line basis for tax purposes. The anticipated increase in revenues is Rs 15,000 per year in both the investment proposals. The firm's tax rate is 30 per cent and it's cost of capital is 15 per cent. Which investment proposal should be selected by the company?

Further Readings

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Unit 07: Cost of Capital

CONTENTS

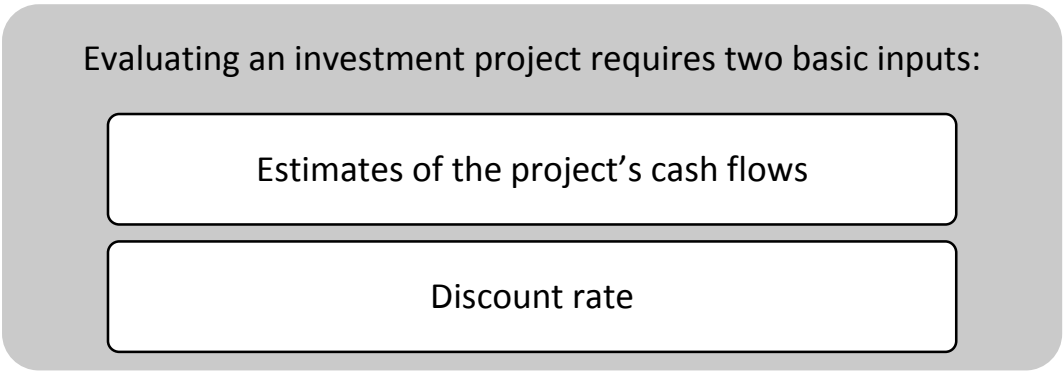
Objectives

After studying this unit, you will be able to:

- understand the meaning and concept of Cost of capital.
- analyze the significance of Cost of capital.
- compute the cost of Debt.
- compute cost of Preference Shares,
- compute cost of Internal Equity,
- compute cost of External Equity
- understand the concept of WACC.
- compute the WACC.
- analyse the international dimension in Cost of Capital.

Introduction

In the previous chapter, we discussed capital budgeting techniques. In the capital budgeting decisions, the estimation of cash flow and the discount rate is very crucial. The discount rate is based on a certain required rate of return from the project which becomes the basis for accepting or rejecting the project. That required rate is the cost of capital of a firm. Apart from its usefulness as an operational criterion to accept/reject an investment proposal, cost of capital is also an important factor in designing capital structure. In this chapter, we will discuss the cost of Debt, Cost of Equity, and the overall cost of capital in a firm.



7.1 Discount Rate

The opportunity cost of capital or the cost of capital for a project is the rate for discounting the cash flows. The project's cost of capital is the minimum required rate of return on funds invested in the project, which depends on the riskiness of its cash flows. The firm represents the aggregate of investment projects undertaken by it. The firm's cost of capital will be the average required rate of return on the total investment projects undertaken by the firm.

7.2 Meaning of Cost of Capital

A firm needs various factors of production like capital, labor, land etc. for its production process. Every factor employed in the production process has to be rewarded in some form. Capital is rewarded through Interest or dividend, labor with salary and wages, land with rent and entrepreneurship with profits. Cost of capital is the return required by the providers of capital to the business as a compensation for their contribution to the total capital. When a firm has procured finances, it has to pay some additional amount of money besides the principal amount. The additional money paid by the firm is the cost of using the capital.

7.3 Importance of Cost of Capital

The computation of the firms cost of capital is very important due to the following reasons:

- **Evaluation of investment options:** The main purpose of measuring the cost of capital is for evaluating the investment projects. The project's NPV is calculated by discounting its cash flows by the cost of capital. In the IRR method, the investment project is accepted if it has an internal rate of return greater than the cost of capital.
- **Designing of optimum credit policy:** The debt policy of a firm is significantly influenced by the cost consideration. Debt helps to save taxes as interest on debt is a tax-deductible expense. The interest tax shield reduces the overall cost of capital.
- **Performance Appraisal:** The cost of capital framework can be used to evaluate the financial performance of top management.Cost of capital is used to appraise the performance of a particular project or business.

Opportunity cost of capital:

The opportunity cost is the rate of return foregone on the next best alternative investment opportunity of comparable risk. Thus, the required rate of return on an investment project is an opportunity cost. For example, you may invest your savings of Rs. 100,000 either in 6.5 per cent 3-year Fixed deposit in a Bank or 7 per cent, 3-year postal certificates.

Shareholders' Opportunity Cost:

The manager should consider the required rate of all the shareholders' in evaluating the investment decisions. In an all-equity financed firm, the equity capital of ordinary shareholders is the only source to finance investment projects.Firm's cost of capital is equal to the opportunity cost of equity capital, which will depend only on the business risk of the firm.

Creditors' Opportunity cost:

Different investors are exposed to different degrees of risk. Unlike equity shareholders, the firm is under a legal obligation to pay interest and repay principal to the creditors. Debt holders are exposed to the risk of default by the firm.

Preference shareholders hold claim prior to ordinary shareholders but after debt holders. Preference dividend is fixed, the firm will pay it after paying interest but before paying any ordinary dividend. Dividends is paid to the ordinary shareholders from cash remaining after interest and preference dividends have been paid.

Risk Differences: Shareholders' and Creditor Claims

The investors demand different rates of return on various securities as the risk level is different for different type of security. Higher the risk of a security, the higher the rate of return required by investors. Ordinary shareholders will require highest rate of return on their investment. Preference share is riskier than debt, its required rate of return will be higher than that of debt. Required rate of return of any security includes two rates—a risk-free rate and a risk premium. A risk-free security will require compensation for time value and its risk-premium will be zero such as the treasury bills and bonds. In case of risky securities, Investors expect higher rates of return. The higher the risk of a security, the higher will be its risk-premium.

From the viewpoint of all investors, the firm's cost of capital is the rate of return required by them for supplying capital. The rate of return required by all investors will be an overall rate of return—a weighted rate of return. Thus, the firm's cost of capital is the 'average' of the opportunity costs (or required rates of return) of various securities, which have claims on the firm's assets.

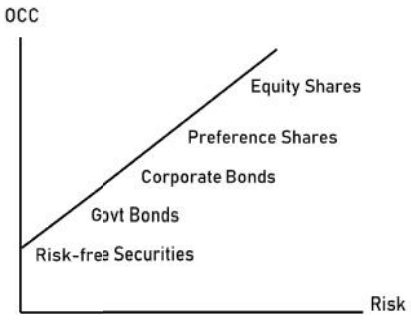


Fig.': Risk-Return Relationship

Determination of the cost of Capital

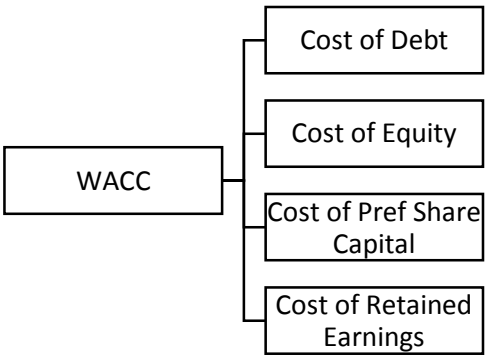
The cost of capital can either be explicit or implicit.

- **Explicit cost:** The cash outflow of a firm towards the utilization of capital which is clear.
- **Implicit cost:** Not a cash outflow but is an opportunity loss of foregoing a better investment opportunity.

7.4 Weighted Average Cost of Capital

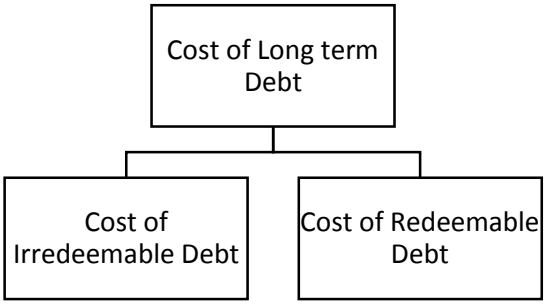
The weighted average cost of capital (WACC) represents a firm's average cost of capital from all sources, including Equity shares, preferred shares, debentures, and other forms of debt. The weighted average cost of capital is a common way to determine required rate of return because it expresses, in a single number, the return that both debenture holders and shareholders demand in

order to provide the company with capital. The WACC represents the minimum return that a company must earn to pay to its creditors, owners, and other providers of capital. The WACC may have the following components:



1. Cost of Debt

Let's first discuss the cost of debt for the business or the cost of borrowed funds. Debt can be raised from financial institutions or public either in the form of public deposits or debentures (bonds). A debenture may be issued at par or at a discount or premium as compared to its face value. The contractual rate of interest forms the basis for calculating the cost of debt. The long-term debt can be divided into redeemable debt and irredeemable debt and thus the cost of debt will include the cost of irredeemable debt and cost of redeemable debt.



Debt Issued at Par

The before-tax cost of debt (k_d) is the rate of return required by debt providers. Before-tax cost of debt issued and to be redeemed at par is equal to the contractual rate of interest (i).

$$k_d = i = \frac{INT}{B_0}$$

Where,

- K_d = Before tax cost of Debt
- i = Coupon rate of interest,
- B_0 = Issue price of the bond (debt)
- INT = Amount of interest.

Illustration:

A company decides to sell a new issue of 7 year 15 per cent bonds of Rs. 100 each at par. If the Face value is Rs. 100 bond and Maturity value is also Rs. 100, the before-tax cost of debt will be:

$$k_d = \frac{15}{100} = 15\%$$

Alternatively, we can use Present Value method:

Cash outflows are Rs. 15 interest per year for 7 years and Rs. 100 at the end of seventh year in exchange for Rs. 100 now.

$$100 = \frac{15}{(1+k_d)^1} + \frac{15}{(1+k_d)^2} + \frac{15}{(1+k_d)^3} + \frac{15}{(1+k_d)^4} + \frac{15}{(1+k_d)^5} + \frac{15}{(1+k_d)^6} + \frac{15}{(1+k_d)^7} + \frac{100}{(1+k_d)^7}$$

$$100 = \sum_{t=1}^{n} \frac{15}{(1+k_d)t} + \frac{100}{(1+kd)^7}$$

$$100 = 15(PVIFA_{7,kd}) + 100(PVF_{7,kd})$$

By trial and error, we find that the discount rate (k_d), which solves the equation, is 15 percent:

$$100 = 15\ (4.160) + 100\ (0.376)$$

$$= 62.40 + 37.60 = 100$$

So YTM is the Internal rate of return at which current price of a debt equals to the present value of the all the cash flows

Debt Issued at Discount or Premium

Both methods will give identical results only when debt is issued at par and redeemed at par. Present Value method can be rewritten as follows to compute the before-tax cost of debt

$$B_0 = \sum_{t=1}^{n} \frac{INT_t}{(1+k_d)^t} + \frac{B_n}{(1+k_d)^n}$$

Where,

- B_0 = value of debenture today,
- B_n = repayment value of debt on maturity.

Above equation can be used to find out the cost of debt whether debt is issued at par or discount or premium, i.e., $B_0 = F$ or $B_0 > F$ or $B_0 < F$. Assume that in the previous example each bond is sold below par for Rs. 94, k_d is calculated as:

$$94 = \sum_{t=1}^{7} \frac{15}{(1+k_d)^t} + \frac{100}{(1+k_d)^7}$$

$$94 = 15(PVFA_{7,\ k_d}) + 100(PVF_{7,\ k_d})$$

K_d will be found by trial and error.

- Try 17%

$$15(3.922) + 100(0.333)$$

$$58.83 + 33.90$$

= 91.13 < 94

- Try 16%:

=15(4.038) + 100(0.354)

= 60.57 + 35.40

= 95.97 > 94

- By interpolation, we can find k_d:

$$k_d = 16\% + (17\% - 16\%)\frac{1.97}{3.84} = 16.5\%$$

Short-cut method

If the amount of discount or premium is adjusted over the period of debt, Short-cut method can also be used:

$$k_d = \frac{\text{INT} + \frac{1}{n}(F - B_0)}{\frac{1}{2}(F + B_0)}$$

Using the data of previous example:

$$k_d = \frac{15 + \frac{1}{7}(100 - 94)}{\frac{1}{2}(100 + 94)} = \frac{15.86}{97} = 0.164 \quad \text{or} \quad 16.4\%$$

Tax Adjustment

The interest paid on debt is tax deductible. Due to the interest tax shield, the after-tax cost of debt to the firm will be less than the investors' required rate of return. The before-tax cost of debt, should be adjusted for the tax effect:

After tax cost of debt = $k_d(1 - T)$

Where, T is the corporate tax rate.

In our example is 16.5 percent is the before tax cost of debt and the Tax rate is 35%, the after-tax cost of bond will be:

$$k_d(1 - T)$$

$$= 0.165(1 - 0.35)$$

= 10.73%

It should be noted that the tax benefit of interest deductibility would be available only when the firm is profitable and is paying taxes.

The annual interest will be:

$F \times i$ = Rs. 100 × 0.15

= Rs. 15,

Maturity price will be:

Rs. 100 (1.05)

= Rs. 105

The after-tax cost of debenture will be:

$$97.75 = \sum_{t=1}^{n} \frac{15}{(1+k_d)} + \frac{105}{(1+k_d)^7}$$

Cost of the Existing Debt

The current cost of the existing debt is calculated as the current market yield of the debt. Suppose, a firm has 11% debentures of Rs. 100,000 of Rs. 100 face value outstanding at 31 Dec 2020 to be matured on 31 Dec 2025. A new issue of debentures could be sold at a net realizable price of Rs. 80 in the beginning of 2021.

Cost of the existing debt, using short-cut method, will be:

$$k_d = \frac{11+1/5(100-80)}{1/2(100+80)} = \frac{15}{90} = 0.167 \quad \text{or} \quad 16.7\%$$

If T = 0.35, the after-tax cost of debt will be:

$$k_d\,(1\text{-}T\,) = 0.167(1\text{-}0.35) = 0.109$$

$$= 10.9\ \%$$

2. Cost of Equity

After the discussion on the debt capital in the previous section, we will now discuss the cost of Equity capital. Equity is the amount of capital invested or owned by the owner of a company. The cost of equity capital can be divided into cost of preference shares, cost of equity shares/external equity and cost of internal equity or retained earnings.

3. Cost of Preference shares

The equity shareholders are paid a dividend in return of the capital provided to the firm. However, payment of dividends to the preference shareholders is not legally binding on the firm. Even if the dividends are paid, it is not a charge on earnings. The cost of preference capital is a function of the dividend expected by investors which is based on the credit standing and market value of the firm. The preference shares can be divided into irredeemable and redeemable preference shares.

4. Irredeemable Preference Share

These shares are issued for the life of the company and are not redeemed. The preference share may be treated as a perpetual security if it is irredeemable. Cost of Preference Shares is given by the following equation:

$$k_p = \frac{PDIV}{P_0}$$

Where:

- k_p is the cost of preference share
- PDIV is the expected preference dividend
- P_0 is the issue price of preference share

Illustration:

A company issues 15% irredeemable preference shares. The face value per share is Rs. 100, but the issue price is Rs. 95. What is the cost of a preference share? What is the cost if the issue price is Rs. 105?

- Issue price Rs. 95:

$$k_p = \frac{15}{95} = 15.78\%$$

- Issue price Rs. 105:

$$k_p = \frac{15}{105} = 14.28\%$$

Redeemable Preference Share

These shares are issued for a particular period and at the expiry of that period, they are redeemed and principal is paid back to their holders. The characteristics are very similar to debt and therefore the calculations will be similar too. A Present Value formula can be used to compute the cost of redeemable preference share:

$$P_o = \sum_{t=1}^{n} \frac{PDIV_t}{(1+k_p)t} + \frac{P_n}{(1+k_p)n}$$

Preference dividend is paid after the taxes have been paid, hence the cost of preference share is not adjusted for taxes.

7.5 Cost of Equity Capital

Cost of equity is the return that an investor requires for investing in a company, or the required rate of return that a company must receive on an investment or project. Equity capital can be divided into external equity and internal equity internal equity is also called retained earnings.

1. **External equity:** Firms could distribute the entire earnings and raise equity capital externally by issuing new shares.
2. **Internal Equity:** Firms may use equity capital internally by retaining earnings.

The cost of the External equity will be more than the internal equity. As we already know that it's not legally binding for firms to pay dividends to ordinary shareholders. Ordinary shareholders supply funds to the firm in the expectation of dividends and capital gains. The shareholders' required rate of return, which equates the present value of the expected dividends with the market value of the share, is the cost of equity.

Problems in calculating cost of Equity:

- Difficult to estimate the future or the expected dividends.
- Difficult to estimate the growth of dividends.

Cost of Internal Equity

The opportunity cost of the retained earnings is the rate of return foregone by equity shareholders.

The Dividend-growth Model:

Normal growth:

As the dividend valuation model for a firm assuming dividends are expected to grow at a constant rate (g) and dividend payout ratio is constant:

$$k_e = \frac{DIV_1}{P_o} + g$$

The cost of equity is equal to the expected dividend yield (DIV_1/P_0) plus capital gain rate(g). The $k_e$shows that if the firm would have distributed earnings to shareholders, they could have invested

it to earn a rate of return equal to k_e. If a return on retained earnings is less than k_e, the market price of the firm's share will fall.

Illustration:

Suppose that the current market price of a company's share is Rs. 80 and the expected dividend per share next year is Rs. 4. If the dividends are expected to grow at a constant rate of 10%.

Solution:

$$k_e = \frac{DIV_1}{P_o} + g$$

$$k_e = \frac{4}{80} + 0.10$$

$$= 0.05 + 0.10$$

$$= 15\%$$

The company should earn a return of minimum 15% on retained earnings to keep the current market price unchanged.

Cost of External Equity

The minimum rate of return, which the equity shareholders require on funds supplied by them, is the cost of external equity.

a. The Dividend-growth Model

$$k_e = \frac{DIV_1}{P_o} + g$$

In India, the new issues of ordinary shares are generally sold at a price less than the market price.

$$k_e = \frac{DIV_1}{P_I} + g$$

Where:

- P_I is the issue price of new equity

Illustration:

The current price share of a company is Rs. 100. The company wants to finance its capital expenditures of Rs. 100 million either through retained earnings or by selling new shares. Issue price of new shares will be Rs. 95. The dividend per share next year, DIV_1, is Rs. 4.75 and it is expected to grow at 6%.

Cost of internal equity:

$$k_e = \frac{DIV_1}{P_o} + g$$

$$k_e = \frac{₹4.75}{₹100} + 0.06 = 0.0475 + 0.06 = 0.1075 \text{ or } 10.75\%$$

Cost of External equity:

$$k_e = \frac{DIV_1}{P_I} + g$$

$$k_e = \frac{₹4.75}{₹95} + 0.06 = 0.05 + 0.06 = 0.11 \text{ or } 11\%$$

b. Capital Asset Pricing Model (CAPM)

The CAPM provides a framework to determine the required rate of return on an asset and indicates the relationship between return and risk of the asset. The risks, to which a security is exposed, can be classified into two groups:

- **Unsystematic Risk:** also called company specific risk as the risk is related to the company's performance.
- **Systematic Risk:** market specific risk under which a company operates e.g. inflation, Government policy, interest rate etc.

Unsystematic Risk can be eliminated by an investor through diversification. As per CAPM method business should be concerned solely with non-diversifiable risk. The non-diversifiable risks are assessed in terms of beta coefficient.

Cost of capital under this approach can be calculated as:

$$k_e = R_f + (R_m - R_f)\beta_e$$

Where:

- R_f = Risk free rate of return
- β = Beta coefficient
- R_m = Rate of return on market portfolio

Components of the formula:

- **The risk-free rate (R_f):** The yields on the government Treasury securities are used as the risk-free rate.
- **The market risk premium ($R_m - R_f$):** measured as the difference between the long-term market return and the risk-free rate.
- **The beta of the firm's share (β):** Beta (β) is the systematic risk of an ordinary share in relation to the market.

Required rate of return = Risk free rate + Risk premium

According to CAPM investors need to be compensated in two ways- time value of money and risk. The second half of the formula represents risk and calculates the amount of compensation the investor needs for taking on additional risk.

Illustration:

For a company, Risk-free rate is 7%, Market risk premium is 9% and Beta of share is 1.3.

Solution:

The cost of equity is:

$$k_e = R_f + (R_m - R_f)\beta_e$$

$$k_e = 0.07 + 0.09 \times 1.3$$

$$= 0.187$$

$$= 18.7\%$$

Dividend-growth Model vs. CAPM

The dividend-growth approach has limited application. First, it assumes that the dividend per share will grow at a constant rate, g, forever. Second, the expected dividend growth rate, g, should be less than the cost of equity, k_e, to arrive at the simple growth formula. Dividend-growth approach cannot be applied to those companies which are not paying any dividends or whose dividend per share is growing at a rate higher than k_e, or whose dividend policies changes frequently.

Concept of WACC

Weighted average cost of capital is the expected average future cost of funds over the long run found by weighting the cost of each specific type of capital by its proportion in the firm's capital structure.

Average v/s Weighted Average

Proportions of various sources of funds in the capital structure of a firm are different. The overall cost of capital should take into account the relative proportions of different sources in order to be representative.

7.6 Steps in the calculation of WACC

1. Assigning weights to specific costs.
2. Multiplying the cost of each of the sources by the appropriate weights.
3. Dividing the total weighted cost by the total weights.

1. Assignment of Weights

The aspects relevant to the selection of appropriate weights are: Historical weights versus Marginal weights. Historical weights can be Book value weights or Market value weights.

The WACC (k_0) can be calculated as:

$$k_0 = k_d(1-T)w_d + k_e w_e$$

$$k_0 = k_d(1-T)\frac{D}{D+E} + k_e\frac{E}{D+E}$$

Where:

- k_0 = WACC
- k_d (1 – T) = After-tax cost of debt
- k_e = Cost of debt equity
- D = Amount of debt
- E = Amount of equity

Marginal Cost

The marginal weights represent the percentage share of different financing sources the firm intends to raise. The basis of assigning relative weights is, additional issue of funds and, hence, marginal weights. What is commonly known as the WACC is in fact the weighted marginal cost of capital

Historical Cost

The use of the historical weights is based on the assumption that the firm's existing capital structure is optimal and, therefore, should be maintained in the future. The historical cost that was incurred in the past in raising capital is not relevant in financial decision-making.

Book Value v/s Market Value Weights

- **Market value weights:** Use market values to measure the proportion of each type of capital to calculate weighted average cost of capital.

- **Book value weights:** Use accounting (book) values to measure the proportion of each type of capital to calculate the weighted average cost of capital.

There will be difference between the book value and market value weights, and hence, WACC will be different. WACC will be understated if the market value of the share is higher than the book value.

Advantages for the Book Value Weights

Managers prefer the book value weights for calculating WACC as besides the simplicity of the use, managers claim following advantages for the book value weights:

- It can be easily derived from the published sources.
- The book value debt-equity ratios are analyzed by investors to evaluate the risk of the firms.

Illustration: WACC

A firm's after-tax cost of capital of the specific sources is as follows:

Cost of debt	10%
Cost of preference shares	15%
Cost of equity funds	16%
Debt	Rs. 3,00,000
Preference capital	Rs. 2,00,000
Equity capital	Rs. 5,00,000
Total:	Rs. 10,00,000

Calculate the weighted average cost of capital, k_0, using book value weights.

Solution:

Source of funds	Amount	Proportion
Debt	3,00,000	0.3 (30)

Preference capital	2,00,000	0.2 (20)
Equity capital	5,00,000	0.5 (50)
	10,00,000	1.00 (100)

Source of funds	Cost	Weighted Cost
Debt	0.10	0.03
Preference capital	0.15	0.03
Equity capital	0.16	0.08
		0.14

Weighted average cost of capital = 14%

7.7 International Dimensions in Cost of Capital

The Risk premium and Beta used depends on the view that a company has regarding capital markets. If capital markets are integrated the appropriate equity risk premium should reflect a world benchmark (say, MSCI World Index),

$$(R_M - R_f)_W.$$

If markets are segmented (or if the shareholders hold domestic portfolios), then the appropriate equity risk premium should be based on a domestic benchmark $(R_M - R_f)_D$.

Cost of capital does differ in different countries. In a segmented market the market portfolio (M) in the CAPM formula would be the domestic portfolio instead of the world portfolio (W). Financial integration or segmentation at the international level affects the cost of capital.

World CAPM:

$$R_i = R_f + \beta_W (R_M - R_f)_W$$

Domestic CAPM:

$$R_i = R_f + \beta_D (R_M - R_f)_D$$

The difference between these two models can be significant.

Illustration:

Compare the US$ cost of capital for IBM and Sony. US$ risk-free interest rate is 6%, global risk premium 4%. IBM & Sony's global equity betas in US$ estimated at 0.83 and 1.66 respectively.

Solution

US$ denominated cost of capital can be estimated using the following equation.

$$R_i = R_f + \beta_i^{US} (R_{US} - R_f)$$

Where:

R_i = Expected Return from the capital market

R_f = Risk-free Return

β_i = Systematic Risk

($R_M - R_f$) = Market Risk Premium

Given:

- Global Market Risk-premium: 4%
- Risk-free interest rate in US: 6%

Equity betas:

- For IBM: 0.83
- For Sony: 1.66

$$R_{IBM} = 6\% + 0.83 * 4\%$$

$$= 9.30\%$$

$$R_{Sony} = 6\% + 1.66 * 4\%$$

$$= 12.60\%$$

Summary

- Cost of capital is the return required by the providers of capital to the business as a compensation for their contribution to the total capital.
- Debt Issued at Par: The before-tax cost of debt (k_d) is the rate of return required by debt providers. Before-tax cost of debt issued and to be redeemed at par is equal to the contractual rate of interest (i).

$$k_d = i = \frac{INT}{B_0}$$

- Debt Issued at Discount or Premium: Present Value method can be rewritten as follows to compute the before-tax cost of debt

$$B_0 = \sum_{t=1}^{n} \frac{INT_t}{(1+k_d)^t} + \frac{B_n}{(1+k_d)^n}$$

- Cost of Preference Shares is given by the following equation:

$$k_p = \frac{PDIV}{P_o}$$

- Cost Redeemable Preference Share:

$$P_o = \sum_{t=1}^{n} \frac{PDIV_t}{(1+k_p)t} + \frac{P_n}{(1+k_p)n}$$

- Cost of Internal Equity: The Dividend-growth Model
  The dividend valuation model for a firm assuming dividends are expected to grow at a constant rate (g) and dividend payout ratio is constant:

$$k_e = \frac{DIV_1}{P_o} + g$$

- Cost of External Equity: The minimum rate of return, which the equity shareholders require on funds supplied by them, is the cost of external equity.

$$k_e = \frac{DIV_1}{P_o} + g$$

- Capital Asset Pricing Model (CAPM)

$$k_e = R_f + (R_m - R_f)\beta_e$$

- Weighted average cost of capital is the expected average future cost of funds over the long run found by weighting the cost of each specific type of capital by its proportion in the firm's capital structure.
- International Dimensions in Cost of Capital: The Risk premium and Beta used depends on the view that a company has regarding capital markets. If capital markets are integrated the appropriate equity risk premium should reflect a world benchmark (say, MSCI World Index)

$$(R_M - R_f)_W.$$

- If markets are segmented (or if the shareholders hold domestic portfolios), then the appropriate equity risk premium should be based on a domestic benchmark $(R_M - R_f)_D$.
- Cost of capital does differ in different countries. In a segmented market the market portfolio (M) in the CAPM formula would be the domestic portfolio instead of the world portfolio (W).

Keywords

Cost of capital, cost of, cost of equity, cost of internal equity, WACC, CAPM

Self Assessment

1. From Firms perspective, cost of capital is the minimum _____ required to justify the use of capital.

A. Investment
B. Amount
C. rate of return
D. none of the above

2. Cost of capital is also known as

A. Composite Cost of Capital
B. Weighted Average Cost of Capital
C. Combined Cost of Capital
D. All of the above

3. Cost of capital is highest in case of:

A. Debt
B. Equity
C. Loans
D. Bonds

4. Key advantages of financing through debentures and bonds are:

A. It reduces tax liability
B. It reduces WACC
C. It does not dilute control of owners
D. All of the above.

5. Which of the following statements are false?

A. Retained earnings do not involve any cost.
B. Composite cost refers to the sumof the cost of equity and cost of debt.

C. According to the traditional approach, cost of capital is affected by debt-equity mix.
D. All of the above

6. To compute the required rate of return for equity in a company using the CAPM, it is necessary to know all of the following EXCEPT:
A. the risk-free rate
B. the beta for the firm.
C. the earnings for the next time period.
D. the market return expected for the time period.

7. The common stock of a company must provide a higher expected return than the debt of the same company because
A. There is less demand for stock than for bonds.
B. There is greater demand for stock than for bonds.
C. There is more systematic risk involved for the common stock.
D. There is a market premium required for bonds.

8. Which of the following is true regarding the cost of equity calculation using the Dividend Growth model?

A. Difficult to estimate the future or the expected dividends.

B. Difficult to estimate the growth of dividends.

C. Both a and b

D. None of the above

9. The cost of equity using CAPM, if risk-free rate is 8%, market risk premium is 8%, beta of share is 1.2:
A. 17.6 percent
B. 18.5 percent
C. 17.2 percent
D. 16.8 percent

10. What is/are the disadvantage/s of the dividend-growth model?
A. It assumes that the dividend per share will grow at a constant rate forever.
B. Expected dividend growth rate, g, should be less than the cost of equity, k_e, to arrive at the simple growth formula.
C. Dividend-growth approach cannot be applied to those companies which are not paying any dividends.
D. All of the above

11. The company cost of capital for a firm with a 60/40 debt/equity split, 8% cost of debt, 15% cost of equity, and a 35% tax rate would be:
A. 7.02%
B. 9.12%
C. 10.80%
D. 13.80%

12. How much is added to a firm's weighted average cost of capital for 45% debt financing with a required rate of return of 10% and with a tax rate of 35%?
A. 1.29%

B. 2.93%
C. 3.50%
D. 4.50%

13. Which component is more likely to be biased if book values are used in the calculation of WACC rather than market values?
A. Debt
B. Preferred stock
C. Common stock
D. All categories should be equally biased.

14. If a company's cost of capital is less than the required return on equity, then the firm:
A. is financed with more than 50% debt.
B. is perceived to be safe.
C. has debt in its capital structure.
D. cannot be using any debt.

15. A firm's overall cost of capital:
A. is unaffected by changes in the tax rate.
B. is another term for the firm's internal rate of return.
C. is the same as the firm's return on equity.
D. is the required return on the total assets of a firm.

Answers for Self Assessment

1.	C	2.	D	3.	B	4.	D	5.	D
6.	C	7.	C	8.	C	9.	A	10.	D
11.	B	12.	B	13.	C	14.	C	15.	D

Review Questions

1. Explain the difference between dividend growth model and CAPM model in calculating the cost of equity.
2. What is the difference between the market value and book value?
3. Discuss the meaning of WACC. Illustrate it with an example.
4. 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%.
5. Cost of equity of a company is 10.41% while cost of retained earnings is 10%. There are 50,000 equity shares of Rs.10 each and retained earnings of Rs. 15,00,000. Market price per equity share is Rs.50. Calculate WACC using market value weights if there are no other sources of finance.

Further Readings

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Unit 08: Financing Decisions

CONTENTS

Objectives

After studying this unit, you will be able to:

- explain the concept of capital structure
- understand the Net Income Approach
- understand the Net Operating Income Approach
- understand the Traditional Approach
- explain the MM approach
- understand the Arbitrage process
- analyze MM approach under corporate taxes
- list the factors affecting Capital Structure
- analyze the cost of financial distress

Introduction

In the preceding chapters, we discussed about the investment decisions which mainly deals with the decisions related to the allocation of funds. Now, we will discuss about another important function of the financial manager called as the financial decisions. Financial decision deals with the decisions related to the sourcing of funds. As we already know, there are different sources of finance available for a firm like equity shares, debentures, retained earnings etc. However, all these difference sources of finance can be divided into two categories viz. Debt and Equity and firm's decision to opt for any of them depends on several factors. The combination of debt and equity capital in the firm's total capital is called as the capital structure. In this chapter, we will discuss about the capital structure and about the different theories of capital structure.

8.1 Capital Structure

When a firm needs capital to finance its project, it has various capital sources which it can avail such as equity shares, preference shares, debentures, bank loan, etc. A firm can use these instruments in different proportions to meets its requirement. However, all the sources of finance can be broadly classified into two major groups: Debt and equity. A firm can use 100% of equity and no debt, 50% Equity and 50% debt or 10% equity and 90% debt and so on. Capital structure refers to the proportion of debt and equity capital in a firm's total capital.

Optimum Capital Structure

Optimum capital structure is that capital structure at which the Weighted Average Cost of Capital (WACC) or the Overall cost of capital of the firm is minimum and hence, the value of firm is maximum. Firms try to attain the optimum capital structure to maximize the value of the firm.

Capital structure and the Value of the Firm:

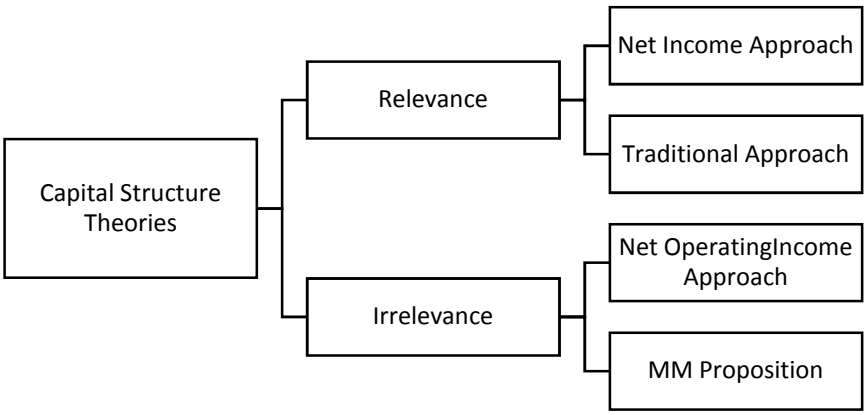
An important question that a firm face is about how much should be the proportions of equity and debt in the capital structure of a firm? As we already know that the valuation and cost of capital are inversely related i.e., that the value of the firm is maximum when the cost of capital is minimum. So, given a certain level of earnings, the value of the firm is maximized only when the overall cost of capital of the firm is minimized and vice versa.

8.2 Capital Structure Theories

In the finance literature, there are different views on the relationship between capital structure and firm value. Mainly there are three different views, given as under:

1. There is no relationship between capital structure and firm value meaning that capital structure is irrelevant for the value of the firm.
2. Financial leverage has a positive effect on firm value up to a point and negative effect thereafter.
3. Greater debt in the capital structure, higher is the value of the firm.

Second and the third view proposes that capital structure is relevant for the value of the firm. Based on these views, there are four important theories of capital structure.



8.3 Net Income Approach

According to Net Income Approach, capital structure decisionsare relevant to the valuation of the firm.A change in the debt level will lead to a change in the overall cost of capital as well as the total value of the firm. If the financial leverage is increased, the WACC or the overall cost of capital will decline, while the value of the firm and the market price of shares will increase.

As the degree of leverage increases, the proportion of debt (cheaper source of funds) in the capital structure increases.As a result, the weighted average cost of capital declines, leading to an increase in the total value of the firm. The increased use of debt will increase the shareholder's earnings and, hence, the market value of the ordinary shares.With a proper mix of debt and equity, a firm can evolve an optimum capital structure which will be the one at which value of the firm is the highest and the overall cost of capital is the lowest. At that structure, the market price per share would be maximum.

Assumptions:

The Net Income approach is based on certain assumption which are:

- There are no taxes.
- The cost of debt is less than the cost of equity.
- Use of debt does not change the risk perception of investors.

Example: A company's expected annual net operating income (EBIT) is Rs 50,000. The company has Rs. 2,00,000, 10% debentures. The equity capitalization rate (k_e) of the company is 12.5%.

Net operating income (EBIT)	Rs 50,000
Less: Interest on debentures (I)	20,000
Earnings available to equity holders (NI)	30,000
Equity capitalisation rate (k_e)	0.125
Market value of equity (S) = NI/k_e	2,40,000
Market value of debt (B)	2,00,000
Total value of the firm ($S + B$) = V	4,40,000
Overall cost of capital = k_0 = EBIT/V (%)	11.36

Increase in Value: Let us suppose that the firm has decided to raise the amount of debenture by Rs 1,00,000 and use the proceeds to retire the equity shares.

- The k_i and k_e would remain unaffected as per the assumptions of the NI Approach.

Net operating income (EBIT)	Rs 50,000
Less: Interest on debentures (I)	30,000
Earnings available to equity holders (NI)	20,000
Equity capitalisation rate (k_e)	0.125
Market value of equity (S) = NI/k_e	1,60,000
Market value of debt (B)	3,00,000
Total value of the firm ($S + B$) = V	4,60,000

$$k0 = .10\left[\frac{300000}{460000}\right] + 0.125\left[\frac{160000}{460000}\right] = 10.9\%$$

The use of additional debt has caused the total value of the firm to increase and the overall cost of capital to decrease.

Decrease in Value: If we decrease the amount of debentures the total value of the firm will decrease and the overall cost of capital will increase.

Let us suppose that the amount of debt has been reduced by Rs 1,00,000 to Rs 1,00,000 and a fresh issue of equity shares is made to retire the debentures.

Net operating income (EBIT)	Rs 50,000
Less: Interest on debentures (I)	10,000
Earnings available to equity holders (NI)	40,000
Equity capitalisation rate (k_e)	0.125
Market value of equity (S) = NI/k_e	3,20,000
Market value of debt (B)	1,00,000
Total value of the firm ($S + B$) = V	4,20,000

$$k0 = .10\left[\frac{100000}{420000}\right] + 0.125\left[\frac{320000}{460000}\right] = 11.9\%$$

The decrease in leverage has increased the overall cost of capital and has reduced the value of firm.

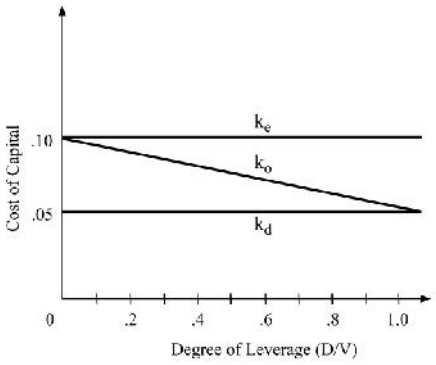


Fig. 1: The effect of Debt on the cost of capital (NI)

As the degree of leverage increases, k_0 decreases and approaches the cost of debt when leverage is 1.0, that is, (k_0= k_i). At this point, the firm's overall cost of capital would be minimum. NI Approach says that the firm can employ almost 100% debt to maximize its value.

8.4 Net Operating Income Approach

After NOI approach, lets discuss the Net operating income approach. This approach suggests that the capital structure decision of a firm is irrelevant to its value i.e., a firm's debt level will not affect its firm value. Any change in leverage will not lead to any change in the total value of the firm.The market price of shares as well as the overall cost of capital is independent of the degree of leverage.

The Net Operating approach is based on certain propositions:

a) **Overall Cost of Capital is Constant:** Overall capitalization rate of the firm remains constant, for all degrees of leverage.

$$V = \frac{\text{EBIT}}{k_0}$$

It means that the market evaluates the firm as a whole and the split of the capitalization between debt and equity is not relevant.

b) **Residual Value of Equity:** Total market value of equity capital is S or (V – B). where total value of the firm is V and Total value of debt is B.

c) **Changes in Cost of Equity Capital:** The cost of equity capital increases with the degree of leverage. The increase in the proportion of debt in the capital structure would lead to an

increase in the risk to the shareholders. To compensate for the increased risk, the shareholders would expect a higher rate of return on their investments.

d) **Cost of Debt:**The cost of debt (k_i) has two parts: a) Explicit cost: which is represented by the rate of interest. Irrespective of the degree of leverage, the firm is assumed to be able to borrow at a given rate of interest and b) Implicit cost: Increase in the degree of leverage causes an increase in the cost of equity capital. The benefit with the use of debt, in terms of the explicit cost, is exactly neutralized by the implicit cost represented by the increase in k_e. As a result, the real cost of debt and the real cost of equity, according to the NOI Approach, are the same and equal k_0.

e) **Optimum Capital Structure:** Total value of the firm will remain constant irrespective of the degree of leverage.The market price of shares will also not change with the change in the debt-equity ratio. Optimum capital structure does not exist.

Illustration:

Operating income of firm is Rs 50,000; Cost of debt is 10%; and outstanding debt is Rs 2,00,000. If the overall cost of capital is 12.5%, what would be the total value of the firm and the equity-capitalization rate?

Net operating income (EBIT)	Rs 50,000
Overall capitalisation rate (k_0)	0.125
Total market value of the firm (V) = EBIT/k_0	4,00,000
Total value of debt (B)	2,00,000
Total market value of equity (S) = ($V - B$)	2,00,000

Equity-capitalisation rate, $k_e = \frac{\text{EBIT} - \text{I}}{V - B} = \frac{\text{E}}{\text{T}}$

$$= \frac{\text{Rs } 50{,}000 - \text{Rs } 20{,}000}{\text{Rs } 2{,}00{,}000} \qquad 0.15$$

$$k_0 = k_i(B/V) + k_e(S/V) = 0.10\left[\frac{\text{Rs } 2{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right] + 0.15\left[\frac{\text{Rs } 2{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right]$$

In order to examine the effect of leverage, let us assume that the firm increases the amount of debt from Rs 2,00,000 to Rs 3,00,000.The value of the firm would remain unchanged at Rs 4,00,000, but the equity-capitalization rate would go up to 20%.

Net operating income (EBIT)	Rs 50,000
Overall capitalisation rate (k_0)	0.125
Total market value of the firm (V) = EBIT/k_0	4,00,000
Total value of debt (B)	3,00,000
Total market value of equity (S) = ($V - B$)	1,00,000

$$k_e = \frac{\text{Rs } 50{,}000 - \text{Rs } 30{,}000}{\text{Rs } 1{,}00{,}000} \qquad 0.20$$

$$k_0 = 0.10\left[\frac{\text{Rs } 3{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right] + 0.20\left[\frac{\text{Rs } 1{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right] \qquad 0.125$$

Let us further suppose that the firm retires debt by Rs 1,00,000 by issuing fresh equity shares of the same amount.The value of the firm would remain unchanged at Rs 4,00,000 and the equity capitalization rate would come down to 13.33%.

Net operating income (EBIT)	Rs 50,000
Overall capitalisation rate (k_0)	0.125
Total market value of the firm (V) = EBIT/k_0	4,00,000
Total value of debt (B)	1,00,000
Total market value of equity (S) = ($V - B$)	3,00,000
$k_e = \frac{\text{Rs } 50{,}000 - \text{Rs } 10{,}000}{\text{Rs } 3{,}00{,}000}$	0.133
Alternatively: $k_e = 0.125 + (0.125 - 0.10)\left[\frac{\text{Rs } 1{,}00{,}000}{\text{Rs } 3{,}00{,}000}\right]$	0.133
$k_0 = 0.10\left[\frac{\text{Rs } 1{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right] + 0.133\left[\frac{\text{Rs } 3{,}00{,}000}{\text{Rs } 4{,}00{,}000}\right]$	0.125

k_e, increases with the increase in the degree of leverage. $k_e$gone up from 15 per cent to 20 per cent with the increase in leverage from 0.50 to 0.75. The equity capitalization rate decreases with the decrease in the degree of leverage.It has come down from 15 per cent to 13.33% with the decrease in leverage from 0.50 to 0.25.

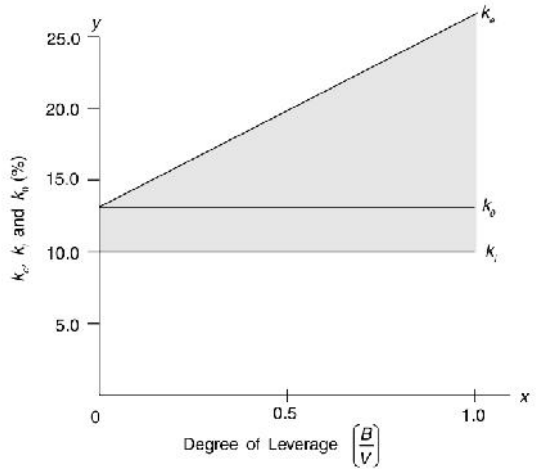


Fig. 2: The effect of Debt on the cost of capital (NOI)

8.5 Traditional Position

After NI and NOI approach comes Tradition approach. Traditional approach comes under theories of relevance. According to this theory, a judicious mix of debt and equity capital can increase the value of the firm by reducing the WACC up to certain level of debt. WACC decreases only within the range of financial leverage and after reaching the minimum level, it starts increasing with financial leverage.

In simple terms, as the debt in the capital structure is increased gradually, the overall cost of capital first decreases up to a point, but starts increasing after it. With regard to the optimum capital structure, this theory states that a firm has an optimum capital structure that occurs when overall cost of capital is minimum, and as a result, maximizing the value of the firm.

Example: Suppose a firm is expecting a net operating income of Rs. 150 crores on assets of Rs. 1,500 crores, which are entirely financed by equity. The firm's the cost of equity is 10%. It is considering substituting equity capital by issuing debentures of Rs. 300 crores at 6% interest rate. The cost of equity is expected to increase to 10.56%. The firm is also considering the alternative of

raising debentures of Rs. 600 crore and replaces equity. The debt-holders will charge interest of 7%, and the cost of equity will rise to 12.5% to compensate shareholders for higher financial risk.Notice that at higher level of debt both the cost of equity and cost of debt increase.

	No Debt	6% Debt	7% Debt
NOI	150	150	150
Cost of Debt (INT)	0	18	42
Net Income (NOI-INT)	150	132	108
Cost of Equity Ke	0.100	0.105	0.125
Market Value of Equity (NOI-INT)/ke	1500	1250	864
Market value of Debt	0	300	600
Total value of firm V = E + D	1500	1550	1464
Equity to Total Value we = E/V	1.00	0.806	0.590
Debt to Total Value wd = D/V	0.00	0.194	0.410
WACC (Ke x we + kd x wd)	0.100	0.097	0.103

The value of the firm may first increase with moderate leverage, reach the maximum value and then start declining with higher leverage. This is because WACC first decreases and after reaching the minimum, it starts increasing with leverage.

Stages in the Traditional Theory

Traditional theory states that there are three stages in the firm as the degree of the debt is increased in the total capital of the firm (Fig. 3):

i. **First stage: Increasing value**

In the first stage, as the debt is introduced in the capital structure of the firm, the cost of equity, k_e either remains constant or rises slightly with debt. The cost of debt, k_d, remains constant as the investorsconsiders the use of debt as a reasonable policy. The WACC in this stage decreases with increasing leverage, and thus, the total value of the firm also increases.

ii. **Second stage: Optimum value:**

As the degree of leverage is gradually increased in the capital structure, the cost of equity starts increasing. With the increasing level of debt, the degree of risk of the firm is also increased, and due to this reason, equity shareholders start demanding higher returns as compensation. Upon reaching a certain degree of leverage, any further increases in leverage have a negligible effect on WACC as the increase in the cost of equity due to the added financial risk offsets the advantage of low-cost debt. At the point, WACC will be minimum, and thus, the value of the firm will be maximum.

iii. **Third stage: Declining value**

In the third stage, there is higher level of debt in the capital structure which means that there is higher level of risk in the firm. Due to this high risk, investors demand a higher return which exceeds the benefits of cheaper debt. Hence, the overall cost of the capital increases. The value of the firm decreases with leverage as WACC increases with leverage.

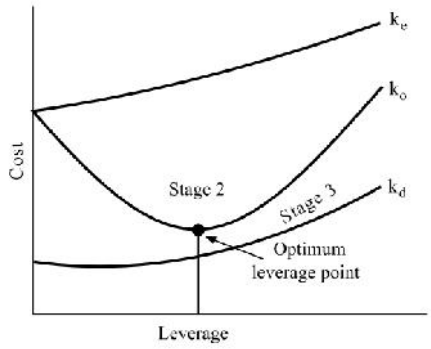


Fig. 3: The effect of Debt on the cost of capital (TA)

8.6 Modigliani-Miller (MM) Approach

This approach also falls under the irrelevant theory of the capital structure i.e., it also posits that the capital structure of the firm doesn't affect the value of the firm. The Modigliani-Miller approach is similar to the Net Operating Income Approach. However, it provides behavioral justification for constant WACC and the constant total value of the firm. This approach suggests that the WACC does not change with a change in the capital structure. The approach is based on certain which are:

- The overall cost of capital (k_0) and the value of the firm (V) are independent of its capital structure.
- The k_0 and V are constant for all degrees of leverage.
- The total value is given by capitalizing the expected stream of operating earnings at a discount rate appropriate for its risk class.

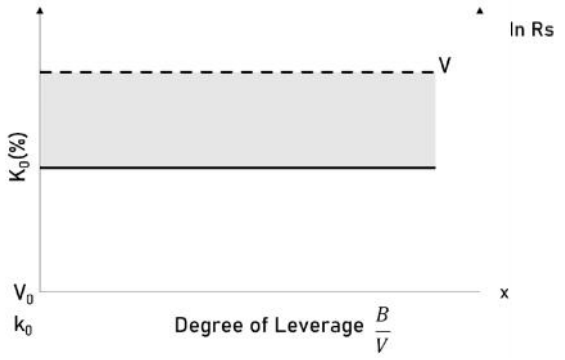


Fig. 1: Leverage and Cost of Capital (MM Approach)

Assumptions of MM Approach

The MM approach is based on various assumptions which are discussed below:

1. The capital markets are perfect, which means:
    a. Securities are infinitely divisible.
    b. Investors are free to buy/sell securities.
    c. Investors can borrow without restrictions.
    d. There are no transaction costs.
    e. Information is perfect.

f. Investors are rational.

2. All investors have the same expectation of firm's net operating income.
3. Business risk is equal among all firms within similar operating environment.
4. The dividend payout ratio is 100 per cent.
5. There are no taxes. (Which was removed later)

Propositions under MM approach:

Under the MM approach, there are two propositions:

Proposition I

According to the first proposition, the total value of a firm must be constant irrespective of the degree of leverage.The cost of capital (WACC) as well as the value of the firm must be the constant regardless of the capital structure.The operational justification of the first proposition is the 'Arbitrage process'. Arbitrage process refers to the purchasing of securities whose prices and lower sellingthose securities whose prices are higher. The investors of the firm whose value is higher will sell their shares and instead buy the shares of the firm whose value is lower. It proposes that total value of the homogeneous firms which differ only in respect of leverage cannot be different.

In the arbitrage process, the behavior of the investors will have the effect of:

i. increasing the value of the firm whose shares are being purchased.

ii. lowering the value of the firm whose shares are being sold.

This will continue till the market prices of the two identical or homogeneous firms become identical. This arbitrage process results in providing the investor same return, at lower investment as he or she was getting by investing in the firm whose total value was higher and yet, his risk is not increased.This is so because the investors would borrow in the proportion of the degree of leverage present in the firm.

Illustration:

Assume there are two firms, L and U, which are identical in all respects except that firm L has 10%, Rs 5,00,000 debentures. The EBIT of both the firms are equal Rs 1,00,000. The equity-capitalization rate (k_e) of firm L is higher (16%) than that of firm U (12.5%).

Particulars	*Firms*	
	L	*U*
EBIT	Rs 1,00,000	Rs 1,00,000
Less: Interest	50,000	—
Earnings available to equity-holders	50,000	1,00,000
Equity-capitalisation rate (k_e)	0.16	0.125
Total market value of equity (S)	3,12,500	8,00,000
Total market value of debt (B)	5,00,000	—
Total market value (V)	8,12,500	8,00,000
Implied overall capitalisation rate/cost of capital (k_0) = EBIT/V	0.123	0.125
Debt-equity ratio = B/S	1.6	—

Solution:

The total market value of the firm L is more than firm U.This situation cannot continue as the arbitrage process will operate and the values of the two firms will be brought to an identical level.

Arbitrage Process:

The logic behind arbitrage process is as follows: Suppose an investor, Mr. X, holds 10% of the outstanding shares of the levered firm (L). His holdings amount to Rs 31,250 (i.e., 0.10 x Rs 3,12,500) and his share in the earnings that belong to the equity shareholders would be Rs 5,000 (0.10 x Rs 50,000).He will sell his holdings in firm L and invest in the unlevered firm U. Since firm U has no debt in its capital structure, the financial risk to Mr. X would be less than in firm L. To reach the level of financial risk of firm L, he will borrow additional funds equal to his proportionate share in the levered firm's debt on his personal account.

Instead of the firm using debt, Mr. X will borrow money. The effect of this is that he is able to introduce leverage in the capital structure of the unlevered firm by borrowing on his personal account. Mr. X will borrow Rs 50,000 at 10% rate of interest. His proportionate holding (10%) in the unlevered firm will amount to Rs 80,000 on which he will receive a dividend income of Rs 10,000.Out of the income of Rs 10,000 from the firm U, Mr. X will pay Rs 5,000 as interest on his personal borrowings. He will be left with Rs 5,000 i.e., the same amount as he was getting from the levered firm L. But his investment outlay in firm U is less Rs 30,000 as compared with that in firm L (Rs. 31,250). At the same time, his risk is identical in both the situations.

(A) Mr. X's position in firm L (levered) with 10 per cent equity-holding	
(i) Investment outlay	Rs 31,250
(ii) Dividend Income	5,000
(B) Mr. X's position in firm U (unlevered) with 10% equity holding	
(i) Total funds available (own funds, Rs 31,250 + borrowed funds, Rs 50,000)	81,250
(ii) Investment outlay (own funds, Rs 30,000 + borrowed funds, Rs 50,000)	80,000
(iii) Dividend Income: Total Income (0.10 x Rs 1,00,000) Rs 10,000 Less: Interest payable on borrowed funds 5,000	5,000
(C) Mr. X's position in firm U if he invests the total funds available	
(i) Investment costs	81,250.00
(ii) Total income	10,156.25
(iii) Dividend income (net) (Rs 10,156.25 – Rs 5,000)	5,156.25

It is clear that Mr. X will be in a better position by selling his securities in the levered firm and buying the shares of the unlevered firm. With same risk level of the two firms, he gets the same income with lower investment outlay in the unlevered firm. He will obviously prefer switching from the levered to the unlevered firm.The resultant increased demand for the securities of the unlevered firm will lead to an increase in the market price of its shares. The price of the shares of the levered firm will decline. This will continue till it is possible to reduce the investment outlays and get the same return.

Beyond this point, switching from firm L to firm U or arbitrage will not be identical. This is the point of equilibrium. At this point, the total value of the two firms would be identical.The cost of capital of the two firms would also be the same. Thus, it is unimportant what the capital structure of firm L is. The weighted cost of capital (k_0) after the investors exercises their 'home-made' leverage is constant because investors exactly offset the firm's leverage with their own.

Proposition II

Second proposition says that due to the increased risk caused by the increased level of debt, the investors will demand higher return as compensation. This will negate the benefit of using the cheaper debt and as a result, the overall cost of capital will be constant.In an all-equity financed firm the opportunity cost of capital is equal its cost of equity.

It provides justification for the levered firm's opportunity cost of capital remaining constant with financial leverage. The cost of equity, k_e, will increase enough to offset the advantage of cheaper cost of debt.A levered firm will have higher required return on equity to compensate for financial risk. The k_e for a levered firm should be higher than the opportunity cost of capital, k_a; that is, the levered firm's $ke > ka$. It should be equal to constant k_a, plus a financial risk premium. How is this financial risk premium determined? We know that a levered firm's opportunity cost of capital:

$$k_a = k_e \times \frac{E}{E+D} + k_d \frac{D}{E+D}$$

You can solve this equation to determine the levered firm's cost of equity, k_e :

$$k_e = k_a + (k_a - k_d)\ \frac{D}{E}$$

For an unlevered firm, D is zero; therefore, the second part of the equation is zero and the opportunity cost of capital, k_a equals the cost of equity, k_e . Second part is the financial risk premium.The required return on equity is positively related to financial leverage, because the financial risk of shareholders increases with financial leverage.

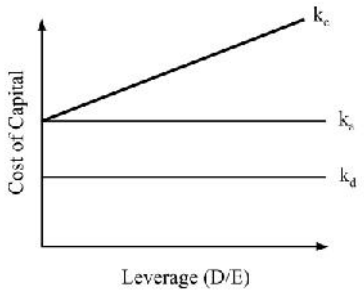


Fig. 2: Cost of Equity under MM Preposition II

Illustration:

Suppose ABC Limited is an all equity financed company. It has 10,000 shares outstanding. The market value of these shares is Rs. 120,000. Expected operating income of the company is Rs. 18,000.

The expected EPS of the company is:

Rs. 18,000/10,000

= Rs. 1.80.

As ABC is an unlevered company, its opportunity cost of capital will be equal to its cost of equity:

$$k_a = k_e = \frac{\text{Expected NOI}}{\text{Market value of debt and equity}}$$

$$= \frac{18{,}000}{120{,}000} = 0.15 \text{ or } 15\%$$

ABC is considering borrowing Rs. 60,000 at 6% rate of interest and buying back 5,000 shares at the market value of Rs. 60,000.Now ABC has Rs. 60,000 equity and Rs. 60,000 debt in its capital structure. The debt-equity ratio is 1:1. The change in the company's capital structure does not affect its assets and expected net operating income.

However, EPS will change. The expected EPS is:

$$\text{EPS} = \frac{\text{Net income}}{\text{Number of shares}} = \frac{18{,}000 - 3{,}600}{5{,}000} = ₹2.88$$

ABC's expected EPS increases by 60% due to financial leverage. If ABC's expected NOI fluctuates, its EPS will show greater variability with leverage than as an unlevered firm. As the firm's operating risk does not change, its opportunity cost of capital will still remain 15%. The cost of equity will increase to compensate for the financial risk:

$$k_e = k_u + (k_a - k_d)\frac{D}{E}$$

$$= 0.15 + (0.15 - 0.06)\ \frac{60{,}000}{60{,}000} = 0.24 \text{ or } 24\%$$

Criticism of the MM Hypothesis

Although the MM hypothesis holds an important position in modern finance theory, however it a lot of criticism mainly due to the unrealistic assumptions of this approach. The major criticism is discussed below:

1. **Discrepancy in the Lending and borrowing rates:**
   The assumption that firms and individuals can borrow at the same rate of interest is unrealistic in nature. As the firms have a higher credit standing, they are able to borrow at lower rates of interest than individuals.

2. **Transaction costs:**
   The MM approach that there is no transaction cost. Transaction cost is the cost incurred in buying and selling of the security. In practical world, transaction costs exists and it interferes with the arbitrage process.

3. **Institutional restrictions:**
   Individual investor may not be able to replace personal leverage with the corporate leverage due to the institutional restrictions. Hence it will affect the working of the arbitrage and thus the home-made leverage may not be possible.

4. **Existence of Corporate Tax:**
   As we know that the interest charges in a firm are tax deductible, which means that the cost of borrowing funds to the firm is less than the contractual rate of interest. The existence of interest charges gives the firm a tax advantage.

The MM Hypothesis under Corporate Taxes

In their first hypothesis, Modigliani and Miller assumed that there exist no corporate taxes and showed that the leverage doesn't affect the value of the firm. However, due this assumption of no corporate taxes, there approach was heavily criticized. Later on, they modified their position by relaxing the assumption of the absence of corporate taxes in order to make their hypothesis more realistic and proposed that the if corporate taxes are taken into the picture, then the capital structure or the usage of leverage does affect the value of the firm.

Since interest on debt is tax-deductible, the effective cost of borrowing is less than the contractual rate of interest.Therefore, a levered firm would have greater market value than an unlevered firm. Value of the levered firm would exceed that of the unlevered firm by an amount equal to the levered firm's debt multiplied by the tax rate.

$$V_l = V_u + Bt$$

Where:

- V_l = value of levered firm
- V_u = value of unlevered firm
- B = amount of debt

Example: The earnings before interest and taxes are Rs 10 lakh for companies L and U. They are same in all respects except that Firm L uses 15% debt of Rs 20 lakh; Firm U does not use debt.Given the tax rate of 35%, the stakeholders of the two firms will receive different amounts. The EBIT are Rs 10 lakh for companies L and U.

Particulars	*Company L*	*Company U*
EBIT	Rs 10,00,000	Rs 10,00,000
Less: Interest	3,00,000	—
Earnings before taxes	7,00,000	10,00,000
Less: Taxes	2,45,000	3,50,000
Income available for equity-holders	4,55,000	6,50,000
Income available for debt-holders and equity-holders	7,55,000	6,50,000

The total income to both debt holders and equity holders of levered Company L is higher. The reason is debt-holders receive interest without tax-deduction at the corporate level, equity holders of company L have their incomes after tax-deduction. As a result, total income to both types of investors increases by the interest payment times the rate, that is, Rs 3,00,000 x 0.35 = Rs 1,05,000.

MM in this approach proposes that the value of the firm is maximized when its capital structure contains only debt. However, if the firm uses high level of debt will lead to high chances of default. As the amount of debt in the capital structure increases, so does the probability of incurring these costs.As a result, excessive use of debt may cause a rise in the cost of capital due to the increased financial risk and may reduce the value of the firm.

8.7 Checklist for Capital Structure Decisions

As we have seen, the use of debt in capital structure or financial leverage has both benefits as well as costs.While the main advantage of debt is the tax benefit, its cost is financial distress and reduced financial profitability.A number of factors have a bearing on the determination of an optional capital structure of a firm.Therefore, a financial manager should design an appropriate capital structure, taking into consideration these factors.

The factors governing the capital structure decisions:

There are several factors which affect the capital structure decisions of the firm. Some of the important factors are listed below and discussed:

1. Profitability aspect
2. Liquidity aspect
3. Control
4. Industry Debt levels
5. Nature of industry
6. Consultation with analysts
7. Commercial strategy
8. Timing
9. Company characteristics
10. Tax planning

Profitability

The objective of the firm is to maximize the wealth of the shareholders, profitability analysis through EBIT-EPS analysis should be carried out.The EBIT-EPS analysis is an important tool to analyze the impact of different financial plans on the shareholders' income. The firm should check the EPS of the firm under different financial plans. This analysis determines the optimum mix of debt and equity in the capital structure and helps determine the alternative that gives the highest value of EPS.

Coverage Ratio

Coverage ratio is the ratio of Earnings before interest and taxes relative to the interest payments. This ratio is used to examine the ability of a firm to payback the interest payments from its earnings.The ratio measures the size of interest payments relative to the EBIT.

$$Coverage\ Ratio = \frac{EBIT}{I}$$

Where:

- EBIT = Earnings Before Interest and taxes
- I = Interest Expenses

Higher coverage ratio signifies that would be in a position to meet its obligations of interest payment.An interest coverage ratio below one indicates the company is not generating sufficient revenues to satisfy its interest expenses.

Suppose that a company's earnings are Rs. 625,000 and it has debts upon which it is liable for payments of Rs. 90,000. The interest coverage ratio for the company is

Rs. 625,000 / Rs. 90,000

= 6.94.

Liquidity

It may be possible that the EBIT is adequate to cover interest payments but the firm may not have sufficient cash to pay. Cash flow analysis yields a number of advantages. It focuses on the solvency of the firm during adverse circumstances, takes into consideration cash flows that do not appear in the profit and loss account.It gives an insight into the inventory of financial resources available in the event of recession.

Cash Flow Analysis:

One measure is the ratio of fixed charges to net cash inflows. The greater the coverage ratio, the greater is the amount of debt that a firm can use.Cash budget can also be prepared to determine whether the expected cash flows are sufficient to cover the fixed obligations.

Control

If the dividends on preference shares have not been paid for a certain number of years, shareholders are given the right to participate in the voting. If the main aim of the management is to maintain control, they will go with debt and preference capital in case when additional capital is required. If the company borrows more than what it can repay, the creditors may seize the assets of the company.It might be better to sacrifice a measure of control by some additional equity rather than run the risk of losing all control to creditors.

Leverage ratios in industry

One of the important factors to be considered is the average leverage ratio of the other companies in the same industry. Comparison with the companies belonging to the same industry, having a similar business risk is helpful. Comparison is helpful as it acts as a warning to the management that there may be something wrong with the debt-equity ratio of the company.

Nature of Industry

Not all companies are same, hence their earnings and risk class also differ based on their industry type. If an industry's sales fluctuate widely, the firm should have a low degree of financial leverage.Industries dealing with non-durable consumer goods and products which have an inelastic demand are not likely to be subject to wide fluctuations in sales. Such industries can afford to have higher debt proportions in capital structure.The stage of the life cycle also affects capital structure decision. If the industry is in its infancy, more emphasis needs to be placed on equity capital. In Maturity phase, the firm should assure that it obtains funds when needed. If business is in decline phase the firm should build plan which allows for easy contraction in the sources of the funds used.

Consultation with Investment Bankers and Lenders

Financial analysts have access to information regarding securities of a large number of companies and know how the market evaluates them.The type of securities which they will prefer to buy is significant information for the financial manager of the firm.The finance manager must think from the point of view of the investors and consult with the investment bankers and the lenders while making the leverage decisions.

Flexibility

Flexibility to change the capital structure based on the circumstances of the firm is an important factor to be considered. The finance manager must keep himself in a situation where he can change positions. While designing the capital structure, he should assess the impact of present financial plan on the future. There should be room for flexibility not only in obtaining funds but also in refunding them.

Timing of Issue

Timing of the of issue of capital is also important. Equity and debt capital should be made at a time when the state of the economy as good as the capital market is ideal to provide the funds. Firm should evaluate the alternative methods of financing in the light of general market conditions.For example, it will be useful to postpone borrowings if decline in interest rates is expected in the future.

Characteristics of the Company

Small firms must rely upon the owner's funds for as its very difficult to obtain long-term debts.In contrast, very large companies are forced to use different sources of funds as no single source can fulfill their total requirements of funds.Firms with a high credit standing are in a better position to get funds from the sources of their choice.

Tax Planning

Due to interest deductibility, debt reduces the tax liability. The tax advantage of debt means that firms will employ more debt to reduce tax liabilities and increase value.In the absence of personal taxes, the interest tax shields increase the value of the firm.

8.8 Costs of Financial Distress

Financial distress refers to a situation where a company is not generating sufficient revenues to pay back its interest obligations. The financial distress caused a lot of issues for the firm and there are costs associated with the financial distress which has to be incurred by the firm. There are two types of costs: Direct cost and Indirect cost:

Direct costs of financial distress include costs of insolvency. Once the insolvency proceedings start, the conditions of assetsmay decline over time. Insolvency also causes high legal and administrative costs.Indirect costs relate to the actions of employees, managers, customers, suppliers and shareholders. Let's discuss the indirect cost of the financial distress:

- ***Employees:***

The output and productivity of employees of a financially distressed firm declines as they become demotivated.This affects the reputation of the firm, and it may lead to the decline in the sales of its products.

- ***Customers:***

Customers get concerned about the quality of product or service. Thus, the demand for the firm's products or services starts falling sharply.

- ***Suppliers:***

Suppliers reduce or discontinue granting credit to the firm fearing liquidation and liquidity problems of a financially distressed firm. They fear that they may not be able to get back their money.

- ***Investors:***

Investors become concerned. Either investors are not ready to supply capital to the firm or they make funds available at high costs and rigid terms and conditions. Non-availability of funds on acceptable terms could adversely affect the operating performance of the firm.

- ***Shareholders:***

Shareholder of the firms start behaving differently. When a firm is under financial distress, but not insolvent, shareholders may be wanting to undertake risky projects. If a risky project succeeds, their gain can be substantial. If the project fails, the creditors will suffer the loss.

- ***Managers:***

Managers have a tendency to expropriate the firm's resources in the form of perquisites and avoid risk. When the firm is under financial distress, they may have higher temptation to pocket the firm's resources.Managers also start making decisions keeping in mind short-term rather than the long-term interests of the company.

Financial distress reduces the value of the firm. Thus, the value of a levered firm is given as follows:

Value of levered firm = Value of unlevered firm + PV of tax shield – PV of financial distress

$$Vl = Vu + PVINTS - PVFD$$

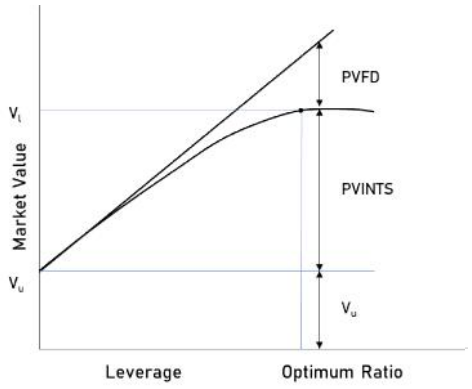


Fig. 1: Value of levered firm under Corporate Taxes and Financial distress

In fig. 1, when a firm uses more and more debt, the costs of financial distress increases, and the tax benefit shrinks.The optimum point is reached when the marginal present values of the tax benefit and the financial distress cost are equal. This is the point where the value of the firm is maximum.

Summary

- All the sources of finance can be broadly classified into two major groups: Debt and equity. A firm can use 100% of equity and no debt, 50% Equity and 50% debt or 10%

equity and 90% debt and so on. Capital structure refers to the proportion of debt and equity capital in a firm's total capital.

- Optimum capital structure is that capital structure at which the Weighted Average Cost of Capital (WACC) or the Overall cost of capital of the firm is minimum and hence, the value of firm is maximum. Firms try to attain the optimum capital structure to maximize the value of the firm.
- According to Net Income Approach, capital structure decisionsare relevant to the valuation of the firm.A change in the debt level will lead to a change in the overall cost of capital as well as the total value of the firm. If the financial leverage is increased, the WACC or the overall cost of capital will decline, while the value of the firm and the market price of shares will increase.
- Net operating income approach suggests that the capital structure decision of a firm is irrelevant to its value i.e., a firm's debt level will not affect its firm value. Any change in leverage will not lead to any change in the total value of the firm.The market price of shares as well as the overall cost of capital is independent of the degree of leverage.
- Traditional approach comes under theories of relevance. According to this theory, a judicious mix of debt and equity capital can increase the value of the firm by reducing the WACC up to certain level of debt. WACC decreases only within the range of financial leverage and after reaching the minimum level, it starts increasing with financial leverage.
- MM Approach falls under the irrelevant theory of the capital structure i.e., it also posits that the capital structure of the firm doesn't affect the value of the firm. The Modigliani-Miller approach is similar to the Net Operating Income Approach. However, it provides behavioral justification for constant WACC and the constant total value of the firm.
- In their first hypothesis, Modigliani and Miller assumed that there exist no corporate taxes and showed that the leverage doesn't affect the value of the firm. However, due this assumption of no corporate taxes, there approach was heavily criticized. Later on, they modified their position by relaxing the assumption of the absence of corporate taxes in order to make their hypothesis more realistic and proposed that the if corporate taxes are taken into the picture, then the capital structure or the usage of leverage does affect the value of the firm.
- There are several factors which affect the capital structure decisions of the firm such as: Profitability aspect, Liquidity aspect, Control, Industry Debt levels, Nature of industry, Consultation with analysts, Commercial strategy, Timing, Company characteristics and Tax planning
- Financial distress refers to a situation where a company is not generating sufficient revenues to pay back its interest obligations. The financial distress caused a lot of issues for the firm and there are costs associated with the financial distress which has to be incurred by the firm. There are two types of costs: Direct cost and Indirect cost.

Keywords

Capital structure, NI approach, NOI approach, Traditional approach MM Approach, Financial distress

Self Assessment

1. The term "capital structure" refers to:

A. long-term debt, preferred stock, and common stock equity.

B. current assets and current liabilities.

C. total assets minus liabilities.
D. shareholders' equity.

2. A critical assumption of the net operating income (NOI) approach to valuation is:

A. that debt and equity levels remain unchanged.
B. that dividends increase at a constant rate.
C. that k_o remains constant regardless of changes in leverage.
D. that interest expense and taxes are included in the calculation.

3. According to the traditional approach:

A. The overall capitalization rate holds constant with changes in financial leverage.
B. There is an optimum capital structure.
C. Total risk is not altered by changes in the capital structure.
D. Markets are perfect.

4. Firm's optimal capital structure:

A. is the debt-equity ratio that results in the lowest possible weighted average cost of capital.
B. is generally a mix of 40 percent debt and 60 percent equity.
C. is found by locating the mix of debt and equity which causes the earnings per share to equal exactly Re. 1.
D. exists when the debt-equity ratio is 1:1.

5. Which of the following is true for Net Income Approach?

A. Higher debt increases value of the firm
B. Higher Debt is better
C. Lower debt increases WACC
D. All of the above

6. In MM-Model, irrelevance of capital structure is based on:

A. Cost of Debt
B. Cost of equity
C. Arbitrage Process
D. All of the above.

7. If taxes are assumed to exist, the MM model is identical to:

A. NI Approach
B. NOI Approach
C. Traditional Approach
D. All of the above

8. MM approach is known as theory of irrelevance when it is assumed that there is:

A. Absence of taxes
B. Presence of taxes.

C. Investors act rationally.

D. All of the above.

9. The presence of which one of the following costs is not used as a major argument against the M&M arbitrage process?

A. Bankruptcy costs.

B. Agency costs.

C. Transactions costs.

D. Insurance costs.

10. Which of the following is not correct about MM model?

A. MM model provides a behavioral justification of NOI approach.

B. In MM model, personal leverage and corporate leverage are considered as perfect substitute.

C. In the basic MM model, leverage affects the value of the firm.

D. In the MM model, the value of the levered firm can be found by first finding out the value of the unlevered firm.

11. The explicit and implicit costs associated with corporate default are referred to as the _____ costs of a firm.

A. Flotation

B. direct bankruptcy

C. financial distress

D. indirect bankruptcy

12. Indirect costs of financial distress:

A. effectively limit the amount of equity a firm issue.

B. include costs such as legal and accounting fees

C. tend to increase as the debt-equity ratio decreases

D. include the costs incurred by a firm as it tries to avoid seeking bankruptcy protection

13. The legal proceeding for liquidating or reorganizing a firm operating in default is called:

A. tender offer

B. bankruptcy

C. merger

D. takeover

14. The value of a firm is maximized when the:

A. weighted average cost of capital is minimized

B. cost of equity is maximized

C. tax rate is zero

D. levered cost of capital is maximized

15. In a world with taxes and financial distress, when a firm is operating with the optimal capital structure the:

A. debt-equity ratio will be less than optimal
B. increased benefit from additional debt is equal to the increased bankruptcy costs of thatdebt
C. firm will be all-equity financed
D. required return on assets will be at its maximum point

Answers for Self Assessment

1.	A	2.	C	3.	B	4.	A	5.	B
6.	C	7.	B	8.	D	9.	D	10.	C
11.	C	12.	D	13.	B	14.	A	15.	B

Review Questions

1. Define Capital structure of a firm. Discuss the benefits of leverage.
2. Explain the NI and NOI approach in the capital structure theories
3. Discuss the working of Arbitrage Process as given under the proposition I of MM irrelevance proposition.
4. List the factors which affect the capital structure decision of firm.
5. Discuss the indirect cost of the financial distress incurred by the by the firm.

Further Readings

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Unit 09 - EBIT-EPS Analysis

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of Leverage
- explain the concept of Operating Leverage
- discuss Degree of Operating Leverage
- explain the concept of Financial Leverage
- discuss Degree of Financial Leverage
- understand EBIT-EPS Analysis
- understand the concept of indifference point
- explain Combined Leverage
- discuss Degree of Combined Leverage

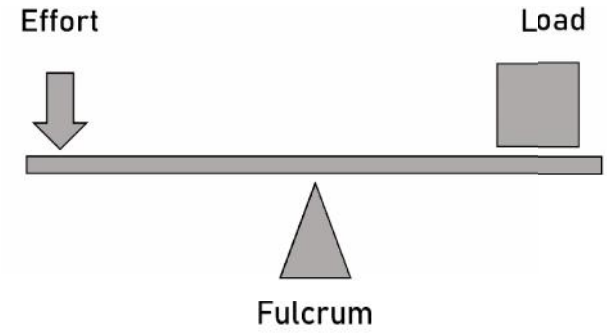
Introduction

In this chapter, we will continue our discussion on the financing decisions of the firm. We will discuss the concept of leverage in the context of finance. As we already know by now that a firm can fulfill its financing requirement through equity source or the debt source. Unlike the debt source of capital, the equity source doesn't carry any fixed rate of return and it varies according to the earnings of the firm. We can call the return on the equity capital as the variable return and the return on the debt capital as the fixed return. The return given to the equity capital is affected by the fixed return carrying debt capital. Hence, the use of the asset or the source of capital which

carries fixed cost or return is called Leverage. We will discuss the types of leverage, concept of operating leverage, financial leverage and the combined leverage.

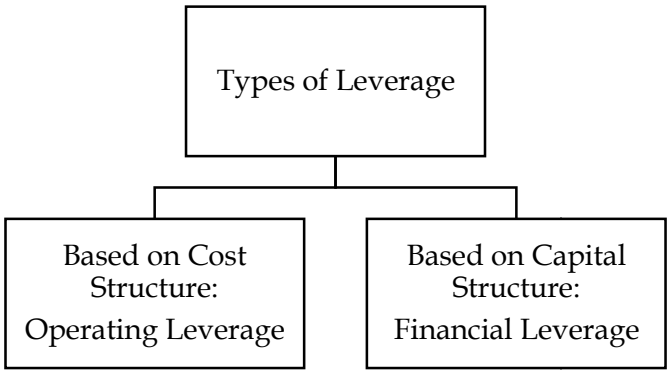
9.1 Leverage

Leverage refers to accomplishing certain things which are otherwise not possible i.e., lifting of heavy objects with the help of lever. It is a tool which makes our task easier, which produces greater output with lesser efforts.



9.2 Leverage in Finance

The concept of leverage in finance refers to employment of an asset or source of funds for which the firm has to pay a fixed cost or fixed return. Leverage is a strategy that companies use to increase assets, cash flows, and returns, though it can also magnify losses. There are mainly two main types of leverage: Operating leverage and financial leverage. Operating Leverage is the relationship between the firm's sales revenues and its EBIT ad is based on the cost structure of the firm. Whereas, the financial leverage is the relationship between the firm's earnings available for ordinary shareholders and its EBIT and is based on the capital structure of the firm. Although, there can be a third kind of leverage that is the combination of operating and financial leverage is known as the Combined Leverage.



9.3 Operating Leverage

The operating leverage results from the use of fixed cost in the cost structure. It can be defined as the ability of the firm to use its fixed expenses to generate better returns. As we know that no product can be made without incurring some cost, there are several costs incurred by the firm in making the product. Now the cost can be divided into two main categories. a) Fixed cost and b) Variable cost. Fixed costs as the name suggests are the fixed costs, and they do not change with the number of units produced. E.g., rent paid for the factory. Variable cost is the cost that varies with the number of units produced. E.g., raw material consumed in the production of the finished product. Then there can be a third type of cost that is semi fixed/variable cost that falls between the two.

Operating leverage measures the company's fixed costs as a percentage of its total costs. A company with a higher fixed cost will have higher Leverage as compared to a company having a

higher variable cost. The ratio gives information about how much the operating profit of the company will increase with a specific percentage change in sales.

The operating costs of a firm falls into two categories:

i. **Fixed costs:** Which do not vary with sales volume.

ii. **Variable costs:** which vary directly with the sales volume.

High Fixed Cost = High Operating Leverage

Example of high operating leverage company can be any Airline company. In an airline company, the fixed costs are the cost incurred in acquiring the aircrafts, paying rent for the hangars, and paying insurance fee of the aircrafts etc. whereas, the variable cost for the company will be the cost of jet fuel and the runway charges, these costs change with the change in the level of operations. Example of low operating leverage company can be any consulting company. The fixed costs for the consulting company are usually rent and utilities and the variable cost includes the salaries of the staff.

Effect of operating leverage:

Effect of having high level of operating leverage in the firm is that a unit change in the volume of sales results will result in a more than proportional change in operating profit. A company with higher leverage generates bigger profits when sales go up because fixed costs remain the same as revenues increase. However, higher operating leverage company will experience bigger losses too when the sales drops. Hence, the operating leverage will affect the firm's business risk also which is the risk of the firm not being able to cover its fixed operating costs.

Illustration:

Firm ABC sells products for Rs 100 per unit. It has a variable operating cost of Rs 50 per unit and fixed operating costs of Rs 50,000 per year. Calculate EBIT from the sale of:

i. 1,000 units

ii. 2,000 units

iii. 3,000 units.

Solution:

The following table shows the effect of change in sales on the EBIT of the firm.

	Case 2 (-50%)	**Base**	**Case 1 (+50%)**
Sales (Units)	1,000	2,000	3,000
Sales Revenue	1,00,000	200,000	3,00,000
Less: Variable Operating Cost	50,000	1,00,000	150,000
Contribution	50,000	1,00,000	150,000
Less: Fixed operating cost	50,000	50,000	50,000
EBIT	0	50,000	1,00,000
	-100%		**+100%**

It can be seen that a unit change in the sales of high operating leverage firm will have a greater effect on the EBIT of firm.

9.4 Degree of Operating Leverage (DOL)

The degree of operating leverage (DOL) is a ratio that measures how much the operating income of a company will change due to a change in sales. Firms with a large proportion of fixed costs to variable costs have higher levels of operating leverage.

$$DOL = \frac{Percentage\ change\ in\ EBIT}{Percentage\ change\ in\ Sales}$$

Also,

$$DOL = \frac{Contribution}{EBIT}$$

Contribution = EBIT + Fixed Cost

Illustration:

Firm X's Sales is 200 units; Variable costs are Rs. 40 and Fixed Costs are Rs. 80. Calculate the Degree of Operating Leverage if the Sales:

i. Increases by 20% in year two.
ii. Decreases by 20% in year two.

Increases by 20% in year 2

	Year 1	Year 2	Change %
Sales	200	240	20%
Variable Cost	40	48	20%
Contribution	160	192	20%
Fixed Cost	80	80	0%
EBIT	80	112	40%

$$DOL = \frac{Percentage\ Change\ in\ EBIT}{Percentage\ Change\ in\ Sales}$$

$$= \frac{40\%}{20\%}$$

DOL = 2

ii. Decreases by 20% in year 2

	Year 1	Year 2	Change %
Sales	200	160	-20%
Variable Cost	40	32	-20%
Contribution	160	128	-20%
Fixed Cost	80	80	0%
EBIT	80	48	-40%

$$DOL = \frac{Percentage\ Change\ in\ EBIT}{Percentage\ Change\ in\ Sales}$$

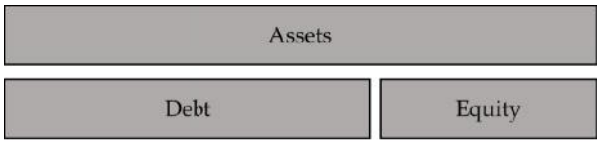
$$= \frac{-40\%}{-20\%}$$

$$DOL = 2$$

The degree of operating leverage helps the management in evaluating how sensitive the operating income of a firm is with respect to a change in Sales. The financial analyst should fully understand a company's cost structure i.e., combination of fixed costs and variable costs as it can have a significant impact on the operating income. Hence, we can say that the leverage is a two-edged sword. On one hand it magnifies the profit of the firm, while on the other hand, can also increase the potential for loss.

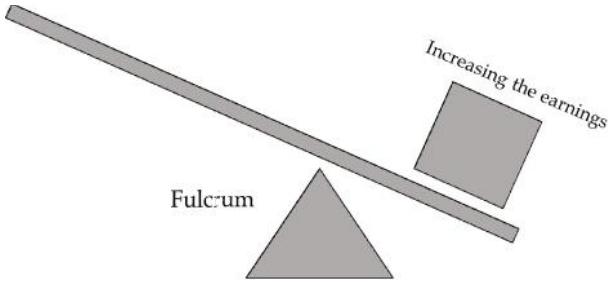
9.5 Financial Leverage

The firms' total capital is made up primarily of debt and equity source of capital. The equity capital carries variable return i.e., dividend, and the debt capital which carries fixed return in the form of interest. The term financial leverage refers to the use of the fixed-charges sources of funds in the capital structure i.e., debt capital along with the owners' equity.



Financial Leverage

Financial leverage signifies the presence of fixed financial charges in the firm's income stream. It is defined as the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share.



For e.g., a company borrows Rs. 100 at 8% interest and invests it to earn 12% return, the balance of 4% after payment of interest will constitutes the profit from financial leverage. If the company could earn only a return of 6 % on Rs 100, the loss to the shareholders would be Rs 2 per annum.

Measures of Financial leverage

There are several ratios to measure the financial leverage in a firm.

1. **Debt ratio:** The ratio of Debt to Total Capital
2. **Debt–equity ratio:** Debt-Equity ratio
3. **Interest coverage:** EBIT/Interest

Advantage:

The main benefit of using debt in the capital structure is that it is used as a means of increasing the return to common shareholders. If a firm earn a return that is higher than the return to be paid to the debt holders, then the additional return will go to the equity holders.

Disadvantage:

The main limitation of using debt in the capital structure is that an excessive amount of financial leverage i.e., use of debt in the total capital, will increase the risk of failure, as it becomes more difficult to repay debt.

Illustration:

For a company ABC, Earnings before Interest and Taxes (EBIT) in the current year is Rs 10,000. The firm has 5% debentures of Rs 40,000, and 10% preference shares of Rs 20,000. The tax rate applicable is 35%. Moreover, the outstanding ordinary shares are 1,000. How would the EPS be affected if the EBIT is:

i. Rs 6,000, and
ii. Rs 14,000

Solution:

	Case 2 (-40%)	**Base**	**Case 1 (+40)**
EBIT	6,000	10,000	14,000
Less: Interest on bonds	2,000	2,000	2,000
Earnings before taxes (EBT)	4,000	8,000	12000
Less: Taxes (35%)	1,400	2,800	4,200
Earnings after taxes (EAT)	2,600	5,200	7,800
Less: Preference dividend	2,000	2,000	2,000
Earnings available for ordinary shareholders	600	3,200	5,800
Earnings per share (EPS)	0.6	3.2	5.8
	-81.25		**+81.25%**

Illustration:

A company has Rs 1,00,000, 10% debentures and 5,000 equity share outstanding. The tax rate applicable is 35%. Calculate the change in EPS at three levels of EBIT:

i. Rs 50,000,
ii. Rs 30,000, and
iii. Rs 70,000

Solution:

	Case 2 (-40%)	**Base**	**Case 1 (+40)**
EBIT	30,000	50,000	70,000

Less: Interest	10,000	10,000	10,000
Earnings before taxes (EBT)	20,000	40,000	60,000
Less: Taxes	7,000	14,000	21,000
Earnings after taxes (EAT)	13,000	26,000	39,000
Earnings per share (EPS)	2.6	5.2	7.8
	-50%		**+50%**

As we can see in the above illustrations, presence of fixed-interest sources of funds results in a more than proportionate change in EPS as a result of change in EBIT level. The greater the amount of fixed-interest sources of funds ,the higher is the financial leverage in the firm.

9.6 Degree of Financial Leverage

The degree of financial leverage (DFL) is the ratio that measures the sensitivity of a company's earnings per share to fluctuations in its operating income, as a result of changes in its capital structure. This ratio indicates that the higher the degree of financial leverage, the more volatile earnings will be. It shows the percentage change in a firm's earnings per share (EPS) resulting from a percent change in the operating profit.

$$DFL = \frac{\%\ change\ in\ EPS}{\%\ Change\ in\ EBIT} > 1$$

Or,

$$DFL = \frac{EBIT}{EBT}$$

Illustration:

Consider the following data for a company ABC. Calculate the Degree of financial Leverage.

	Year 1	**Year 2**
Operating Income (EBIT)	4435,869	4810,445
EPS	4.87	6.58

Solution:

The formula of Degree of Financial leverage is:

$$DFL = \frac{\%\ change\ in\ EPS}{\%\ Change\ in\ EBIT} > 1$$

%Change in EPS (Year 2)

= (6.58 – 4.87)/4.87 =35.2%

%Change in EBIT (Year 2)

= (4,810,445 – 4,435,869)/4,435,869 =8.4%

Degree of Financial Leverage (Year 2)

= 35.2% / 8.4% = 4.12x

Importance of DFL

- It indicates the relationship between the capital structure of a company and its operating income.
- A low ratio is indicative of the low percentage of debt in capital structure.
- On the other hand, a high ratio indicates a higher percentage of debt in capital structure and these companies are vulnerable.

Financial Risk

The financial risk refers to the risk of the firm not being able to cover its fixed financial costs. When a firm uses high level of debt in the capital structure, it also has to pay a significant amount in the form of interest payment also out of its profits. With the increase in financial charges, the firm is also required to raise the level of EBIT necessary to meet financial charges.

9.7 EBIT-EPS Analysis

The EBIT-EPS analysis is a method to study the effect of leverage on the earnings of the firm. It involves the comparison of alternative methods of financing under various assumptions of EBIT. It analyzes the effect of financing alternatives on Earnings per Share. A firm has the choice to raise funds from different sources like debt and equity in different proportions. The choice of the mix of debt and capital would be the one, which would result into the largest EPS for the firm.

Illustration:

A firm has a capital structure exclusively comprising of ordinary shares of Rs 10,00,000. The firm now wishes to raise additional Rs 10,00,000 for expansion.

a) Entire amount through equity.
b) 50% equity capital and 50% as 5% debentures.
c) Entire amount as 6% debentures.
d) 50% as equity capital and 50% as 5% preference capital.

Assume that:

- Existing EBIT is Rs. 1,20,000
- The tax rate is 35%,
- Outstanding ordinary shares are 10,000.
- Market price per share is Rs 100.

Which financing plan should the firm select?

	A	B	C	D
EBIT	120,000	120,000	120,000	120,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	120,000	95,000	60,000	120,000
Less: Taxes (35%)	42,000	33,250	21,000	42,000
Earnings after taxes (EAT)	78,000	61,750	39,000	78,000
Less: Preference dividend	-	-	-	25,000

Earnings available for ordinary shareholders	78,000	61,750	39,000	53,000
No. of Shares	20,000	15,000	10,000	15,000
Earnings per share (EPS)	3.9	4.1	3.9	3.5

The above table shows that the financing alternative B is the most favorable combination as the EPS is highest at this combination. Although the proportion of ordinary shares in the total capital under the plan D is equal to plan B, however, the EPS is lowest in plan D. This is because interest on debt is tax-deductible while the dividend on preference shares is not.

Before-tax costs of the financing plans are:

A. Financing Plan B 25,000
B. Financing Plan C 60,000
C. Financing Plan D (Rs 25000/1 – 0.35) = 38,462

Equal amount of EBIT is necessary to cover the fixed financial charges. EPS would be 0 for plans B, C and D for the EBIT level of Rs 25,000, Rs 60,000 and Rs 38,462 respectively.

This level of EBIT may be termed as financial break even (BEP) level of EBIT because it represents the level of EBIT necessary for the firm to break even on its fixed financial charge. EBIT less than this level will result in negative EPS.

$$Financial\ Break\ even\ point = I + \frac{D_P}{1-t}$$

Where:

- $I = Annual\ interest\ charges$
- $D_p = Preference\ dividend,\ and$
- $t = Tax\ rate$

As fixed financial charges are added, the break-even point for zero EPS is increased by the amount of the additional fixed cost. Beyond the financial break-even point, increase in EPS is more than the proportionate increase in EBIT.

Illustration:

EBIT-EPS relationship under the various EBIT assumptions:

i. 80,000 (4% ROA)
ii. 1,00,000 (5% ROA)
iii. 1,30,000 (6.5% ROA)
iv. 1,60,000 (8% ROA)
v. 2,00,000 (10% ROA)

i. EBIT = Rs 80,000 (4% Return on Investment)

	A	B	C	D
EBIT	80,000	80,000	80,000	80,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	80,000	55,000	20,000	80,000
Less: Taxes (35%)	28,000	19,250	7,000	28,000

Earnings after taxes (EAT)	52,000	35,750	13,000	52,000
Less: Preference dividend	-	-	-	25,000
EAT for equity- holders	52,000	35,750	13,000	27,000
Earnings per share (EPS)	2.6	2.38	1.3	1.8

ii. EBIT = Rs 100,000 (5% Return on Investment)

	A	B	C	D
EBIT	100,000	100,000	100,000	100,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	100,000	75,000	40,000	100,000
Less: Taxes (35%)	35,000	26,250	14,000	35,000
Earnings after taxes (EAT)	65,000	48,750	26,000	65,000
Less: Preference dividend	-	-	-	25,000
EAT for equity-holders	65,000	48,750	26,000	40,000
Earnings per share (EPS)	3.25	3.25	2.6	2.67

iii. EBIT = Rs 130,000 (6.5% Return on Investment)

	A	B	C	D
EBIT	130,000	130,000	130,000	130,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	130,000	105,000	70,000	130,000
Less: Taxes (35%)	45,500	36,750	24,500	45,500
Earnings after taxes (EAT)	84,500	68,250	45,500	84,500
Less: Preference dividend	-	-	-	25,000
EAT for equity-holders	84,000	68,250	45,500	59,500
Earnings per share (EPS)	4.22	4.55	4.55	3.97

iv. EBIT = Rs 160,000 (8% Return on Investment)

	A	B	C	D
EBIT	160,000	160,000	160,000	160,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	160,000	135,000	100,000	160,000
Less: Taxes (35%)	56,000	47,250	35,000	56,000
Earnings after taxes (EAT)	1,04,000	87,750	65,000	1,04,000

Less: Preference dividend	-	-	-	25,000
EAT for equity-holders	1,04,000	87,750	65,000	79,000
Earnings per share (EPS)	5.2	5.8	6.5	5.3

v. EBIT = Rs 200,000 (10% Return on Investment)

	A	B	C	D
EBIT	2,00,000	2,00,000	2,00,000	2,00,000
Less: Interest	-	25,000	60,000	-
Earnings before taxes (EBT)	200,000	1,75,000	1,40,000	2,00,000
Less: Taxes (35%)	70,000	61,250	49,000	70,000
Earnings after taxes (EAT)	1,30,000	1,13,750	91,000	1,30,000
Less: Preference dividend	-	-	-	25,000
EAT for equity-holders	1,30,000	1,13,750	91,000	1,05,000
Earnings per share (EPS)	6.5	7.6	9.1	7

When the EBIT level exceeds the financial break-even level (Rs 25,000, Rs 60,000 and Rs 38,462 for financing alternatives, B, C and D respectively) EPS increases. The % increase in EPS is the greatest when EBIT is nearest the break-even point. In Plan C, an increase of 25% in EBIT (from Rs 80,000 to Rs 1,00,000) results in a 100% increase in EPS (from Re 1.3 to Rs 2.6). The % increase in EPS is only 40 % (from Rs 6.5 to Rs 9.1) as a result of the change in EBIT at higher levels from Rs 1,60,000 to Rs 2,00,000 (i.e., 25 per cent increase). Between preference share (D) and ordinary share (A) alternatives, the EPS is equal (Rs 5.2) at Rs 1,60,000 EBIT level.

Above this level, alternative D will give better EPS; while below it, alternative A would provide higher EPS. The EPS in alternatives A and B are the same at EBIT level of Rs 1,00,000. Above this, B plan would lead to higher EPS; at levels lower than this, financing plan A would provide higher EPS. The debt alternative (B) gives higher EPS for all levels of EBIT as compared to the preference share alternative (D)

9.8 Indifference Point

The indifference point is the EBIT level at which the EPS is the same for two alternative financial plans. If the expected level of EBIT exceeds the indifference level, the use of debt would be advantageous from the viewpoint of EPS. If the expected level is less than the indifference point, the advantage of EPS would be available from the use of equity capital.

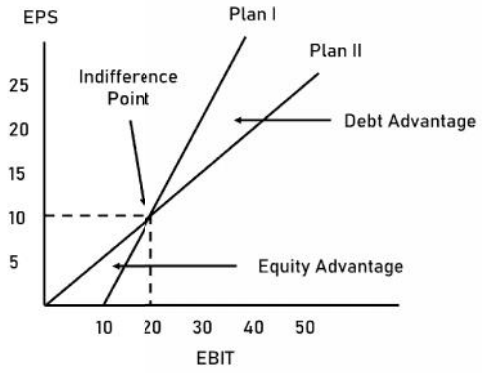


Fig. 1: Indifference Point Formula

For a New Company:

The indifference point can be determined by:

i. Equity shares versus Debentures:

$$\frac{X(1-t)}{N_1} = \frac{(X-I)(1-t)}{N_2}$$

Where:

- X = EBIT at the indifference point
- N_1 = No. of equity shares outstanding if only equity shares are issued.
- N_2 = No. of equity shares outstanding if both debentures and equity shares are issued.
- I = the amount of interest on debentures
- t = corporate income tax rate

a) Equity shares versus Preference shares:

$$\frac{X(1-t)}{N_1} = \frac{X(1-t)-D_p}{N_3}$$

b) Equity shares versus Preference shares with tax on Preference dividend

$$\frac{X(1-t)}{N_1} = \frac{X(1-t)-D_p(1+Dt)}{N_3}$$

Where:

- N_3 = No. of equity shares outstanding if both preference and equity shares are issued.
- D_P = Amount of dividend on preference shares.
- D_t = Tax on Preference dividend.

(iii) Equity shares versus Preference shares and Debentures:

$$\frac{X(1-t)}{N_1} = \frac{(X-I)(1-t)-D_p}{N_4}$$

N_4 = number of equities shares outstanding if both preference shares and debentures are issued.

For an Existing Company:

If the debentures are already outstanding, assume

I_1 = interest paid on existing debt, and

I_2 = interest payable on additional debt, then the indifference point would be determined as:

Illustration:

The manager of a firm has formulated various financial plans to finance Rs 30,00,000:

i. Either equity capital of Rs 30,00,000 or Rs 15,00,000 10% debentures and Rs 15,00,000 equity.

ii. Either equity capital of Rs 30,00,000 or 13% preference shares of Rs 10,00,000 and Rs 20,00,000 equity;

iii. Either equity capital of Rs 30,00,000 or 13% preference capital of Rs 10,00,000, (subject to dividend tax of 10 per cent), Rs 10,00,000 10% debentures and Rs 10,00,000 equity; and

iv. Either equity share capital of Rs 20,00,000 and 10% debentures of Rs 10,00,000 or 13% preference capital of Rs 10,00,000, 10% debentures of Rs 8,00,000 and Rs 12,00,000 equity.

Determine the indifference point for each financial plan, assuming 35% corporate tax rate and the face value of equity shares as Rs 100.

$$\frac{X(1-t)}{N_1} = \frac{(X-I)(1-t)}{N_2}$$

$$\frac{X(1-0.35)}{30{,}000} = \frac{(X-1{,}50{,}000)(1-0.35)}{15{,}000}$$

$$\frac{0.65X}{30{,}000} = \frac{0.65X-97{,}500}{15000}$$

$$0.65X = 1.3X - 1{,}95{,}000$$

$$-0.65X = -1{,}95{,}000$$

$$X = \frac{1{,}95{,}000}{0.65} = 3{,}00{,}000$$

Particulars	Equity	Equity + Debt
EBIT	3,00,000	3,00,000
Less: Interest	-	1,50,000
Earnings before taxes	3,00,000	1,50,000
Less: Taxes	1,05,000	52,500
Earnings for equity-holders	1,95,000	97,500
No. of Equity shares	30,000	15,000
EPS	6.5	6.5

$$\frac{X(1-t)}{N_1} = \frac{X(1-t)-D_p}{N_3}$$

$$\frac{X(1-0.35)}{30{,}000} = \frac{(X-0.35)-1{,}30{,}000)}{20{,}000}$$

$$\frac{0.65X}{30{,}000} = \frac{0.65X-1{,}30{,}000}{20000}$$

$$X = Rs.\ 6{,}00{,}000$$

$$\frac{X(1-t)}{N_1} = \frac{(X-I)(1-t)-D_p(1+Dt)}{N_4}$$

$$\frac{X(1-0.35)}{30{,}000} = \frac{(X-1{,}00{,}000)(1-0.35)-1{,}30{,}000(1+0.1)}{10{,}000}$$

$$\frac{0.65X}{30{,}000} = \frac{0.65X-65{,}000-1{,}43{,}000}{10{,}000}$$

$$X = Rs.4{,}80{,}000$$

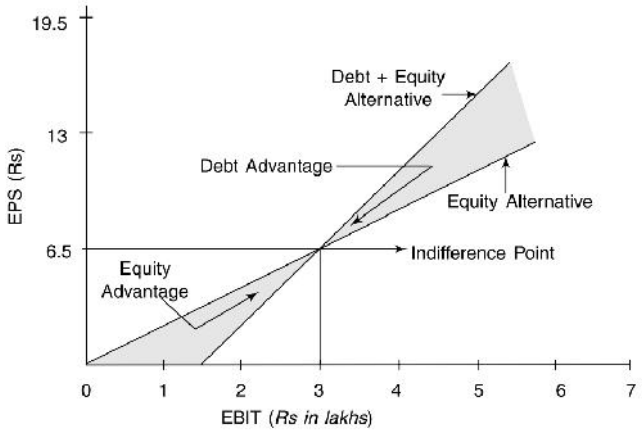
$$\frac{(X-I)(1-t)}{N_2} = \frac{(X-I)(1-t)-D_p}{N_4}$$

$$\frac{(X-1{,}00{,}000)(1-0.35)}{20{,}000} = \frac{(X-80{,}000)(1-0.35)-1{,}30{,}000)}{12{,}000}$$

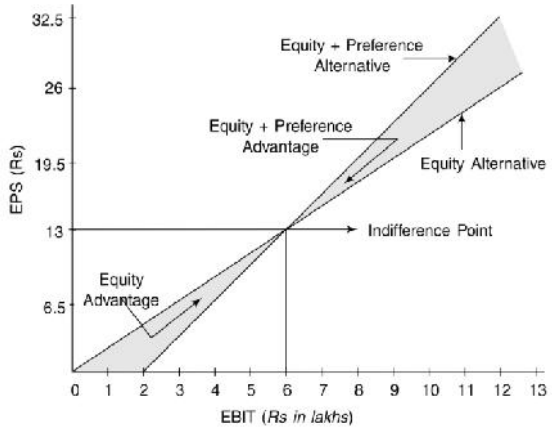
$$X = Rs.\ 5{,}50{,}000$$

Graphic Approach

Graphic representation of financial plans (i) and (ii) of previous example. The EPS for EBIT values of Rs 2,00,000 and Rs 6,00,000 are plotted on the graph under each financial plan in case of Figure 1. 100% equity financing plan starts from origin (O) because EPS would be 0 if EBIT is 0.



EBIT required to have the value of the EPS as 0 is Rs 1,50,000 (Interest charges payable on 10% debentures of Rs 15,00,000). So, the starting point of 50% equity financing plan starts from Rs 1.5 lakh. The point at which the two lines intersect is the indifference point (IP). In 33% preference share financial plan (Fig. 2), EPS would not be 0 if the firm's EBIT is Rs 1,30,000, because dividend payable on preference share is not tax-deductible. The required amount is Rs 2,00,000 [Rs 1,30,000) (1 – 0.35)]. Thus, the starting point of preference share financial plan would be Rs 2 lakh.



The EBIT-EPS chart gives a bird's eye view of EPS at various levels of EBIT. The EPS value at the estimated level of EBIT can be quickly ascertained. The IP can be compared with the most likely level of EBIT. If the likely level of EBIT is more than the IP, the use of fixed cost financing plan may be recommended, otherwise equity plan would be more suitable. Conversely, the lower the likely level of EBIT in relation to the indifference point, the more useful the unlevered financial plan would be from the view point of EPS.

Indifference Point

The indifference point may be computed in another way using market value as the basis. As the objective of financial management is the maximization of share prices, the market price of shares of a firm with two different financial plans should be identical.

So, on the basis of level of EBIT which ensures identical market price for alternative financial plans:

$$P/E_1\left[\frac{X(1-t)}{N_1}\right] = P/E_2\left[\frac{(X-I)(1-t)-D_p}{N_2}\right]$$

Where:

- P/E_1= P/E ratio of unlevered plan.
- P/E_2= P/E ratio of levered plan.

Illustration:

Determine the indifference point at which market price of equity shares of a corporate firm will be the same from the following data:

Funds required = Rs 50,000.

Existing number of equities shares outstanding, 5,000 @ Rs 10 per share.

Existing 10% debt of Rs 20,000

Funds required can be raised either by:

(a) issue of 2,000 equity shares, netting Rs 25 per share or

(b) New 15% debt.

The P/E ratio will be 7 times in equity alternative and 6 times in debt alternative.

Corporate tax rate: 35%

Solution:

$$P/E_1\left[\frac{(x-I_1)(1-t)}{N_1}\right] = P/E_2\left[\frac{(x-I_1-I_2)(1-t)}{N_2}\right]$$

or $$7\left[\frac{(x-\text{Rs } 2{,}000)\,0.65}{7{,}000}\right] = 6\left[\frac{(x-\text{Rs } 9{,}500)\,0.65}{5{,}000}\right]$$

or $$\frac{0.65x-\text{Rs } 1{,}300}{7{,}000} = \frac{0.65x-\text{Rs } 6{,}175}{5{,}000}$$

or $$5(4.55x-\text{Rs } 9{,}100) = 7(3.9x\times\text{Rs } 37{,}050)$$

or $$4.55x = \text{Rs } 2{,}13{,}850,\ \text{i.e. } x = \text{Rs } 47{,}000$$

Confirmation Table:

Particulars	15% Debt	Equity
EBIT	47,000	47,000
Less: Interest	9,500	2,000
Earnings before taxes	37,500	45,000

Less: Taxes	13,125	15,750
Earnings after taxes	24,375	29,250
No. of Equity shares	5,000	7,000
EPS	4.875	4.18
P/E ratio (times)	6	7
Market Price of the share	29.25	29.25

9.9 Combined Leverage

Combined leverage is the product of operating leverage and the financial leverage. Both leverages are concerned with ascertaining the ability to cover fixed charges. If they are combined, the result is total leverage and the risk associated with combined leverage is known as Total risk.

Formula

$$DCL = DOL \times DFL$$

$$DCL = \frac{\%change\ in\ EBIT}{\%\ change\ in\ sales} \times \frac{\%\ change\ in\ EPS}{\%\ change\ in\ EBIT} = \frac{\%\ change\ in\ EPS}{\%\ change\ in\ sales}$$

$$DCL = \frac{Contribution}{EBIT} \times \frac{EBIT}{EBIT - I} = \frac{Contribution}{EBIT - I}$$

9.10 Degree of Combined Leverage

The degree of combined leverage measures the percentage change in a firm's EPS resulting from a 1 percentage change in the sales. It measures the total risk associated with the firm. It studies the impact of change in sales on EPS. It is the sum of business plus financial risk.

Illustration:

ABC Limited, which currently has revenues of 500,000. (500 units are sold at 1,000 per unit). Its variable costs are 500 per unit and fixed operating costs are 200,000. Its fixed interest expenses are 30,000 and the Tax rate is 50%. Moreover, it has 10,000 shares outstanding. The financial profile of the company at two levels of sales viz. 500 units (the current level) and 600 (a level 20% higher than the current level).

Solution:

Particulars	Case A	Case B
Sales	500 units	600 units
Revenues	500,000	6,00,000
Variable Costs	250,000	300,000
Fixed operating interest	200,000	200,000
Profit before interest and taxes	50,000	100,000
Interest	30,000	30,000

Profit after tax	20,000	70,000
Tax	10,000	35,000
Profit after tax	10,000	35,000
EPS	**1**	**3.5**

In the example, a 20% increase in revenues leads to a 250% increase in EPS, due to the existence of fixed operating costs and interest expenses. Fixed costs magnify the impact of changes in revenues. The magnification of revenues works in the reverse direction as well. For example, in the above case a 20% decline in unit sales (from 500 units to 400 units) leads to a 250 percent fall in profit before tax from 20,000 to – 30,000.

To illustrate the calculation of Degree of combined leverage, consider the data for ABC Limited:

- P = 1,000
- V = 500
- F = 200,000
- I = 30,000

Degree of combined leverage may be computed for Q = 500 units and Q = 600 units.

$$DCL = \frac{Contribution}{EBIT} \times \frac{EBIT}{EBIT - I} = \frac{Contribution}{EBIT - I}$$

$$DCL(Q = 500) = \frac{500(1{,}000 - 500)}{500(1{,}000 - 500) - 200{,}000 - 30{,}000}$$

$$= \frac{250{,}000}{20{,}000} = 12.5$$

$$DCL(Q = 500) = \frac{600(1{,}000 - 500)}{600(1{,}000 - 500) - 200{,}000 - 30{,}000}$$

$$= \frac{300{,}000}{70{,}000} = 4.29$$

Effect of Combined Leverage

Operating and financial leverages together cause wide fluctuation in EPS for a given change in sales. If a company employs a high level of operating and financial leverage, even a small change in the level of sales will have dramatic effect on EPS. This combination can prove risky for the company. If sales decline, the adverse effect on EPS will be very severe. Public utilities companies can combine high operating leverage with high financial leverage as they have stable or rising sales. A company whose sales fluctuate widely should avoid use of high leverage since it will be exposed to a very high degree of risk.

Summary

- The use of the asset or the source of capital which carries fixed cost or return is called Leverage. We will discuss the types of leverage, concept of operating leverage, financial leverage and the combined leverage.
- The concept of leverage in finance refers to employment of an asset or source of funds for which the firm has to pay a fixed cost or fixed return. Leverage is a strategy that companies use to increase assets, cash flows, and returns, though it can also magnify losses. There are mainly two main types of leverage: Operating leverage and financial leverage.

- The operating leverage results from the use of fixed cost in the cost structure. It can be defined as the ability of the firm to use its fixed expenses to generate better returns.
- A company with higher leverage generates bigger profits when sales go up because fixed costs remain the same as revenues increase. However, higher operating leverage company will experience bigger losses too when the sales drops. Hence, the operating leverage will affect the firm's business risk.
- The degree of operating leverage (DOL) is a ratio that measures how much the operating income of a company will change due to a change in sales.
- The term financial leverage refers to the use of the fixed-charges sources of funds in the capital structure i.e., debt capital along with the owners' equity.
- The degree of financial leverage (DFL) is the ratio that measures the sensitivity of a company's earnings per share to fluctuations in its operating income, as a result of changes in its capital structure.
- The EBIT-EPS analysis is a method to study the effect of leverage on the earnings of the firm. It involves the comparison of alternative methods of financing under various assumptions of EBIT. It analyzes the effect of financing alternatives on Earnings per Share.
- The indifference point is the EBIT level at which the EPS is the same for two alternative financial plans. If the expected level of EBIT exceeds the indifference level, the use of debt would be advantageous from the viewpoint of EPS. If the expected level is less than the indifference point, the advantage of EPS would be available from the use of equity capital.
- Combined leverage is the product of operating leverage and the financial leverage. Both leverages are concerned with ascertaining the ability to cover fixed charges. If they are combined, the result is total leverage and the risk associated with combined leverage is known as Total risk.

$$DCL = DOL \times DFL$$

- The degree of combined leverage measures the percentage change in a firm's EPS resulting from a 1 percentage change in the sales. It measures the total risk associated with the firm. It studies the impact of change in sales on EPS. It is the sum of business plus financial risk.

Keywords

Corporate finance, EBIT-EPS analysis, Operating Leverage, Financial Leverage, Combined leverage, Indifference Point,

Self Assessment

1. Higher operating leverage is related to the use of additional _____.

A. fixed costs

B. variable costs

C. debt financing

D. common equity financing

2. Operating leverage is equal to:

A. Contribution x Earnings before interest and tax

B. Contribution / Earnings before interest and tax

C. Earnings before interest and tax / Contribution

D. Earnings before interest and tax + Contribution

3. Which of the following is studied with the help of operating leverage?

A. Analysis of Business Risk

B. Analysis of Financial Risk

C. Analysis of Production Risk

D. Analysis of Credit Risk

4. The extent to which an organization uses fixed cost on its cost structure is called:

A. Overall leverage

B. Financial leverage

C. Fixed Leverage

D. Operating leverage

5. Degree of operating leverage of 1.5 means:

A. If sales increase by 1.5%, the EBIT will increase by 1%

B. If EBIT increase by 1%, the EPS will increase by 1 %

C. If sales rise by 1%, EBIT will rise by 1.5%

D. If sales rise by 1%, EBIT will remain unaffected

6. Financial leverage is equal to:

A. Earnings before interest and tax / (Earnings before tax)

B. Earnings before interest and tax / (Earnings before interest and tax + Interest)

C. (Earnings before interest and tax – Interest) / Earnings before interest and tax

D. (Earnings before interest and tax + Interest) / Earnings before interest and tax

7. Financial leverage:

A. reflects the firm's commitment to fixed, financial assets

B. has no impact on the earning of the firm

C. reflects the amount of debt used in the capital structure of the firm

D. primarily affects the left side of the balance sheet

8. A higher degree of financial leverage may be desirable for:

A. a stable firm, with positive growth, under favorable economic conditions

B. an unstable firm operating in an uncertain environment

C. a stable firm operating in an uncertain environment

D. neither the stable nor unstable firm under any circumstances

9. Lower financial leverage is related to the use of additional _____.

A. fixed costs

B. variable costs

C. debt financing

D. common equity financing

10. An EBIT-EPS indifference analysis chart is used for

A. evaluating the effects of business risk on EPS.

B. examining EPS results for alternative financing plans at varying EBIT levels.

C. determining the impact of a change in sales on EBIT.

D. showing the changes in EPS quality over time.

11. Combined Leverage gives us the relation between

A. EBIT and Contribution

B. Sales and EBIT

C. EBIT and EBT

D. Contribution and EBT

12. Composite leverage (CL) will be calculated as:

A. CL = OL + FL

B. CL = OL x FL

C. CL = OL/FL

D. None of the above

13. The indifference point identifies:

A. equality of impact on EPS between two financing plans

B. equality of impact on EBIT between two financing plans

C. equality of impact on revenue between two financing plans

D. equality of impact on number of shares between two financing plans

14. Degree of combined leverage:

A. should be minimized by the financial manager

B. affects only balance sheet items

C. decreases the firm's operating profit

D. shows the impact of sales or volume changes on bottom line EPS.

15. If Combined Leverage is 2, Sales Increases by 20% then EPS will

A. Increase by 40%

B. Decrease by 40%

C. Will not changed

D. Will increase by 10%

Answers for Self Assessment

1.	A	2.	B	3.	A	4.	D	5.	C
6.	A	7.	C	8.	A	9.	D	10.	B
11.	D	12.	B	13.	B	14.	D	15.	A

Review Questions

1. Define the concept of leverage. Explain the different types of leverage
2. Explain the relation between Leverage and risk
3. Explain in detail the EBIT-EPS analysis
4. What is an indifference point in the EBIT-EPS analysis?
5. Does financial leverage always increase the earnings per share? Illustrate your answer.

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Unit 10: Dividend Decisions

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand dividend decisions.
- list the factors determining dividend decisions.
- discuss Forms of dividends.
- discuss Relevance theories.
- understand Walter's Model.
- understand Gordon's Model.
- discuss the logic behind irrelevance theory.
- understand MM argument.
- explain the proof of MM argument.

Introduction

In this course, till now we have discussed Financing decisions and the investments decisions. Now we will discuss another important decision under financial decision which is known as Dividend decisions. As we already know that the financing decisions are related with the acquisition of the capital and the investment decision are related with the application of those funds. Shareholders are the owners of the firms and they get the profits left after the payment of taxes and payment of interest to the debenture holders. But a firm may distribute the entire profits to the shareholders or keep a part of it and keep the rest as the retained earnings.Dividend decisions are the decisions which deal with the distribution of firms' profits among its shareholders.

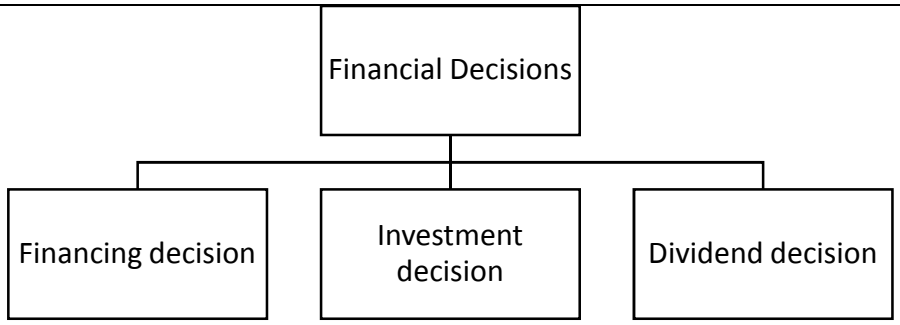


Fig.1 Financial Decisions

10.1 Meaning of Dividend

Dividend refers to that part of the part after tax which is distributed to the shareholders of the company. The profit earned by a company after paying taxes can be used for:

a) Distribution of dividend or,
b) Can be retained as surplus for future growth

The part of the profits that is distributed to the shareholders is known as the dividend.

10.2 Concept of Dividend decision

Dividend decisions are the decision regarding whether the firm should distribute all profits, or retain them, or distribute a portion and retain the balance. The proportion of profits distributed as dividends is called the dividend-payout ratio and the retained portion of profits is known as the retention ratio. A firm tries to select that dividend policy which maximizes the market value of the firm's shares and is known as the optimum dividend policy.

Objectives of Dividend Policy

The dividend policy is designed by keeping following objectives in considerations:

*a) **Shareholders' Need for Income:***

Many shareholders prefer current earnings in the form of dividend. The payment of dividends may significantly affect the market price of a share. If the firm does not pay the dividend, its market price may go down. In order to maximize wealth under uncertainty, the firm must pay enough dividends to satisfy the investors.

*b) **Firm's Need for Funds:***

However, firms also need funds for various purposes which can be sources through issuing equity or debt or using retained earnings. The retained earnings are a cheap source of capital available to the firms. These earnings of the firm may be considered as a source of long-term funds. With this approach, dividends will be paid only when the firm does not have profitable investment opportunities. Retained earnings are preferred because, unlike external equity, they do not involve any flotation costs.

10.3 Factors determining Dividend Decisions

The decisions related to the dividends are determined by various factors which are discusses below:

i. **Dividend Payout Ratio:**

The dividend payout ratio is the ratio of dividend to total earnings. As we know that the dividend policy of the firm affects both the shareholders' wealth and the long-term growth of the firm. Hence, the optimum dividend policy should maintain a balance between current dividends for shareholders and future growth of the firm which maximizes the price of the firm's shares.

ii. **Stability of dividends:**

The term dividend stability refers to the consistency in the stream of dividends. It means that a certain minimum amount of dividend is paid out by the firm regularly to its shareholders. Three forms of such stability may be distinguished:

a) Constant Dividend Per Share:

Under this form of stable dividend policy, a company follows a policy of paying a certain fixed amount per share as dividend. For e.g., on a share of face value of Rs 100, a firm may pay a fixed amount of Rs 10 as dividend. This amount would be paid year after year, irrespective of the level of earnings. The dividends per share are increased over the years when the earnings of the firm increase.

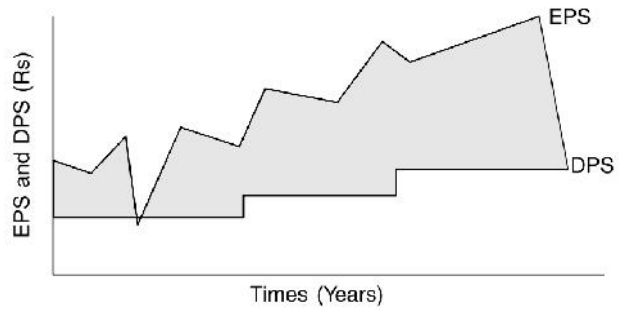
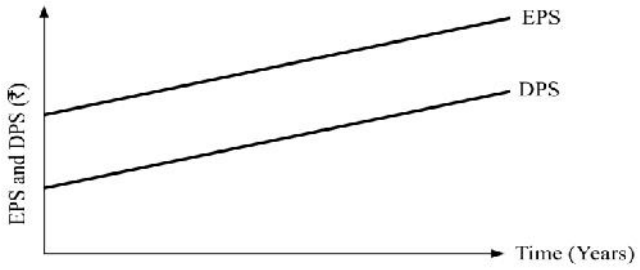


Fig. 2:

b) Constant Payout Ratio:

In this policy, firm pays a constant percentage of net earnings as dividend to the shareholders. Dividends would fluctuate proportionately with earnings. If a company adopts a 30 per cent payout ratio, then 30 per cent of every rupee of net earnings will be paid out as the dividend.



c) Stable Rupee Dividend plus extra Dividend:

Under this policy, firm usually pays a fixed dividend to the shareholders and in years of prosperity i.e., when firm earns abnormal profits. Extra dividend is paid over and above the regular dividend.

Merits of Stability of Dividends:

The stable dividends are preferred due to the following benefits:

a) Resolution of investors' uncertainty.

b) Investors' desire for current income.

c) Institutional investors' requirements.

d) Raising additional finances.

iii. Legal Constraints

The dividend decision is also affected by certain legal, contractual, and internal requirements and constraints. The legal factors relate to certain statutory requirements. The contractual restrictions arise from certain loan conditions. The internal constraints are the result of the firm's liquidity position. Legal factors specify the conditions under which dividends must be paid. Such conditions relate to:

Capital Impairment:

Rules Legal enactments limit the amount of cash dividends that a firm may pay. A firm cannot pay dividends out of its paid-up capital. Otherwise, there would be a reduction in the capital adversely affecting the security of its lenders.

Net Profits:

A firm cannot pay cash dividends greater than the amount of current profits plus the accumulated balance of retained earnings. For e.g., section 205 of the Indian Companies Act says that dividends shall be paid only out of the current profits or past profits after providing for depreciation.

Insolvency:

If the firm is currently insolvent, it is prohibited from paying dividends. Similarly, a firm would not pay dividends if such a payment leads to insolvency. The reason behind the rule is to protect the creditors by prohibiting the liquidation of near-bankrupt firms through cash dividend payments to the equity owners.

Contractual Requirements:

Certain restrictions on the payment of dividend may be accepted by a company when acquiring external capital. Such restrictions may cause the firm to restrict the payment of cash dividends until a certain level of earnings has been achieved.

Internal Constraints:

a) Liquid assets: Whether the firm has sufficient cash funds to pay cash dividends.
b) Growth prospects: Availability of external funds and its cost.
c) Financial requirements: If a firm has abundant investment opportunities, it should prefer a low payout ratio.
d) Availability of funds: The dividend policy is also restricted by the availability of funds and the need for additional investment.
e) Earnings stability: The more stable the income stream, the higher is the dividend payout ratio.
f) Control: Management employs dividend policy as an effective instrument to maintain its position of command and control.

iv. Owner's Considerations

The dividend policy is also affected by:

a) **Tax Status:** If a firm has a large no. of owners who are in high tax brackets, its dividend policy should follow high retention policy. On the other hand, if majority of the shareholders are in a lower tax bracket, they would probably favor a higher payout of earnings because of the need for current income.
b) **Opportunities:** Firm should evaluate the rate of return available from external investments. If owners have better opportunities outside, the firm should opt for a higher D/P ratio and vice-versa.
c) **Dilution of Ownership:** Low retentions may result in the issue of new equity shares in the future. By retaining a high percentage of its earnings, the firm can minimize the possibility of dilution of earnings.

v. Clientele Effect

Companies with high dividend payouts would attract investors who needs current dividends and low dividend payout companies would attract those who need capital gains. When a company chooses to pursue a particular dividend policy, it has chosen a policy to attract a particular clientele.

vi. Capital Market Considerations

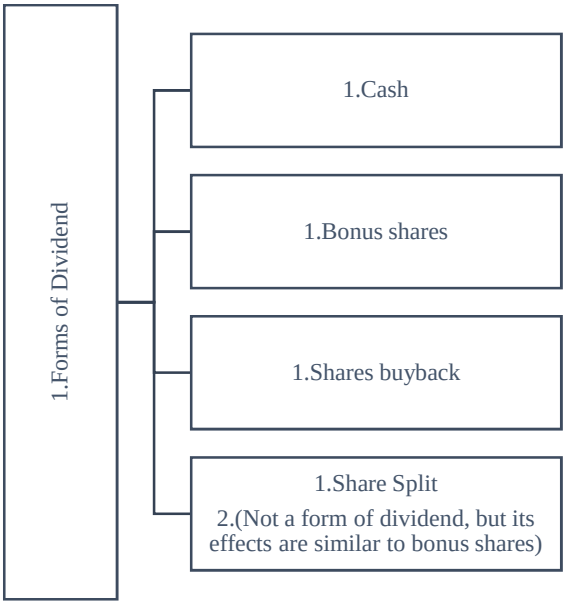
If a firm has easy access to the capital market it can follow a liberal dividend policy. Firms which depend heavily on financial institutions for procuring funds, declare a minimum dividend so that they can remain on the 'eligible' list of these institutions. It is because most financial institutions are prohibited by their charter from buying shares in companies which pay no dividends.

vii. Inflation

With rising prices, funds generated from depreciation may be inadequate to replace obsolete equipment. These firms have to depend upon retained earnings as a source of funds to make up the shortfall. Consequently, their dividend payout tends to be low during periods of inflation.

10.4 Forms of Dividend

Dividends are usually paid to shareholders in the form of cash. However, there are other options also such as payment of the bonus shares and buyback of shares. Additionally, the share split is not a form of dividend, but it's effects are similar to the effects of the bonus shares.



a) Cash Dividends

The most popular way for paying the dividend is through cash. But in order to pay cash dividends, a company should have enough cash in its bank account when cash dividends are declared. When cash dividend is distributed, both the total assets and the net worth of the company are reduced. The market price of the share drops generally by the amount of the cash dividend distributed.

b) Bonus Shares

Another mode of paying dividend is through the issuance of bonus shares. An issue of bonus shares is the distribution of shares free of cost to the existing shareholders. The effect of issuing bonus shares is that the number of outstanding shares of the company are increased. Moreover, the

declaration of the bonus shares will increase the paid-up share capital and reduce the reserves and surplus (retained earnings) of the company.

Example:

	Rs. Crore
Paid-up share capital (1 crore Shares, Rs 10 par)	10
Share Premium	15
Reserves and Surplus	8
Total net Worth	33

Company X pays bonus shares in 1:10 ratio. At the time of the issue of bonus shares, the market price per share is Rs 30. The bonus shares are issued at the market price—a premium of Rs 20 over the face value of Rs 10 each share.

	Rs. Crore
Paid-up share capital (1.10 crore Shares, Rs 10 par)	11
Share Premium	17
Reserves and Surplus	5
Total net Worth	33

The amount is be transferred from the reserves and surplus account to the paid-up share capital account and the share premium account.

c) Share Split

A share split is a method to increase the number of outstanding shares through a proportional reduction in the par value of the share. A share split affects only the par value and the number of outstanding shares; the shareholders' total funds remain unaltered.

 **Example:** Consider the capital structure of Company X:

	Rs. Crore
Paid-up share capital (1 crore Shares, Rs 10 par)	10
Share Premium	15
Reserves and Surplus	8
Total net Worth	33

Company X split their shares two-for-one. The capitalization of the company after the split is as follows:

	Rs. Crore
Paid-up share capital (2 crore Rs 5 par)	10
Share Premium	15
Reserves and Surplus	8

Total net Worth	33

Reasons for Share Split

A firm splits the share for the following reasons:

- To make trading in shares attractive.
- To signal the possibility of higher profits in the future.
- To give higher dividends to shareholders.

d) Buyback of Shares

The buyback of shares refers to the act of repurchasing of its own shares by a company. In India the following conditions apply in case of the buyback shares:

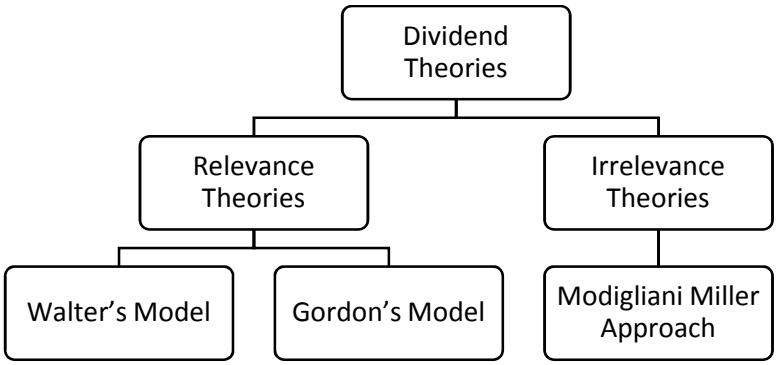
- A company buying back its shares will not issue fresh capital, except bonus issue, for the next 12 months.
- The company will state the amount to be used for the buyback of shares and seek prior approval of shareholders.
- The buyback of shares can be affected only by utilizing the free reserves.
- The company will not borrow funds to buy back shares.
- The shares bought under the buyback schemes will be extinguished and they cannot be reissued.

Methods of Shares Buyback

There are two methods of the share buyback in India. First, a company can buy its shares through authorized brokers on the open market. Second, the company can make a tender offer, which will specify the purchase price, the total amount and the period within which shares will be bought back.

10.5 Theories of Dividend

With regard to the dividend-firm value relationship, there are multiple views of the experts. Some suggests that dividend policy affects the value of the firm, whereas other suggests that there is not relationship between dividend policy and the firm value. These views or approaches can be classified into two broad categories, relevance theories and irrelevance theories.



Relevance Theories

According to the relevance approaches, the dividend decisions affect the value of the firm. In other words, If the choice of the dividend policy affects the value of a firm, it is considered as relevant. If

the dividend is relevant, there must be an optimum payout ratio. Optimum payout ratio is that ratio which gives highest market value per share.

10.6 Walter's Model

Walter's model was proposed by Professor James E. Walter. The model shows the importance of the relationship between the firm's rate of return, *r*, and its cost of capital*k*, in determining the dividend policy that will maximize the wealth of shareholders.

The assumptions of the Walter's model are:

- There is only Internal financing
- Constant return and cost of capital
- 100% payout or retention of earnings
- Constant EPS and DIV
- Time periods is Infinite

Formula of Walter's Model:

$$P = \frac{\text{DIV}}{k} + \frac{r(\text{EPS} - \text{DIV})/k}{k}$$

Or,

$$P = \frac{\text{DIV} + (r/k)(\text{EPS} - \text{DIV})}{k}$$

Where:

P = market price per share

DIV = dividend per share

EPS = earnings per share

r = firm's rate of return (average)

k = firm's cost of capital or capitalization rate

The above formula shows that the market price per share is the sum of the present value of two sources of income:

a) Present value of the infinite stream of constant dividends, DIV/k, plus

b) Present value of the infinite stream of capital gains, [r (EPS – DIV)/k]/k.

Example: Consider the following information for a) Growth firm, b) Normal firm and c) Declining firm. In the growth firm, rate of return (r) is greater than the cost of capital (k). In the Normal firm, rate of return (r) is equal to the cost of capital (k) and in the declining firm, rate of return (r) is less than the cost of capital (k). Let's consider the effect of different dividend policies on the EPS of the firm in the three cases.

a. Growth Firm, *r* > *k*

r = 0.15, *k* = 0.10, EPS = Rs 10

- **Payout Ratio 0%**

DIV = Rs 0

P = 0 + (0.15/0.10) (10 – 0)/0.10

= Rs 150

- **Payout Ratio 40%**

DIV = Rs 4

P = 4 + (0.15/0.10) (10 – 4)/0.10

= Rs 130

- **Payout Ratio 80%**

DIV = Rs 8

P = 8 + (0.15/0.10) (10 – 8)/0.10

= Rs 110

- **Payout Ratio 100%**

DIV = Rs 10

P = 4 + (0.15/0.10) (10 – 10)/0.10

= Rs 100

b. Normal Firm, *r* = *k*

r = 0.10, k = 0.10, EPS = Rs 10

- **Payout Ratio 0%**

DIV = Rs 0

P = 0 + (0.10/0.10) (10 – 0)/0.10

= Rs 100

- **Payout Ratio 40%**

DIV = Rs 4

P = 4 + (0.10/0.10) (10 – 4)/0.10

= Rs 100

- **Payout Ratio 80%**

DIV = Rs 8

P = 8 + (0.10/0.10) (10 – 8)/0.10

= Rs 100

- **Payout Ratio 100%**

DIV = Rs 10

P = 4 + (0.10/0.10) (10 – 10)/0.10

= Rs 100

c. Declining Firm, $r < k$

r = 0.8, k = 0.10, EPS = Rs 10

- **Payout Ratio 0%**

DIV = Rs 0

P = 0 + (0.8/0.10) (10 – 0)/0.10

= Rs 80

- **Payout Ratio 40%**

DIV = Rs 4

P = 4 + (0.8/0.10) (10 – 4)/0.10

= Rs 88

- **Payout Ratio 80%**

DIV = Rs 8

P = 8 + (0.8/0.10) (10 – 8)/0.10

= Rs 96

- **Payout Ratio 100%**

DIV = Rs 10

P = 4 + (0.8/0.10) (10 – 10)/0.10

= Rs 100

In the Walter's model, the dividend policy of the firm depends on the availability of investment opportunities and the relationship between the firm's internal rate of return, r and its cost of capital, k. Hence,

- Retain all earnings when r > k
- Distribute all earnings when r < k
- Dividend policy has no effect when r = k.

Illustration: The following information is available for the firm ABC:

- Earning per share: Rs. 4
- Return on investment or internal earning: 18%
- Return required by shareholder: 15%
- Price per share as per the Walter model if the payout ratio is: a) 40%, b) 50% and c) 60%

Solution

According to the Walter's Model:

$$P = \frac{\text{DIV} + (r / k)(\text{EPS} - \text{DIV})}{k}$$

Pay-out Ratio	Price per Share	P
40%	$\frac{1.60 + 0.18(2.40)/0.15}{0.15}$	Rs. 29.87
50%	$\frac{2 + 0.18(2)/0.15}{0.15}$	Rs. 29.33
60%	$\frac{2.40 + 0.18(1.60)/0.15}{0.15}$	Rs. 28.80

Criticisms of Walter's Model:

There are various criticisms of the Walter's model:

- No External Financing: firm's investment or its dividend policy will be sub-optimum.
- Constant return: Firm's internal rate of return does not always remain constant.
- Constant opportunity cost of capital: A firm's cost of capital or discount rate, k.

10.7 Gordon's Model

Another model in relevance theory is Gordon's Model. According to Prof. Gordon, Dividend Policy almost always affects the value of the firm. The main proposition of the model is that the value of a share reflects the value of the future dividends accruing to that share. Hence, the dividend payment and its growth are relevant in valuation of shares. The model holds that the share's market price is equal to the sum of share's discounted future dividend payment.

Assumptions

This model is based on various assumptions which are given below:

a) All equity firm
b) No external financing
c) Constant Returns
d) Constant Cost of Capital
e) Perpetual Earnings
f) No taxes
g) Constant Retention
h) Cost of Capital is greater than growth rate

Formula of Gordan's Model:

$$P_0 = \frac{\text{DIV}_1}{(1+k)} + \frac{\text{DIV}_2}{(1+k)^2} + \cdots + \frac{\text{DIV}_\infty}{(1+k)^\infty} = \sum_{t=1}^{\infty} \frac{\text{DIV}_t}{(1+k)^t}$$

Dividend per share is expected to grow when earnings are retained. The dividend per share is equal to the payout ratio, (1 – *b*) times earnings per share, EPS; that is,

$$DIV_t = (1 - b)\, EPS_t.$$

It is assumed that the retained earnings are reinvested within the all-equity firm at the firm's internal rate of return, *r*. This allows earnings to grow at $g = br$ per period.

$$P_0 = \frac{EPS_1(1-b)}{k-br}$$

Or,

$$P = \frac{D_1}{r-g}$$

Where:

P = Price

E = Earnings per Share

b = Retention Ratio

k = Cost of Capital

br = g = Growth Rate

Example: Consider the following information for a) Growth firm, b) Normal firm and c) Declining firm. In the growth firm, rate of return (r) is greater than the cost of capital (k). In the Normal firm, rate of return (r) is equal to the cost of capital (k) and in the declining firm, rate of return (r) is less than the cost of capital (k). Let's consider the effect of different dividend policies on the EPS of the firm in the three cases according to the Gordon's Model.

a) Growth Firm, $r > k$

$r = 0.15$, $k = 0.10$, EPS = Rs 10

- **Payout Ratio 40%**

$g = br = 0.6 \times 0.15$

$= 0.09$

$P = \frac{10(1 - 0.6)}{0.10 - 0.09}$

$= 4/0.09$

$= 400$

- **Payout Ratio 60%**

$g = br = 0.4 \times 0.15$

$= 0.06$

$P = \frac{10(1 - 0.4)}{0.10 - 0.09}$

$= 6/0.04$

= 150

- **Payout Ratio 90%**

$g = br = 0.10 \times 0.15$

= 0.015

$P = \frac{10(1 - 0.1)}{0.10 - 0.015}$

= 4/0.09

= 106

b) Normal Firm, r = k

$r = 0.10$, $k = 0.10$, EPS = Rs 10

- **Payout Ratio 40%**

$g = br = 0.6 \times 0.10$

= 0.06

$P = \frac{10(1 - 0.6)}{0.10 - 0.06}$

= 4/0.04

= 100

- **Payout Ratio 60%**

$g = br = 0.4 \times 0.10$

= 0.04

$P = \frac{10(1 - 0.4)}{0.10 - 0.04}$

= 6/0.06

= 100

- **Payout Ratio 90%**

$g = br = 0.10 \times 0.10$

= 0.01

$P = \frac{10(1 - 0.1)}{0.10 - 0.01}$

= 9/0.09

= 100

c. Declining Firm, $r < k$

r = 0.08, k = 0.10, EPS = Rs 10

- **Payout Ratio 40%**

$g = br$= 0.6 × 0.08

= 0.048

P = 10(1 - 0.6)

0.10 - 0.048

= 4/0.052

= 77

- **Payout Ratio 60%**

$g = br$= 0.4 × 0.08

= 0.032

P = 10(1 - 0.4)

0.10 - 0.032

= 6/0.068

= 88

- **Payout Ratio 90%**

$g = br$= 0.10 × 0.08

= 0.008

P = 10(1 - 0.1)

0.10 - 0.008

= 9/0.092

= 98

Illustration: The following information is available for Firm ABC:

- Earnings per share(EPS): Rs. 5
- Return required by shareholder: 16%

What rate of return should be earned on investment to ensure that the market price is Rs.50 when the dividend payout is 40%?

Solution:

Dividend payout = 40% = 0.4, b = 100-40 = 60% = 0.6

$$P = \frac{E(1-b)}{k-br}$$

$$50 = \frac{5(1-0.6)}{0.16-0.6r}$$

$$30r = 6$$

$$r = 0.20$$

= 20%

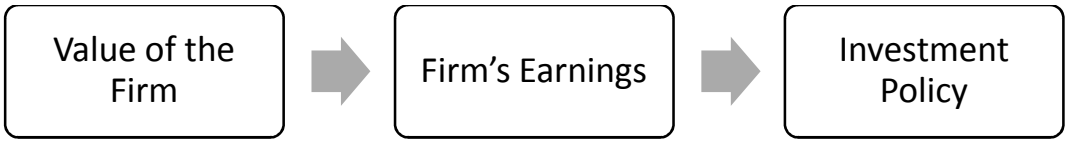
Gordon's model suffers from the same limitations as the Walter's Model.

Irrelevance Theory

According to the irrelevance approaches, the dividend decisions doesn't affect the value of the firm. According to this theory, the dividend policy of the firm is a residual decision and dividends are a passive residual.Dividend policy of a firm will depend upon the available investment opportunities.When a firm has sufficient investment opportunities, it will retain the earnings to finance them. On the other hand, if acceptable investment opportunities are inadequate, earnings would be distributed.

10.8 MM Argument

This approach was developed by Franco Modigliani and Merton Miller in 1961.They claimed that neither the price of firm's stock nor its cost of capital is affected by its dividend policy.The value of the firm depends on the firm's earnings that result from its investment policy. Thus, when investment decision of the firm is given, dividend decision is of no significance in determining the value of the firm.



A firm may face one of the following three situations regarding the payment of dividends:

i. The firm has sufficient cash to pay dividends.

ii. The firm does not have sufficient cash to pay dividends, and therefore, it issues new shares to finance the payment of dividends.

iii. The firm does not pay dividends, but shareholders need cash.

In the first situation, when the firm pays dividends, shareholders get cash in their hands, but the firm's assets reduce (its cash balance declines). What shareholders gain in the form of cash dividends, they lose in the form of their claims on the assets. There is no net gain or loss. The wealth of shareholders will remain unaffected.

In the second situation, when the firm issues new shares to finance the payment of dividends, two transactions take place. First, the existing shareholders get cash in the form of dividends, but they suffer an equal amount of capital loss since the value of their claim on assets reduces. Thus, the wealth of shareholders does not change. Second, the new shareholders part with their cash to the company in exchange for new shares at a fair price per share. The fair price per share is the share price before the payment of dividends less dividend per share to the existing shareholders. The existing shareholders transfer a part of their claim to the new shareholders in exchange for cash. The value of the firm will remain unaltered.

In the third situation, if the firm does not pay any dividend a shareholder can create a home-made dividend by selling a part of his shares.The shareholder will have a smaller number of shares. He or she has exchanged a part of the claim on the firm to a new shareholder for cash. The value of the firm remains the same.

Illustration: The Company XYZ currently has 2 crore outstanding shares selling at a market price of Rs 100 per share. The firm has no debt. It has internal funds available to make a capital expenditure of Rs 30 crore.The expenditure is expected to generate a positive NPV of Rs 20 crore. The firm wants to pay a dividend per share of Rs 15.

Given the firm's expenditure plan and its policy of no borrowing, the firm will have to issue new shares to finance payment of dividends to its shareholders.

How will the firm's value be affected?

a) if it does not pay any dividend;
b) if it pays dividend per share Rs 15?

Solution:

The firm's current value is:

2 × Rs 100 = Rs 200 crore.

After the Capital expenditure, the value will increase to:

Rs 200 + Rs 20 = Rs 220 crore.

- If the firm does not pay dividends, the value per share will be:

Rs 220/2 = Rs 110.

- If the firm pays a dividend of Rs 15 per share.

It will use its internal funds (15 × 2 = Rs 30 crore), and it will have to raise Rs 30 crore by issuing new shares.The value of a share after paying dividend will be:

Rs 110 – Rs. 15 = Rs 95.

Thus, the existing shareholders get a cash of Rs 15 per share in the form of dividends, but suffers a capital loss of Rs 15 in the form of reduced share value.

The firm will have to issue:

Rs 30 crore/ Rs 95 = Rs 31,57,895 (about 31.6 lakh) shares to raise Rs 30 crore.

The firm now has 2.316 crore shares at Rs 95 each share.

Thus, the value of the firm remains as:

2.316 × 95 = Rs 220 crore

Home-made dividend

MM dividend hypothesis suggests that shareholders do not necessarily depend on dividends for obtaining cash. In a perfect market, they can get cash by creating "home-made dividend" without any reduction in their wealth. Therefore, firms paying high dividends need not command higher prices for their shares.

Assumptions

The MM approach is based on the following assumptions:

- The firm operates in perfect capital markets where investors behave rationally, information is freely available to all, and transactions and flotation costs do not exist.
- Taxes do not exist; or there are no differences in the tax rates applicable to capital gains and dividends.
- The firm has a fixed investment policy.
- Risk of uncertainty does not exist. That is, investors are able to forecast future prices and dividends with certainty.

Proof of the Model:

Step 1: The market price of a share in the beginning of the period:

$$P_0 = \frac{1}{(1+k_e)}(D_1 + P_1)$$

Where:

P_0 = Current market price of a share,

k_e = Cost of equity capital,

D_1 = Dividend to be received at the end of period 1, and

P_1 = Market price of a share at the end of period 1.

Step 2: Assuming no external financing, the total capitalized value of the firm would be:

$$nP_0 = \frac{1}{(1+k_e)}(nD_1 + nP_1)$$

Step 3: If the firm's internal sources of financing its investment opportunities fall short of the funds required, Eq. 2 can be written as:

$$nP_0 = \frac{1}{(1+k_e)}[(nD_1 + (n+\Delta n)P_1 - \Delta nP_1)]$$

Where, Δn is the number of new shares issued at the end of year 1 at price of P_1

Step 4: The total amount raised through new shares:

$$\Delta nP_1 = I - (E - nD_1)$$
$$\Delta nP_1 = I - E + nD_1$$

- ΔnP_1 = Amount obtained from the sale of new shares.
- I = Total amount/requirement of capital budget.
- E = Earnings of the firm during the period.
- nD_1 = Total dividends paid.

Step 5: If we substitute Eq. 4 into Eq. 3, we derive Eq. 5.

$$nP_0 = \frac{1}{(1+k_e)}[nD_1 + (n+\Delta n)P_1 - (I - E + nD_1)]$$

$$nP_0 = \frac{nD_1 + (n + \Delta n)\,P_1 - I + E - nD_1}{(1 + k_e)}$$

Cancelling positive nD_1 and negative nD_1.

Step 6: Conclusion:

$$nP_0 = \frac{(n + \Delta n)\,P_1 - I + E}{(1 + k_e)}$$

As dividends (D) are not found in Eq. 6, Modigliani and Miller argued that dividends do not count and that dividend policy has no effect on the share price.

Illustration: Firm XYZ Ltd. has 1 lakh outstanding shares selling at Rs 100 each. The firm has net profits of Rs 10 lakh and intends to make new investments of Rs 20 lakh during the period. The firm is also considering declaring a dividend of Rs 5 per share at the end of the current fiscal year. The firm's opportunity cost of capital is 10%.

What will be the price of the share at the end of the year if?

i. Dividend is not declared.

ii. Dividend is declared.

iii. How many new shares must be issued?

Solution:

The price of the share at the end of the current fiscal year is determined as follows:

$$P_0 = \frac{\text{DIV}_1 + P_1}{(1+k)}$$

$$P_1 = P_0(1+k) - \text{DIV}_1$$

i. The value of P_1 when dividend is not paid is: P_1 = Rs 100(1.10) – 0 = Rs 110

ii. The value of P_1 when dividend is paid is: P_1 = Rs 100(1.10) – Rs 5 = Rs 105

iii. The number of new shares to be issued by the company to finance its investments:

$$\Delta nP_1 = I - (E - nD_1)$$

- Δn 105 = 20,00,000 – (10,00,000 - 5,00,000)
- Δn 105 = 15,00,000
- Δn = 15,00,000/105 = 14,285 Shares

Criticism of MM Model

The MM models is criticized for the following reasons:

- Capital markets are not perfect in reality.
- There may exist issue costs.
- Dividends may be taxed differently than capital gains.
- Investors may face difficulties in selling their shares.

Hence, due to the unrealistic nature of the assumptions, MM's hypothesis lacks practical relevance. Dividend policy of the firm may affect the perception of shareholders.

Relevance of Dividend Policy Under Market Imperfections

In practical world, investors like cash dividends. Thus, there is a clientele for high-payout shares.Except tax-exempt investors, there does not seem to be a strong reason for investors to prefer high-payout shares. In practical world, capital gains are taxed at a low rate, investors in high-tax brackets would prefer low-payout shares.Managers have more information about the prospects of a firm than shareholders. This is called information asymmetry and it leads to agency problems. The high payout is considered as a device to reduce agency costs. Dividends have information value as they convey signals about a company's future earnings and growth prospects.Thus, there does not seem to be a consensus on whether dividends matter or not. In practice, a number of factors will have to be considered before deciding about the appropriate dividend policy of the firm.

Summary

- Dividend refers to that part of the part after tax which is distributed to the shareholders of the company. The profit earned by a company after paying taxes can be used for distribution of dividend or, can be retained as surplus for future growth. The part of the profits that is distributed to the shareholders is known as the dividend.
- Dividend decisions are the decision regarding whether the firm should distribute all profits, or retain them, or distribute a portion and retain the balance. The proportion of profits distributed as dividends is called the dividend-payout ratio and the retained portion of profits is known as the retention ratio. A firm tries to select that dividend policy which maximizes the market value of the firm's shares and is known as the optimum dividend policy.
- The decisions related to the dividends are determined by various factors:
    - Dividend Payout Ratio:
    - Stability of dividends:
    - Legal Constraints
    - Owner's Considerations
    - Clientele Effect
    - Capital Market Considerations
    - Inflation
- According to the relevance approaches, the dividend decisions affect the value of the firm. In other words, If the choice of the dividend policy affects the value of a firm, it is considered as relevant. If the dividend is relevant, there must be an optimum payout ratio. Optimum payout ratio is that ratio which gives highest market value per share.
- Walter's model was proposed by Professor James E. Walter. The model shows the importance of the relationship between the firm's rate of return, *r*, and its cost of capital*k*, in determining the dividend policy that will maximize the wealth of shareholders.
- Formula of Walter's Model:

$$P = \frac{\text{DIV} + (r / k)(\text{EPS} - \text{DIV})}{k}$$

- In the Walter's model, the dividend policy of the firm depends on the availability of investment opportunities and the relationship between the firm's internal rate of return, r and its cost of capital, k. Hence,
    - Retain all earnings when r > k
    - Distribute all earnings when r < k
    - Dividend policy has no effect when r = k.

- Another model in relevance theory is Gordon's Model. The main proposition of the model is that the value of a share reflects the value of the future dividends accruing to that share. Hence, the dividend payment and its growth are relevant in valuation of shares. The model holds that the share's market price is equal to the sum of share's discounted future dividend payment.
- Formula of Gordan's Model:

$$P = \frac{D_1}{r - g}$$

- According to the irrelevance approaches, the dividend decisions doesn't affect the value of the firm. The dividend policy of the firm is a residual decision and dividends are a passive residual.Dividend policy of a firm will depend upon the available investment opportunities.When a firm has sufficient investment opportunities, it will retain the earnings to finance them. On the other hand, if acceptable investment opportunities are inadequate, earnings would be distributed.
- MM approach states that neither the price of firm's stock nor its cost of capital is affected by its dividend policy.The value of the firm depends on the firm's earnings that result from its investment policy. Thus, when investment decision of the firm is given, dividend decision is of no significance in determining the value of the firm.
- Relevance of Dividend Policy under Market Imperfections: In practical world, there does not seem to be a consensus on whether dividends matter or not.

Keywords

Dividend Decisions, Walter's Model, Gordon's Model, MM Approach, Bonus Shares, Share Split, Buyback of Shares.

Self Assessment

1. The factors involved in setting a dividend policy include all of the following EXCEPT:

A. restrictive covenants in a bond indenture.
B. growth prospects.
C. the legal prohibition on paying dividends which exceed current earnings.
D. capital impairment restrictions

2. The dividend policy must be formulated considering two basic objectives, namely

A. delaying the tax liability of the stockholder and information content.
B. maximizing shareholder wealth and delaying the tax liability of the stockholder.
C. maximizing shareholder wealth and providing for sufficient financing.
D. maintaining liquidity and minimizing the weighted average cost of capital.

3. The problem with a constant-payout-ratio dividend policy from the shareholder's perspectiveis that

A. it bores the shareholders.
B. if the firm's earnings drop, so does the dividend payment.
C. even when earnings are low, the company must pay a fixed dividend.
D. there is no informational content.

4. The purpose of a stock split is to

A. affect the firm's capital structure.
B. decrease the dividend.
C. enhance the trading activity of the stock by lowering the market price.
D. increase the market price of the stock.

5. The purpose of a reverse stock split is to

A. issue additional shares

B. increase the dividend.

C. increase the price of stock.

D. reduce trading activity.

6. Which is/are the relevance theory/theories of dividend policy

A. Walter's Model

B. Gordon's Model

C. Modigliani Miller Approach

D. Both a and b

7. Gordon's "bird in hand" argument suggests that

A. dividends are irrelevant.

B. firms should have a 100 percent payout policy.

C. shareholders are generally risk averse and attach less risk to current dividends.

D. the market value of the firm is unaffected by dividend policy.

8. Which of the following is an argument for the relevance of dividends?

A. Informational content.

B. Reduction of uncertainty.

C. Some investor's preferences for current income.

D. All of the above.

9. Dividend policy determines_____

A. What portion of earnings will be paid out to stockholders.

B. What portion will be retained in the business to finance long-term growth.

C. Both (A) and (B)

D. None of the above

10. Which one of the following is not an assumption of the Walter's relevance theory model?

A. The firm has a very long life.

B. Earnings and dividends do not change while determining the value.

C. The internal rate of return (r) and cost of capital (k) of the firm are constant.

D. The firms are financed through external sources.

11. Which of the following theory is known as irrelevance theory of dividend?

A. Walter's Model

B. Gordon's Model

C. Modigliani and Miller Proposition

D. Both a and b

12. MM Theory in perfect market suggests that dividend payment:

A. Has a positive impact on the value of firm.
B. Has no impact on the value of a firm.
C. Has a negative impact on the value of firm.
D. Has negligible impact on the firm.

13. Which one of the following is not an assumption of the Modigliani-Miller (MM) model?

A. There are perfect capital markets.
B. Investors do not behave rationally.
C. There are not flotation and transactions costs.
D. No investors are large enough to affect the market price of shares.

14. Which one of the following is not an assumption of the Modigliani-Miller (MM) model?

A. There is no risk or uncertainty in regard to the future of the firm.
B. Information about the company is available without any cost.
C. The firm has rigid investment policy.
D. Dividend policy has no impact on the market price of the shares.

15. Modigliani and Miller argue that the dividend decision:

A. Is irrelevant as the value of the firm is based on the earning power of its assets.
B. Is relevant as the value of the firm is not based just on the earning power of its assets.
C. Is irrelevant as dividends represent cash leaving the firm to shareholders, who own the firm anyway.
D. Is relevant as cash outflow always influences other firm decisions

Answers for Self Assessment

1.	C	2.	C	3.	B	4.	C	5.	D
6.	D	7.	C	8.	D	9.	C	10.	D
11.	C	12.	B	13.	B	14.	A	15.	A

Review Questions

1. Explain the concept of Dividend policy.
2. List the factors affecting the Dividend policy of the firm.
3. Discuss the various forms of dividend.
4. Illustrate the Walter's model of Dividend under Growth, Normal and Declining firm.
5. Explain the Modigliani and Millers argument.

Further Readings

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Unit 11: Forms of Dividend

CONTENTS

Objectives

After studying this unit, you will be able to:

- discuss the concept behind Bonus Shares.
- explain the concept of Share Split.
- list the advantage and disadvantages of Bonus Share and Share Split.
- explain Stock Repurchase,
- discuss Dividend Policies in practice.

Introduction

In the previous chapter we discussed about the dividend decisions and the dividend policy in a firm. In this chapter we will discuss about different forms in which a firm can distribute the dividends to the shareholders. Usually, firms pay the dividends in the form of cash, however firms can issue bonus shares also. Similarly, firms can split the shares or buyback their own shares also. We will discuss each of the dividend form in detail and will also discuss their advantages, disadvantage and the impact of different forms of dividends on the firm.

Forms of Dividend

Dividend is the potion of firm's earnings that is distributed among the shareholders. The dividends are usually paid in terms of cash. Other options are payment of the bonus shares and shares buyback. The share split is not a form of dividend; but the effect is similar to the effects of the bonus shares.

11.1 Cash Dividends

In order to pay the dividend in the form of cash, a company should have enough cash in its bank account. Cash dividends can affect the liquidity position of the firm; thus, a firm should properly manage its cash position if it pays the dividends in cash. When the company follows a stable dividend policy, it should prepare a cash budget for the coming period to indicate the necessary

funds. In practice, the total assets and the net worth of the company are reduced when the cash dividend is distributed to the shareholders. Usually, the market price of the share drops by the amount of the cash dividend distributed.

11.2 Bonus Shares

Sometimes, instead of paying dividends in cash, firms issue extra shares to the shareholders. Bonus shares issue means distribution of shares free of cost to the existing shareholders. The effect of such issuance is that the it increases the number of outstanding shares of the company. It involves issuing new shares on a pro rata basis to the current shareholders. Usually, the declaration of the bonus shares will increase the paid-up share capital and reduce the reserves and surplus of the company. For e.g., if a shareholder owns 50 shares at the time when a 1:10 bonus issue is made, the shareholder will receive 5 additional shares. Bonus shares will increase the paid-up share capital and reduce the reserves and surplus.

 ***Example*:** Company X pays bonus shares in 1:10 ratio. The market price per share is Rs 30. (Premium: Rs 20, face value: Rs 10 each share). The bonus shares are issued at the market price.

	Rs. Crore
Paid-up share capital (1 Crore shares of Rs. 10 par)	10
Share Premium	15
Reserve and Surpluses	8
Total Net worth	33

After issuing the bonus shares:

	Rs. Crore
Paid-up share capital (1.10 Crore shares of Rs. 10 par)	11
Share Premium	17
Reserve and Surpluses	5
Total Net worth	33

In the above example, the amount is transferred from reserves and surplus account to the paid-up share capital account and the share premium account. The total net worth of the company does not change by the bonus shares; only the balance of the paid-up share capital is readjusted.

Bonus shares and shareholders wealth

In practice, the issue of bonus shares does not affect the wealth of shareholders. The Earning per Share (EPS) and market price per share falls in the same proportion to the bonus issue. For e.g., Suppose, as a result of increasing the number of shares by 1:10, the EPS of Company X will decrease by 10%, the market price per share will also fall by 10%.

Suppose, the net earnings of the company are Rs. 2.20 crore, the EPS before the declaration of the bonus issue is Rs. 2.20 (Rs. 2.20 crore/1.00 crore). After the bonus shares, the EPS will be Rs. 2 (Rs. 2.20 crore/1.10 crore).

The earnings of shareholders will remain same. Total earnings of a shareholder holding 100 shares:

Before the bonus shares is Rs. 220 (Rs. 2.20 × 100)

After the bonus issue: Rs. 220 (Rs. 2.00 × 110)

Market price per share will also drop by Rs. 2.73; i.e., Rs. 30 (1 – 1.00/1.10).

The total market value of the shareholder's holdings after the bonus shares is Rs. 3,000 (Rs. 27.27 × 110), which is same as the total value before the bonus shares. The bonus shares have no impact on the wealth of shareholders. In practice, immediately after the announcement of bonus issue, the market price of a company's share changes depending on the investor's expectations. Sharp decline in the share price may be observed if the bonus issue falls short of the investors' expectation.

Advantages to the Shareholders:

There are many benefits of bonus shares for the firm as well as the shareholders as discussed below:

- Tax benefit:

Receipt of bonus shares by the shareholder is not taxable as income.

- Indication of higher future profits:

Issue of bonus shares is interpreted as an indication of higher profitability.

- Future dividends may increase:

If a fixed DPS paying company continues to pay same dividend after bonus issue, the total cash dividends of the shareholders will increase.

- Psychological value:

The receipt of bonus shares gives a chance to make capital gains. They also associate it with the prosperity of the company

- Conservation of cash:

It allows the company to declare a dividend without using up cash.

- Only means to pay dividend under financial difficulty and contractual restrictions
- It leads to more attractive share price

Conditions for the Issue of Bonus Shares:

There are several conditions for the issue of the bonus shares:

- A company is not allowed to declare bonus shares unless partly paid-up shares have been converted into fully paid-up shares.
- Bonus shares are made out of share premium and free reserve, which includes investment allowance reserve but excludes capital reserve on account of assets revaluation.
- In no time the amount of bonus issue should exceed the paid-up capital.
- A company can declare bonus shares once in a year.
- The company's shareholders should pass a resolution approving the proposal of the bonus issue, clearly indicating that the rate of dividend is payable on the increased capital.
- A company intending to issue bonus shares should not be in default of payments of statutory dues to employees and term loans to financial institutions.

- The maximum bonus shares ratio is 1:1; that is, one bonus share for one fully paid-up share held by the existing shareholders.
- However, two criteria are required to be satisfied within the limit of the maximum ratio. They are:
- Residual reserve criterion: It requires that the reserve remaining after the amount capitalized for bonus issue should be at least equal to 40 per cent of the increased paid-up capital.
- Redemption reserve and capital reserve on account of assets revaluation are excluded while investment allowance reserve is included in computing the minimum residual reserve
- Profitability criterion: It requires that 30 per cent of the previous three years' average pre-tax profit (PBT) should be at least equal to 10 per cent of the increased paid-up capital.

11.3 Share Split

Another form of payment of dividend is through share splitting. In share split, a share is split or divided into multiple parts. The effect of share split is that it increases the number of outstanding shares through a proportional reduction in the par value of the share. A share split affects only the par value and the number of outstanding shares whereas, the shareholders' total funds remain unaltered.

For example, consider this case:

- Capital structure of Company X:

	Rs. Crore
Paid-up share capital (1 crore shares of Rs. 10 par)	10
Share Premium	15
Reserve and Surpluses	8
Total Net worth	33

- Company X split their shares two-for-one.

The capitalization of the company after the split is as follows:

	Rs. Crore
Paid-up share capital (2 crore shares of Rs. 5 par)	10
Share Premium	15
Reserve and Surpluses	8
Total Net worth	33

In the above case, the only effect of share split is that the number of paid-up shares capital have been increased and the thus the price per share has been reduced.

Reasons for Share Split

Firms split shares for the following reasons:

i. **To make trading in shares attractive:**

After splitting of the share, the price of the share reduces and thus the share of the company is placed in a more popular trading range. Thus, It helps in increasing the marketability and liquidity of a company's shares

ii. **To signal the possibility of higher profits in the future:**

The share splits are also used by the management to signal the investors that the company is expected to earn higher profits in future.

iii. **To give higher dividends to shareholders:**

When the share is split, usually the dividend does not reduce and thus the DPS increases proportionately.

- ## Reverse Stock Split

Reverse stock split refers to the act of merging the shares. Firms sometime merge the shares and thus reduces the number of total outstanding shares. There is no impact of reverse stock split on the earnings and shareholders' wealth. The price of share can be increased with a reverse split. The reverse split of 1:4 implies that for each four shares, one share would be given in exchange.

For example, a company has 20 lakh outstanding shares of Rs. 5 par value per share. Suppose it declares a reverse split of one-for-four. After the split, it will have 5 lakh shares of Rs. 20 par value per share. The reverse split is generally an indication of financial difficulty.

Advantages

There are several benefits of reverse share split for the firm:

- It brings the market price of shares within popular range.
- It is perceived as favorable news by the investors.
- Reverse share split announcements improve the prospect of raising additional funds

Rationale for issuing Bonus Shares and Share Split:

Several hypotheses have been proposed in support of bonus share which are discussed below:

i. **Signaling hypothesis:**
Announcement of bonus shares signals about the optimistic future of the issuing firm to the market as there is information asymmetry between managers and investors.

ii. **Trading range hypothesis:**
The issue of bonus shares and share splits would have the effect of bringing the market price of shares within a more popular range. Enable more investors to trade in the share.

iii. **Liquidity hypothesis:**
The issue of bonus shares and stock splits brings the share price in an optimum trading range. It makes the stock more attractive to small investors which enhances liquidity by increasing the volume of shares traded.

iv. **Tax-timing hypothesis:**
For the investors, the tax is deferred till such time the shareholders sell their shares.

v. **Cash substitution hypothesis:**
The issue of bonus shares enables the conservation of corporate cash i.e.; the firm can save its cash by issuing the bonus shares.

vi. **Attention hypothesis:**

Managers use bonus shares to attract attention from the analysts to revalue their future cash flows.

11.4 Buyback of Shares

Share repurchase implies that a company buys back its own shares. It is an alternative method to pay cash dividends. Share repurchases reduce the number of equity shares outstanding in the market. Share repurchase would result in higher (i) EPS and (ii) market price of a share

In India the following conditions apply in case of the buyback shares:

- A company buying back its shares will not issue fresh capital for the next 12 months.
- The company will state the amount to be used for the buyback of shares and seek prior approval of shareholders.
- The buyback of shares can be affected only by utilizing the free reserves.
- The company will not borrow funds to buy back shares.
- The shares bought under the buyback schemes will be extinguished and they cannot be reissued.

Example

The earnings available to the equity holders of the company ABC is Rs 50 lakh. Company wants to utilize Rs 40 lakh of these earnings either to pay cash dividends or to repurchase shares. There are 20 lakh shares (of face value of Rs 10) outstanding and the current market price is Rs 20 per share. The company can pay cash dividend of Rs 2 per share or can repurchase shares at Rs 22 per share through a tender offer. Show the impact of repurchase on the EPS and MPS of the remaining shares assuming no change in total earnings and price-earnings ratio.

Solution:

- Current EPS = Rs 50 lakh ÷ 20 lakh shares = Rs 2.5
- Current P/E ratio [Rs 20, MPS ÷ Rs 2.5, EPS] = 8 times
- No. of shares repurchased [Rs 40 lakh ÷ Rs 22] = 1,81,818 shares
- EPS after repurchasing 1,81,818 shares = [Rs 50 lakh ÷ the shares left (20 lakh — 1,81,818 = 18,18,182)] = Rs 2.75
- Expected MPS after repurchase (EPS x P/E ratio) [Rs 2.75 x 8 times] = Rs 22
- Expected receipts per share to equity shareholder:

(a) When cash dividends are paid

= MPS remains unchanged at Rs 20 + Rs 2,

Cash dividend = Rs 22

(b) When shares are repurchased

= MPS rises to Rs 22 + 0

Dividend = Rs 22

Methods of Shares Buyback

a) A company can buy its shares through authorized brokers on the open market. For e.g., Reliance Industries announced buyback of shares in the year 2000 at a price of Rs. 303 per share.

Reason: Company wanted to signal to the shareholders that it would reward its shareholders by returning surplus cash to them.

b) The company can make a tender offer, which will specify the purchase price. For e.g., Kirloskar Oil Engines Limited made a tender offer to buy back 40 lakh shares at Rs. 75 for Rs. 30 crore or Rs. 300 million).

Reason: To return surplus cash to shareholders.

Advantages of Share Repurchase:

There are several benefits of Share repurchase for the firm.

- **Return of surplus cash to shareholders:**

The buying shareholders will benefit since the company generally offers a price higher than the current market price of the share.

- **Increase in the share value:**

When the company distributes the surplus cash, its operating efficiency and P/E ratio remains intact. With reduced number of shares, EPS increases and share price also increases.

- **Increase in the temporarily undervalued share price:**

The share price of a number of companies may be undervalued. Companies may buy back shares at higher prices to move up the current share prices.

- **Achieving the target capital structure:**

If a company has high proportion of equity in its capital structure, it can reduce equity capital by buying back its shares.

- **Consolidating control:**

The promoters of the company benefit by consolidating their ownership and control over companies through the buyback arrangement. They do not sell their shares to the company but make the buyback attractive for others. Their proportionate ownership increases.

- **Tax savings by companies:**

Dividend payments are taxable in the hands of companies. They will avoid paying dividend taxes if they compensate shareholders through the share buyback.

- **Protection against hostile takeovers:**

In a hostile takeover, a company may buy back its shares to reduce the availability of shares and make takeover difficult.

Disadvantage of Shares Repurchase

However, there are few disadvantages of share repurchases for the firm.

- **Not an effective defense against takeover:**

Useful defense mechanism against hostile takeover only in case of the cash rich companies. In India, companies are not allowed to borrow to buy back their shares. Therefore, the buyback is not effective in protecting those companies that do not have cash.

- **Shareholders do not like the buyback:**

Shareholders may not like the buyback of shares; they might prefer increasing dividends over the years. They consider dividends more dependable than the share buyback.

- **Loss to the remaining shareholders:**

The remaining shareholders may lose if the company pays excessive price for the shares under the buyback scheme.

- **Signal of low growth opportunities:**

The buyback of shares utilizes the firm's cash. It may signal to investors that the company does not have long-term growth opportunities to utilize the cash.

11.5 Dividend Policies in Practice

i. Regular dividend policy

ii. Stable Dividend Policy

iii. Irregular Dividend Policy

iv. No Dividend Policy

Regular dividend policy:

Under the regular dividend policy, the company pays out dividends to its shareholders every year. If the company makes abnormal profits (very high profits), the excess profits will not be distributed to the shareholders but are withheld by the company as retained earnings. If the company makes a loss, the shareholders will still be paid a dividend under the policy. The regular dividend policy is used by companies with a steady cash flow and stable earnings. Companies that pay out dividends this way are considered low-risk investments because while the dividend payments are regular, they may not be very high.

Stable dividend policy

Under the stable dividend policy, the percentage of profits paid out as dividends is fixed. For example, if a company sets the payout rate at 6%, it is the percentage of profits that will be paid out regardless of the amount of profits earned for the financial year. Whether a company makes Rs. 10 Lack or Rs. 1 Lack, a fixed dividend will be paid out. Investing in a company that follows such a policy is risky for investors as the amount of dividends fluctuates with the level of profits. Shareholders face a lot of uncertainty as they are not sure of the exact dividend they will receive.

Irregular dividend policy

Under this policy, the company is under no obligation to pay its shareholders. If they a make an abnormal profit in a certain year, they can decide to distribute it to the shareholders or not pay out any dividends at all and instead keep the profits for business expansion and future projects. The irregular dividend policy is used by companies that do not enjoy a steady cash flow or lack liquidity. Investors who invest in a company that follows the policy face very high risks as there is a possibility of not receiving any dividends during the financial year.

No dividend policy

Under the no dividend policy, the company doesn't distribute dividends to shareholders. It is because any profits earned is retained and reinvested into the business for future growth.

Companies that don't give out dividends are constantly growing and expanding, and shareholders invest in them because the value of the company stock appreciates. For the investor, the share price appreciation is more valuable than a dividend payout.

Summary

- Forms of Dividend: Dividend is the potion of firm's earnings that is distributed among the shareholders. The dividends are usually paid in terms of cash. Other options are payment of the bonus shares and shares buyback. The share split is not a form of dividend; but the effect is similar to the effects of the bonus shares.
- Cash Dividends: In order to pay the dividend in the form of cash, a company should have enough cash in its bank account. Cash dividends can affect the liquidity position of the firm; thus, a firm should properly manage its cash position if it pays the dividends in cash.
- Bonus Shares: Sometimes, instead of paying dividends in cash, firms issue extra shares to the shareholders. Bonus shares issue means distribution of shares free of cost to the existing shareholders. The effect of such issuance is that the it increases the number of outstanding shares of the company.
- In practice, the issue of bonus shares does not affect the wealth of shareholders. The Earning per Share (EPS) and market price per share falls in the same proportion to the bonus issue.
- Share Split: Another form of payment of dividend is through share splitting. In share split, a share is split or divided into multiple parts. The effect of share split is that it increases the number of outstanding shares through a proportional reduction in the par value of the share.
- Reverse Stock Split: Reverse stock split refers to the act of merging the shares. Firms sometime merge the shares and thus reduces the number of total outstanding shares. There is no impact of reverse stock split on the earnings and shareholders' wealth. The price of share can be increased with a reverse split.
- Buyback of Shares: Share repurchase implies that a company buys back its own shares. It is an alternative method to pay cash dividends. Share repurchases reduce the number of equity shares outstanding in the market. Share repurchase would result in higher (i) EPS and (ii) market price of a share
- There are various dividend policies in practice such as:
- Regular dividend policy: Under the regular dividend policy, the company pays out dividends to its shareholders every year.
- Stable dividend policy: Under the stable dividend policy, the percentage of profits paid out as dividends is fixed.
- Irregular dividend policy: Under this policy, the company is under no obligation to pay its shareholders. If they a make an abnormal profit in a certain year, they can decide to distribute it to the shareholders or not pay out any dividends at all.
- No dividend policy: Under the no dividend policy, the company doesn't distribute dividends to shareholders. It is because any profits earned is retained and reinvested into the business for future growth.

Keywords

Dividend, Bonus Shares, Share Split, Reverse share split, Share Buyback, Dividend policy

Self Assessment

1. Bonus shares are issued to:

A. Debenture holders

B. Preference shareholders

C. Public

D. Existing shareholders

2. Bonus issue must be authorized

A. By the board of directors

B. Article of association of the company

C. Shareholders by ordinary resolution

D. All of the above

3. If a company makes bonus issue at 2:3 then it means

A. For every two shares three bonus shares will be allotted

B. For every three shares two bonus shares will be allotted

C. For every Eve shares three bonus shares will be allotted

D. For every five shares two bonus shares will be allotted

4. Which of the following statement is false?

A. Bonus issue is made out of free revenue or securities premium collected in cash only

B. Bonus share can be issued out from revaluation Profit

C. No bonus issue can be made within twelve months of any issue

D. Company can issue Bonus shares in any ratio

5. Which statement/s is/are true regarding share split:

A. It increases the number of outstanding shares through a proportional reduction in the par value of the share.

B. A share split affects only the par value and the number of outstanding shares.

C. The shareholders' total funds remain unaltered.

D. All of the above

6. Which is/are the advantage/s of the stock buyback:

A. Enables return of surplus cash to shareholders

B. Results in increase in the share value

C. Helps in achieving the target capital structure

D. All of the above

7. Due to share repurchases, the number of equity shares outstanding in the market_____.

A. Increases

B. Decreases

C. Remains constant

D. None of the above

8. In India, a company buying back its shares will not issue fresh capital for the next __ months.

A. 12 months

B. 6 months

C. 18 months

D. 9 months

9. Which is/are true regarding repurchase of shares by a company:

A. The buyback of shares can be affected only by utilizing the free reserves.

B. The company will not borrow funds to buy back shares.

C. The shares bought under the buyback schemes will be extinguished and they cannot be reissued.

D. All of the above

10. The problem with the regular dividend policy from the firm's perspective is that

A. it bores the shareholders.

B. if the firm's earnings drop, so does the dividend payment.

C. Even when earnings are low, the company must pay a fixed dividend.

D. it increases the shareholders' uncertainty.

11. All of the following are true of stock splits except:

A. Market price per share is reduced after the split.
B. The number of outstanding shares has increased.
C. Retained earnings are changed.
D. Proportional ownership is unchanged.

12. The repurchase of stock is considered ……. decision rather than …….. decision.

A. an investment; a financing
B. financing; an investment
C. an investment; a dividend
D. a dividend; a financing

13. A stock split will cause a change in the total amounts shown in which of the following balance sheet accounts?

A. Cash
B. Common stock
C. Paid-in capital
D. None of the above

14. A …… occurs when there is an increase in the number of shares out-standing by reducing the par value of stock.

A. Stock split
B. Stock dividend
C. Extra dividend
D. Regular dividend

15. A ……. is the expected cash dividend that is normally paid to shareholders.

A. Stock split

B. Stock dividend
C. Extra dividend
D. Regular dividend

Answers for Self Assessment

1.	D	2.	D	3.	B	4.	B	5.	D
6.	D	7.	B	8.	D	9.	D	10.	C
11.	C	12.	B	13.	D	14.	A	15.	D

Review Questions

1. Discuss the disadvantages of issuing cash dividends.
2. Discuss the impact of bonus share on the paid-up capital and the reserve of the firm.
3. Explain the advantages of the Bonus shares for the firm
4. Analyze the difference between share split and the reverse split.
5. Explain briefly the different types of dividend policy in practice.

Further Readings

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Unit 12: Working Capital Management

CONTENTS

Objectives

After studying this unit, you will be able to:

- understand the concept of working capital management,
- discuss working capital policies,
- explain the risk-return tradeoff.
- explain the reasons for holding cash
- underline the need for cash management
- discuss the techniques of preparing cash budget
- discuss Receivables management.
- understand Credit policies.
- explain Credit terms.
- explain Collection policies.

Introduction

In this book, till now we have discussed all the long-term financial decisions in a firm. Now we will move to the short-term decisions of a firm. Short-term decisions are mainly related to the working capital decisions of firm and include the decisions related to the management of Cash, inventory and receivables. Thus, in this chapter we will discuss the working capital management in detail.

12.1 Working capital Management

Meaning

Working capital management is concerned with the management of current assets in a firm. Management of working capital is an integral part of financial management.One aspect of working capital management is the trade-off between profitability and risk (liquidity).There is a conflict between profitability and liquidity. If a firm focus more on Profitability, then its liquidity will be adversely affected, and on the other hand, if it focuses more on liquidity, its profitability will be affected. Hence, the firm has to strike a balance between the profitability and the liquidity.

There are two concepts of working capital:

a) Gross Working Capital
b) Net Working Capital

a) Gross working capital

Gross working capital refers to the firm's investment in current assets.Current assets are the assets which can be converted into cash within an accounting year.E.g., cash, short-term securities, debtors, bills receivable, stock (inventory). The focus of Gross working capital is on:

- How to optimize investment in current assets?
- How should current assets be financed?

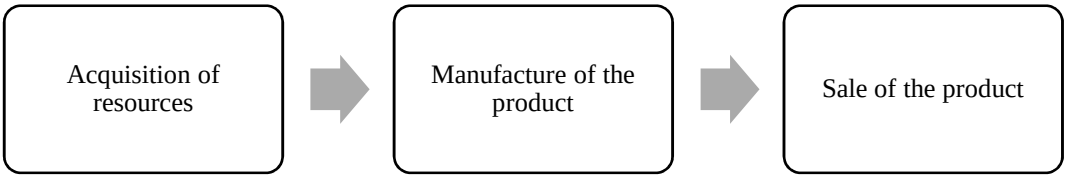
b) Net working capital

Net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders which are expected to mature for payment within an accounting year. It can be positive or negative. The focus of Net working capital in on:

- Liquidity management.
- The net working capital concept also covers the question of judicious mix of long-term and short-term funds for financing the current assets.

12.2 Operating Cycle

The concept of operating cycle related to the time duration required to convert raw material into inventories into sales and finally into cash.



A firm needs to maintain liquidity to purchase raw materials and pay expenses. Similarly, stocks of raw material and work-in-process are kept to ensure smooth production. Also, stock of finished goods is required to meet the demands of customers.Debtors are created because goods are sold on credit for marketing and competitive reasons.

Length of the operating cycle:

The length of the operating cycle is the sum of:

i. Inventory conversion period (ICP)

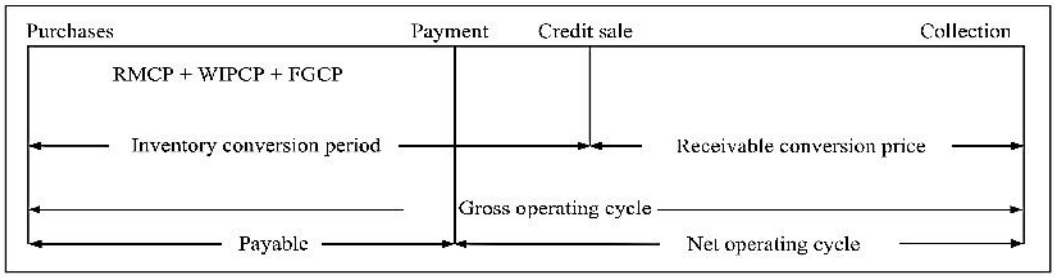
ii. Debtors (receivables) conversion period (DCP)

Debtors' conversion period is the time required to collect the outstanding amount from the customers.

Firm also purchases raw materials on credit from the supplier. Payables, which the firm can defer, are spontaneous sources of capital to finance investment in current assets. The Creditors (payables) deferral period (CDP)is the length of time the firm is able to defer payments on various resource purchases.

12.3 Gross operating Cycle

Gross operating cycle is the total of inventory conversion period and debtors' conversion period whereas the difference between Gross operating cycle and payables deferral period is net operating cycle (NOC).



GOC is given as follows:

Gross operating cycle = Inventory conversion period + Debtor's conversion period.

Where: The inventory conversion (ICP) is the sum of:

a) Raw material conversion period (RMCP)

b) Work-in-process conversion period (WIPCP) and

c) Finished goods conversion period (FGCP)

a) Raw material conversion period (RMCP) is the average time period taken to convert material in to work-in-process.

$$RMCP = RMI \div \frac{RMC}{360} = \frac{RMI \times 360}{RMC}$$

b) Work-in-process conversion period (WIPCP) is the average time taken to complete the semi-finished work or work-in-process.

$$WIPCP = WIPI \div \frac{COP}{360} = \frac{WIPI \times 360}{COP}$$

c) Finished goods conversion period (FGCP) is the average time taken to sell the finished goods.

$$FGCP = FGI \div \frac{CGI}{360} = \frac{FGI \times 360}{CGS}$$

- Debtor conversion period (DCP) is the average time taken to convert debtors into cash.

$$\text{Debtors conversion period (DCP)} = \frac{\text{Debtors}}{\text{Credit sales}/360} = \frac{\text{Debtors} \times 360}{\text{Credit sales}}$$

- Creditor deferral period (CDP) is the average time taken by the firm in paying its creditors.

$$\text{Creditors deferral period (CDP)} = \frac{\text{Creditors}}{\text{Credit purchases}/360} = \frac{\text{Creditors} \times 360}{\text{Credit purchases}}$$

12.4 Net Operating Cycle or Cash Conversion Cycle

Net Operating Cycle is the difference between gross operating cycle and payables deferral period.

NOC = GOC – CDP

Net operating cycle is also referred to as cash conversion cycle.

Types of Working Capital

a) Permanent or Fixed working Capital

b) Fluctuating or variable working capital

a) Permanent or Fixed working Capital

A firm needs some level of current assets which are continuously required by a firm throughout the year.It is permanent in the same way as the firm's fixed assets are. This minimum level of current assets is known as permanent working capital. Working capital requirement above this level will fluctuate and will depends upon the changes in production and sales, the need for working capital.

b) Fluctuating or variable working capital

Extra working capital needed to support the changing production and sales activities of the firm. Firm creates a temporary working capital to meet liquidity requirements that will last only temporarily. Permanent working capital is stable over time, whereas temporary working capital is fluctuating.

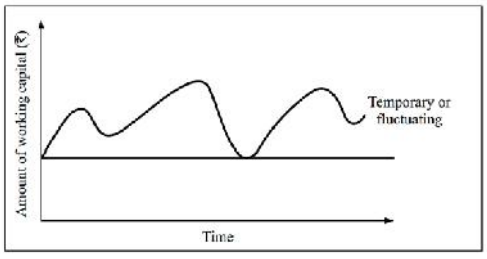


Fig. Normal Firm

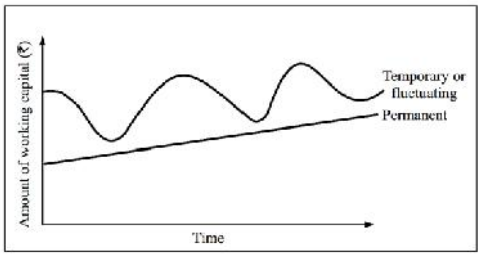


Fig: Growing Firm

Both excessive as well as inadequate working capital positions are dangerous from the firm's point of view. Excessive working capital means holding costs and idle funds which earn no profits for the firm. Inadequate working capital results in production interruptions and inefficiencies and sales disruptions.

Dangers of excessive working capital

- Results in unnecessary accumulation of inventories.
- Chances of inventory mishandling, waste, theft and losses increase.
- It is an indication of defective credit policy and slack in collection period.
- Results into managerial inefficiency.
- May make dividend policy liberal and difficult to cope with in future.

Dangers of Inadequate working capital

- Becomes difficult for the firm to undertake profitable projects.
- It becomes difficult to implement operating plans and achieve the firm's profit target.
- Results in Operating inefficiencies.
- Fixed assets are not efficiently utilized.
- Firm may face tight credit terms.

12.5 Determinants of Working Capital

There are various factors which affects the working capital requirement in the firm:

a) Nature of Business

Nature of the business and the product manufactured by the firm affects the level of working capital requirement in the firm. For e.g., retail stores must carry large stocks of a variety of goods. Whereas, Public utilities may have limited need for working capital and have to invest abundantly in fixed assets.

b) Market and Demand Conditions

Growing firms may need to invest funds in fixed assets. This will increase investment in current assets to support enlarged scale of operations. When there is an upward swing in the economy, sales will increase; correspondingly, the firm's investment in inventories and debtors will also increase.

c) Technology and Manufacturing Policy

Longer the manufacturing cycle, larger will be the firm's working capital requirements.On the other hand, the manufacturing cycle of products such as detergent powder, soaps, chocolate, etc., may be a few hours. An extended manufacturing time span means a larger tie-up of funds in inventories.

d) Credit Policy

The credit terms to be granted to customers may depend upon the norms of the industry to which the firm belongs.A liberal credit policy will be detrimental to the firm and will create a problem of collection later on.A high collection period will mean tie-up of large funds in debtors. Slack collection procedures can increase the chance of bad debts.

e) Availability of Credit from Suppliers

A firm will need less working capital if liberal credit terms are available to it from the suppliers.Suppliers' credit finances the firm's inventories and reduces the cash conversion cycle.In the absence of suppliers' credit, the firm will have to borrow funds from a bank.

f) Operating Efficiency

The efficiency in controlling operating costs and utilizing fixed and current assets leads to operating efficiency. The use of working capital is improved and pace of cash conversion cycle is accelerated with operating efficiency. Better utilization of resources improves firm's profitability.

g) Price Level Changes

Rising price levels will require a firm to maintain higher amount of working capital. Those companies that can immediately revise their product prices with rising price levels will not face a severe working capital problem.

Importance of Working Capital Management

There are many reasons which makes the working capital management decision very important for the firm:

a) Time: Working capital management requires much of the financial manager's time.
b) Investment: Working capital represents a large portion of the total investment in assets.
c) Criticality: Working capital management has great significance for all firms but it is very critical for small firms.
d) Growth: The need for working capital is directly related to the firm's growth

Liquidity vs. Profitability:Risk–Return Trade-off

The two important aims of the working capital management are: Profitability and Solvency. Solvency refers to the firm's continuous ability to meet maturing obligations. To ensure solvency, the firm should be very liquid, which means larger current assets holdings. If the firm maintains a relatively large investment in current assets, it will have no difficulty in paying claims of creditors when they become due. However, there is a cost associated with maintaining a sound liquidity position. A considerable amount of the firm's funds will be tied up in current assets. Lets understand this through this example.

Suppose, a firm has the following data:

Sales (100,000 units @ Rs. 15)	15,00,000
EBIT	1,50,000
Fixed Assets	5,00,000

The three possible current assets holdings of the firm are: Rs 5,00,000, Rs 4,00,000 and Rs 3,00,000. It is assumed that fixed assets level is constant and profits do not vary with current assets levels.

The effect of the three alternative current assets policies:

Working Capital Policy	**Conservative A**	**Moderate B**	**Aggressive C**
Sales	15,00,000	15,00,000	15,00,000
EBIT	150,000	150,000	150,000
Current Assets	5,00,000	4,00,000	3,00,000
Fixed Assets	5,00,000	5,00,000	5,00,000
Total Assets	10,00,000	9,00,000	8,00,000
ROA (EBIT/Total Assets)	15%	16.67%	18.75%
CA/FA	1.00	0.80	0.60

Findings

- A (conservative policy) provides greatest liquidity (solvency) to the firm, but also the lowest return on total assets.
- C (aggressive policy) provides highest return but provides lowest liquidity.

- B demonstrates a moderate policy and generates a return higher than alternative A but lower than alternative C.

Policies for Financing Current Assets

Three types of financing may be distinguished as:

a) Long-term financing

b) Short-term financing

c) Spontaneous financing

Approaches to finance working capital:

Depending on the mix of short and long-term financing, the approach followed by a company may be referred to as:

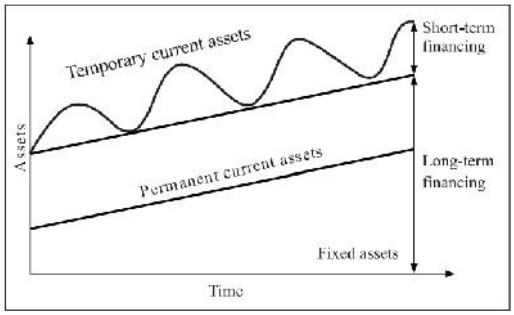
a) Matching Approach

b) Conservative Approach

c) Aggressive Approach

a) Matching (Hedging) Approach

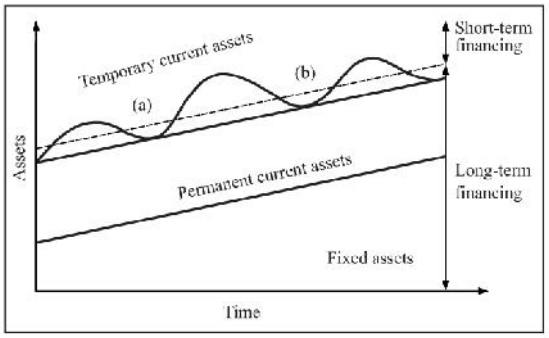
Long-term financing will be used to finance fixed assets and permanent current assets and short-term financing to finance temporary or variable current assets. E.g., a ten-year loan may be raised to finance a plant with an expected life of ten years; stock of goods to be sold in thirty days may be financed with a thirty-day commercial paper or a bank loan.



As the level of firm's fixed assets and permanent current assets increases, the long-term financing level also increases. The temporary or variable current assets are financed with short-term funds and as their level increases, the level of short-term financing also increases. Under this plan, no short-term financing will be used if the firm has a fixed current asset need only.

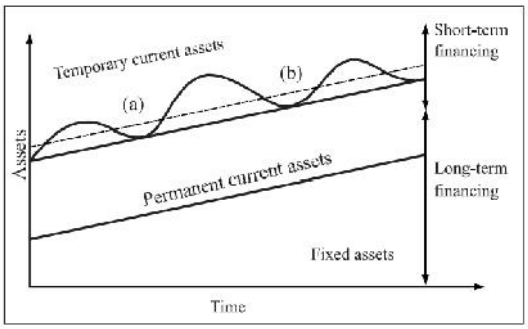
b) Conservative Approach

Under this plan, the firm finances its permanent assets and also a part of temporary current assets with long-term financing. In the periods when the firm has no need for temporary current assets, the idle long-term funds can be invested.Under this approach the firm has less risk of facing the problem of shortage of funds.



c) Aggressive Approach

Under an aggressive policy, the firm finances a part of its permanent current assets with short-term financing. Some extremely aggressive firms may even finance a part of their fixed assets with short-term financing. The relatively large use of short-term financing makes the firm riskier.



Hence, a balanced approach is to finance permanent current assets by long-term sources and 'temporary' current assets by short-term sources of finance. Theoretically, short-term debt is considered to be risky and costly to finance permanent current assets.

12.6 Cash Management

Introduction

Cash is the basic input needed to keep the business running on a continuous basis. It is also the final output expected to be realized by selling the service or product manufactured by the firm. The firm should keep sufficient cash, neither more nor less.Cash management 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.

Meaning of Cash

Cash is the money which a firm can disburse immediately without any restriction. The term 'cash' with reference to cash management is used in two senses. In a narrow sense, it is used broadly to cover currency and generally accepted equivalents of cash, such as cheques, drafts and demand deposits in banks. The broad view of cash also includes near-cash assets, such as marketable securities and time deposits in banks

Importance of Cash Management

- It is the most significant and the least productive asset that a firm holds. It is used to pay the firm's obligations.
- The aim of cash management is to maintain adequate control over cash position.
- It is also important because it is difficult to predict cash flows accurately
- Inflows and outflows of cash do not occur at the same time.

Dimensions of cash management

There are various aspects of cash management, which are discussed below:

- Cash planning: Cash inflows and outflows should be planned to project cash surplus or deficit for each period of the planning period.
- Managing the cash flows: The cash inflows should be accelerated while, as far as possible, the cash outflows should be decelerated
- Optimum cash level: The cost of excess cash and danger of cash deficiency should be matched to determine the optimum level of cash balances.
- Investing surplus cash: The surplus cash balances should be properly invested to earn profits.

Motives of Holding Cash

A firm may hold cash due to the following reasons:

a) The Transactions motive

b) The Precautionary motive

c) The Speculative motive

a) Transaction Motive

To conduct its business in the ordinary course. The inflows (receipts), and outflows (disbursements) do not perfectly coincide or synchronize. At times, receipts exceed outflows while, at other times, payments exceed inflows. To ensure that the firm can meet its obligations when payments become due it must have an adequate cash balance.

b) Precautionary Motive

The precautionary motive is the need to hold cash to meet contingencies in the future. The unexpected cash needs at short notice may be the result of: Floods, strikes, Bills may be presented for settlement earlier than expected, unexpected slowdown in collection of accounts receivables.Cancellation of some order for goods; and Sharp increase in cost of raw materials.

c) Speculative Motive

It refers to the desire of a firm to take advantage of opportunities which present themselves at unexpected moments. While the precautionary motive is defensive in nature, Speculative motive represents a positive and aggressive approach.Firms aim to exploit profitable opportunities and keep cash in reserve to do so.

12.7 Cash Planning

Cash planning is a technique to plan and control the use of cash. It helps to anticipate the future cash flows and needs of the firm and reduces the possibility of idle cash balances.Cash planning protects the financial condition of the firm by developing a projected cash statement, from a forecast of expected cash inflows and outflows, for a given period. Cash plans are very crucial in developing the overall operating plans of the firm. It may be done on daily, weekly or monthly basis. The period and frequency of cash planning generally depends upon the size of the firm and philosophy of the management. Large firms prepare daily and weekly forecasts. Medium-size firms usually prepare weekly and monthly forecasts. Small firms may not prepare formal cash forecasts because of the non-availability of information

Cash Forecasting and Budgeting

Cash budget is a device to plan for and control cash receipts and payments.A cash budget is a summary statement of the firm's expected cash inflows and outflows over a projected time period.It gives information on the timing and magnitude of expected cash flows and cash balances over the projected period. This information helps the financial manager to determine the future cash needs of the firm. Generally, forecasts covering periods of one year or less are considered short-term.Those extending beyond one year are considered long-term.

a) Short-term Cash Forecasts

The aims of preparing short-term cash forecasts are:

- To determine operating cash requirements
- To anticipate short-term financing.
- To manage investment of surplus cash.

Approaching for preparing cash forecasts:

For making forecasts of cash receipts and payments, two approaches are used in practice:

(i) The receipts and disbursements method

(ii) The adjusted net income method

The receipts and disbursements method are generally employed to forecast for limited periods, such as a week or a month. The adjusted net income method, on the other hand, is preferred for longer durations ranging from a few months to a year. Both methods have their pros and cons

i. Receipts and disbursements method

This approach is employed to forecast for shorter periods and in it, the individual items of receipts and payments are identified and analyzed.Cash outflows could be categorized as:

(i) operating outflows: cash purchases, payments of payables, advances to suppliers, wages and salaries and other operating expenses,

(ii) capital expenditures,

(iii) contractual payments: repayment of loan, interest and tax payments; and

(iv) Discretionary payments: ordinary and preference dividend.

Such categorization helps in determining avoidable expenditures. Once the forecasts for cash receipts and payments have been developed, they can be combined to obtain the net cash inflow or outflow for each month. The net balance for each month would indicate whether the firm has excess cash or deficit. The peak cash requirements would also be indicated. If the firm has a policy

of maintaining some minimum cash balance, arrangements must be made to maintain this minimum balance in periods of deficit.

ii. Adjusted net income method

This method of cash forecasting involves the tracing of working capital flows. Two objectives of the adjusted net income approach are: (i) to project the company's need for cash at a future date and (ii) to show whether the company can generate the required funds internally, and if not, how much will have to be borrowed or raised in the capital market.The adjusted net income method uses profit and loss statement and balance sheet to work out cash flows. As cash flows are difficult to predict, a financial manager does not base his forecasts only on one set of assumptions.He considers possible scenarios and performs a sensitivity analysis.

b) Long-term Cash Forecasting

Prepared to give an idea of the company's financial requirements in the distant future. Not as detailed as the short-term forecasts are. Once a company has developed a long-term cash forecast, it can be used to evaluate the impact of new product developments or plant acquisitions on the firm's financial condition, for three, five, or more years in the future.

The main uses of the long-term cash forecasts are:

- It indicates the company's future financial needs, especially its working capital requirements.
- It helps to evaluate proposed capital projects. It pinpoints the cash required to finance these projects as well as the cash to be generated by the company to support them.
- It helps to improve corporate planning. Long-term cash forecasts compel each division to plan for the future and to formulate projects carefully.
- Long-term cash forecasts may be made for two, three or five years.
- Long-term cash forecasting reflects the impact of growth, expansion or acquisitions; it also indicates financing problems arising from these developments.

12.8 Managing Cash Collections and Disbursements

Financial manager should ensure that there does not exist a significant deviation between projected cash flows and actual cash flows. To achieve this, cash management efficiency will have to be improved through a proper control of cash collection and disbursement.

Accelerating Cash Collections

Cash collections can be accelerated by reducing the lag or gap between the time a customer pays bill and the time the cheque is collected and funds become available for the firm's use.The amount of cheques sent by customer which are not yet collected is called collection or deposit float.

Decentralized Collections:

A large firm can speed up its collections by following a decentralized collection procedure. It is a system of operating through a number of collection centers, instead of a single collection center centralized at the firm's head office.Decentralized collection system saves mailing and processing time which reduces the deposit float and the financing requirements.

Suppose a company has credit sales of Rs 146 crore per year. Its collections will average Rs 40 lakh per day (146 crore ÷ 365). If the company could reduce its mailing and processing time from five days to three days and deposit cheques into the bank two days earlier, outstanding balance would be reduced by Rs 80 lakh. If the annual borrowing rate was 18%, the company has saved an

opportunity cost of Rs 14.40 lakh on annual basis. Decentralized collection system results in potential savings which should be compared with the cost of maintaining the system.

Lock-box System:

This system helps the firm to eliminate the time between the receipt of cheques and their deposit in the bank. The firm establishes a number of collection centers, considering customer locations and volume of remittances.At each center, the firm hires a post office box and instructs its customers to mail their remittances to the box. The firm's local bank is given the authority to pick up the remittances directly from the local-box. The bank picks up the mail several times a day and deposits the cheques in the firm's account. For the internal accounting purposes of the firm, the bank prepares detailed records of the cheques picked up.

Controlling Disbursements

The firm should make payments using credit terms to the fullest extent.There is no advantage in paying sooner than agreed. By delaying payments as much as possible, the firm makes maximum use of trade credit as a source of funds. Suppose a company purchased raw materials worth Rs 730 million in 2020 and followed the policy of paying within credit terms offered by the supplier. If the company paid one day earlier, creditors' balance would decline by one day's purchase. Trade credit would decrease by Rs 2 million (Rs 730 million/ 365).If the interest rate is 18%, the company's interest costs will increase by Rs 3,60,000 on an annual basis.

Delaying disbursement results in maximum availability of funds. However, the firms that delay in making payments may endanger its credit standing. This can put the firm in difficulties in obtaining enough trade credit. Also, the suppliers may build implicit costs in the prices of goods supplied, and may also reduce the quality. On the other hand, paying early may not result in any substantial advantage to the firm unless cash discounts are offered. Thus, keeping in view the norms of the industry, the firm should pay within the terms offered by the suppliers.

Disbursement or Payment Float:

When the firm's actual bank balance is greater than the balance shown in the firm's books, the difference is called disbursement or payment float. The difference between the total amount of cheques drawn on a bank account and the balance shown on the bank's books is caused by transit and processing delays. If the financial manager can accurately estimate when the cheques issued will be deposited and collected, he or she can invest the 'float' during the float period to earn a return.

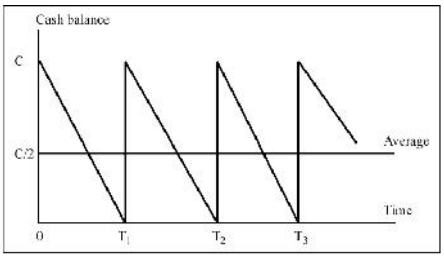
12.9 Determining the Optimum Cash Balance

A firm maintains the operating cash balance for transaction purposes. The amount of cash balance depends on the risk-return trade-off.The firm should maintain optimum cash balance, neither too high nor too low.

Baumol's Model

The Baumol model of cash management provides a formal approach for determining a firm's optimum cash balance under certainty.It is a model that provides for cost-efficient transactional balances and assumes that the demand for cash can be predicted with certainty and determines the optimal conversion size.

Firm sells securities and starts with a cash balance of C rupees. As the firm spends cash, its cash balance decreases steadily and reaches to zero. The firm replenishes its cash balance to C rupees by selling marketable securities. This pattern continues over time. As the cash balance decreases steadily, the average cash balance will be: C/2.



The firm incurs a holding cost for keeping the cash balance.It is an opportunity cost; i.e. the return foregone on the marketable securities. If the opportunity cost is *k*, then the firm's holding cost for maintaining an average cash balance is:

$$\text{Holding cost} = k(C/2) \qquad (1)$$

The firm incurs a transaction cost whenever it converts its marketable securities to cash. Total number of transactions during the year will be total funds requirement, *T*, divided by the cash balance, C, i.e., *T*/*C*.

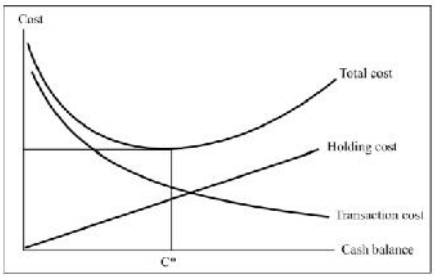
If per transaction cost is *c*, then the total transaction cost will be:

$$\text{Transaction cost} = c(T/C) \qquad (2)$$

The total annual cost of the demand for cash will be:

$$\text{Total cost} = k(C/2) + c(T/C) \qquad (3)$$

The holding cost increases as demand for cash, C, increases. However, the transaction cost reduces because with increasing C, the number of transactions will decline. Thus, there is a trade-off between the holding cost and the transaction cost.



Assumptions of Baumol's model:

- The firm is able to forecast its cash needs with certainty.
- The firm's cash payments occur uniformly over a period of time.
- The opportunity cost of holding cash is known and it does not change over time.
- The firm will incur the same transaction cost whenever it converts securities to cash.

Formula for the optimum cash balance

The optimum cash balance, C is obtained when the total cost is minimum:

$$C^* = \sqrt{\frac{2cT}{k}}$$

Where:

C is the optimum cash balance

c is the cost per transaction

T is the total cash needed during the year

k is the opportunity cost of holding cash balance

Example: Company ABC estimates its total cash requirement as Rs 2 crore next year. Opportunity cost of funds is 15% per annum. The company will have to incur Rs 150 per transaction when it converts its short-term securities to cash. Determine the optimum cash balance. How much is the total annual cost of the demand for the optimum cash balance?

$$C^* = \sqrt{2cT / k}$$

$$C^* = \sqrt{\frac{2(150)(20,000,000)}{0.15}} = ₹200,000$$

The Annual cost will be:

Total cost = 150(20,000,000/200,000) +0.15(200,000/2)

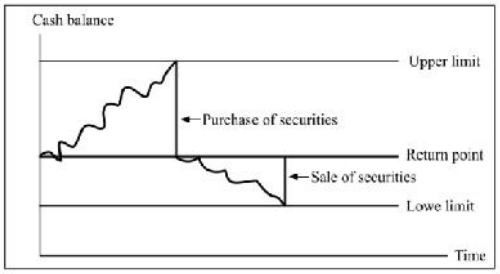
= 150(100) + 0.15(100,000)

= 15,000 + 15,000

= Rs 30,000

The Miller-Orr Model

In practice, firms do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. The Miller-Orr (MO) model overcomes this shortcoming and allows for daily cash flow variation.MO model provides for upper control limit and the lower control limit as well as a return point.



If the firm's cash flows fluctuate randomly and hit the upper limit, then it buys sufficient marketable securities to come back to the return point. When the firm's cash flows hit the lower limit, it sells sufficient marketable securities to bring the cash balance back to the return point.The firm sets the lower control limit as per its requirement of maintaining minimum cash balance.The difference between the upper limit and the lower limit depends on the following factors:

- The Transaction Cost (c)
- The Interest Rate (i)
- The Standard Deviation (σ) of Net Cash Flows.

The formula for determining the distance between upper and lower control limits (called Z) is:

$$Z = (3/4 \times \text{Transaction Cost} \times \text{Cash Flow Variance} / \text{Interest per day})^{1/3} \quad (5)$$

$$Z = \left(3/4 \times c\sigma^2 / i\right)^{1/3} \quad (6)$$

The upper and lower limits will be far off from each other (i.e., Z will be larger) if transaction cost is higher or cash flows show greater fluctuations. The limits will come closer as the interest increases. Z is inversely related to the interest rate. It is noticeable that the upper control limit is three times above the lower control limit and the return point lies between the upper and the lower limits.

Thus, Upper Limit = Lower Limit + 3Z

Return Point = Lower Limit + Z

The net effect is that the firms hold the average cash balance equal to:

Average Cash Balance = Lower Limit + 4/3 Z

The MO Model isan attempt to make the Baumol Model more realistic as regards the pattern of cash flows. As against the assumption of uniform and certain levels of cash balances in the Baumol Model, the MO Model assumes that cash balances randomly fluctuate between an upper bound (h) and a lower bound (O). When the cash balances hit the upper bound, the firm has too much cash and should buy enough marketable securities to bring the cash balances back to the optimal bound (z). When the cash balances hit zero, the financial manager must return them to the optimum bound (z) by selling/ converting securities into cash

12.10 Investing Surplus Cash in Marketable Securities

The excess amount of cash held by the firm to meet its variable cash requirements and future contingencies should be temporarily invested in marketable securities, which can be regarded as near moneys. A number of marketable securities may be available in the market.

Selecting Investment Opportunities

In choosing among alternative investments, the firm should examine three basic features of security:

- **Safety:**

The firm would invest in very safe securities. Firm would tend to invest in the highest yielding marketable securities.Higher the default risks, higher the return from security. Low risk securities will earn low return.

- **Maturity:**

Maturity refers to the time period over which interest and principal are to be made. For safety reasons the firms for the purpose of investing excess cash prefer short-term securities.

- **Marketability:**

Marketability refers to convenience and speed with which a security or an investment can be converted into cash. As the funds invested in marketable securities will be needed by the firm in near future, it would invest in the securities that are readily marketable.

Types of Short-term Investment Opportunities

- **Treasury bills**

Treasury bills (TBs) are short-term government securities. The difference between the issue price and the redemption price, is return on treasury bills.

- **Commercial papers**

Commercial papers (CPs) are short-term, unsecured securities issued by highly creditworthy large companies. They are issued with a maturity of three months to one year.

- **Certificates of deposits**

Certificates of deposits (CDs) are papers issued by banks acknowledging fixed deposits for a specified period of time. CPs are negotiable instruments that make them marketable securities

- **Bank deposits**

A firm can deposit its temporary cash in a bank for a fixed period of time. The interest rate depends on the maturity period.

- **Inter-corporate deposits**

Inter-corporate lending/borrowing or deposits (ICDs) is a popular short-term investment alternative for companies in India. Generally, a cash surplus company will deposit (lend) its funds in a sister or associate company or with outside companies with high credit standing.

- **Money market mutual funds**

Money market mutual funds (MMMFs) focus on short-term marketable securities such as TBs, CPs, CDs or call money. They have a minimum lock-in period of 30 days, and after this period, an investor can withdraw his or her money any time at a short notice or even across the counter in some cases.

12.11 Receivables Management

Introduction

A firm may sell its goods and services either on cash or on credit. Trade credit happens when a firm sells its products or services on credit. This trade credit creates account receivables.A credit sale has three characteristics:

- Involve element of Risk.
- It is based on economic value.
- It implies futurity.

Debtors constitute a substantial portion of current assets of several firms. Granting credit and creating debtors amount to blocking of the firm's funds. The interval between the date of sale and the date of payment has to be financed out of working capital.

Objectives

- Firms sell goods on credit to push their sales. Thus, receivables are treated as a marketing tool.
- However, credit sales involve risk and cost also.
- Management should weigh the benefits as well as cost to determine the goal of receivables management.

Costs related to Receivables

There are several costs associated with the receivable such as:

a) Collection cost
b) Capital cost
c) Delinquency cost
d) Default cost

a) Collection cost: These are the administrative costs incurred in collecting the receivables from the customers and includes:

i. additional expenses on the creation and maintenance of a credit department.

ii. expenses involved in acquiring credit information.

a) **Capital Cost:**The increased level of accounts receivable is an investment in assets. They have to be financed involving a cost.

b) **Delinquency Cost:** This cost arises out of the failure of the customers to meet their obligations when payments on credit sales become due.

i. blocking-up of funds for an extended period,

ii. cost associated with steps that have to be initiated to collect the overdues.

c) Default Cost: Firm may not be able to recover the overdues because of the inability of the customers. Such debts are treated as bad debts and have to be written off as they cannot be realized.

The main benefit of credit sales is increase in sales.Firm may grant trade credit either to increase sales to existing customers or attract new customers. Firm may extend credit to protect its current sales against emerging competition.

Optimum level of Receivables

The decision to commit funds to receivables will be based on a comparison of the benefits and costs involved, while determining the optimum level of receivables.

Dimensions of Receivables management

a) Credit policies

b) Credit terms

c) Collection policies

a) Credit Policies

The credit policy of a firm provides the framework to determine:whether or not to extend credit to a customer and how much credit to extend. The credit policy decision of a firm has two broad dimensions:

- Credit standards
- Credit analysis.

Credit Standards:

The term 'credit standards' represents the basic criteria for the extension of credit to customers.The quantitative basis of establishing credit standards are factors such as credit ratings, credit references, average payments period and certain financial ratios.Credit Standards may be:

i. Tight or restrictive

ii. Liberal or non-restrictive

The factors to be considered while deciding whether to relax credit standards or not are

- Collection cost
- Average collection period/cost of investment in accounts receivable
- Level of bad debt losses

a) Level of sales

Collection Costs:

The implications of relaxed credit standards are:

i. More credit

ii. A large credit department to service accounts receivable and related matters

iii. Increase in collection costs

Average Collection Period:

- A relaxation in credit standards, would lead to higher average accounts receivable.
- credit is extended liberally to even less creditworthy customers.
- It would result in a higher level of accounts receivable.

In contrast, a tightening of credit standards would signify

i. a decrease in sales and lower average accounts receivable, and

ii. an extension of credit limited to more creditworthy customers who can promptly pay their bills and, thus, a lower average level of accounts receivable.

Bad Debt Expenses:

Can be expected to increase with relaxation in credit standards and decrease if credit standards become more restrictive.

Sales Volume:

- As standards are relaxed, sales are expected to increase.
- A tightening is expected to cause a decline in sales.

Effect of Relaxation of Standards:

Item	*Direction of Change (Increase = I Decrease = D)*	*Effect on Profits (Positive + Negative –)*
1. Sales Volume	I(D)	+(–)
2. Average Collection Period	I(D)	–(+)
3. Bad Debt	I(D)	–(+)

Example: A firm is currently selling a product @ Rs 10 per unit. The most recent annual sales (all credit) were 30,000 units.The variable cost per unit is Rs. 6 and the average cost per unit, given a sales volume of 30,000 units, is Rs 8. The total fixed cost is Rs 60,000. The average collection period may be assumed to be 30 days.

The firm is contemplating a relaxation of credit standards that is expected to result in a 15% increase in units' sales.The average collection period would increase to 45 days with no change in bad debt expenses. It is also expected that increased sales will result in additional net working capital to the extent of Rs 10,000. The increase in collection expenses may be assumed to be negligible. The required return on investment is 15%. Should the firm relax the credit standard?The decision to put the proposed relaxation in the credit standards into effect should be based on a comparison of

a) additional profits on sales
b) cost of the incremental investments in receivables.

a) Profit on Incremental Sales:

(A) Proposed Plan:		
1. Sales revenue (34,500 × units Rs 10)		Rs 3,45,000
2. *Less:* Costs:		
(a) Variable (34,500 × Rs 6)	Rs 2,07,000	
(b) Fixed	60,000	2,67,000
3. Profits from sales (I)		78,000
(B) Current Plan:		
1. Sales revenue (30,000 × units Rs 10)		3,00,000
2. *Less:* Costs:		
(a) Variable (30,000 × Rs 6)	1,80,000	
(b) Fixed	60,000	2,40,000
3. Profits from sales (II)		60,000
(C) Marginal profits with new plan (I – II):		18,000

b) Cost of Marginal Investment in Receivables:

This cost can be computed by finding the difference between the cost of carrying receivables before and after the proposed relaxation in credit standards.

Turnover of accounts receivable:

$$\text{Proposed plan} = \frac{\text{Number of days in the year}}{\text{Average collection period}} = \frac{360}{45} = 8$$

$$\text{Present plan} = \frac{360}{30} = 12$$

Total cost of sales:

Present plan

= Number of units x cost per unit = 30,000 x Rs 8 = Rs 2,40,000

Proposed plan

= (30,000 x Rs 8) + (4,500 x Rs 6) = Rs 2,67,000

Average investment in accounts receivable:

Present plan

= Rs 2,40,000/12 = Rs 20,000

Proposed plan

= Rs 2,67,000/8 = Rs 33,375

The cost of marginal investments in accounts receivable:

This is the difference between the average investments in accounts receivable under

- the proposed plan and
- under the present plan

Average investments with proposed plan

Rs 33,375

Less average investment with present plan

Rs. 20,000

Marginal investments

Rs. 13,375

Given 15% as required return on the investments, the cost =

Rs 13,375 x 15100

Rs 2,006.25

This is an opportunity cost in that the firm would earn this amount from alternative uses if the funds are not tied up in additional accounts receivable.

Cost of working capital:

Rs 10,000 x 0.15 = Rs 1,500.

Additional profits on increased sales as a result of relaxed credit standards is Rs 18,000. Cost of incremental investments in accounts receivable is Rs 2,006.25 and working capital is Rs 1,500. The firm should relax the standards such an action would lead to an overall increase in the profits of the firm by Rs 14,493.75

Credit Analysis

A firm should develop procedures for evaluating credit applicants. Two steps involved in the credit investigation process:

- obtaining credit information
- analysis of credit information

- **Obtaining Credit Information**

Internal Sources:

Customers are asked to give details of financial operations.They are also required to furnish trade references.This type of information is obtained from internal sources of credit information.

External Sources:

The availability of information from external sources depends upon the development of institutional facilities.In India, the external sources of credit information are not as developed.

i. Financial Statements

ii. Bank References

iii. Trade References

iv. Credit Bureau Reports

- **Analysis of Credit Information**

Although there are no established procedures to analyze the information, the firm should devise one to suit its needs.

The analysis should cover two aspects:

- Quantitative: Preparing an Aging Schedule of the accounts payable of the applicant as well as calculate the average age of the accounts payable. Ratio analysis of the liquidity, profitability and debt capacity of the applicant. Trend analysis over a period of time.
- Qualitative: The subjective judgement would cover aspects relating to the quality of management. Here, the references from other suppliers, bank references and specialist bureau reports would form the basis for the conclusions to be drawn.

b. Credit Terms

Credit terms specify the repayment terms of receivables.A firm should determine the credit terms on the basis of cost-benefit trade-off.Credit terms have three components:

i. Credit period

ii. Cash discount

iii. Cash discount period

For e.g., '2/10 net 30'. 2 signifies the rate of cash discount (2%), which will be available to the customers if they pay the overdue within the stipulated time.10 represents the time duration (10 days) within which a customer must pay to be entitled to the discount. 30 means the maximum period for which credit is available and the amount must be paid in any case before the expiry of 30 days.

The cash discount has implications for the sales volume, average collection period/average investment in receivables, bad debt expenses and profit per unit.In taking a decision regarding the grant of cash discount, the management has to see what happens to these factors if it initiates increase, or decrease in the discount rate.

 **Example:**Effects of Increase in Cash Discounts

Item	Direction of Change (I = Increase D = Decrease)	Effect on Profits (Positive+ or Negative–)
Sales Volume	I	+
Average Collection Period	D	+
Bad Debt Expenses	D	+
Profit Per Unit	D	–

Example: In our previous example, suppose the firm is planning to allow 2% discount for payment within 10 days after a credit purchase. Sales will increase by 15% and the average collection period will drop to 15 days after the discount. Return on investment expected by the firm is 15%, and 60% of the total sales will be on discount. Should the firm implement the proposal?

i. Profit on sales:

The profit on sale = sale of additional units multiplied by the difference between the sales price and the variable cost per unit

= 4,500 (Rs 10 – Rs 6) = 4,500 x Rs 4 = Rs 18,000

ii. Saving on average collection period:

This saving is what would have been earned on the reduced investments in accounts receivable as a result of the cash discount.

- Average investment in accounts receivable

= Cost of sales/Receivables turnover.

Present plan (without discount)

$$= \frac{(30{,}000 \times \text{Rs } 8)}{12 \text{ (i.e. } 360/30)} = \text{Rs } 20{,}000$$

Proposed plan (with discount)

$$= \frac{(30{,}000 \times \text{Rs } 8) + (4{,}500 \times \text{Rs } 6)}{24 \text{ (i.e. } 360/15)} = \frac{\text{Rs } 2{,}67{,}000}{24}$$

= Rs 11,125

Thus, if cash discount is allowed, the average investments in receivables will decline by Rs 8,875 (i.e., Rs 20,000 – Rs 11,125). Given a 15% rate of return, the firm could earn Rs 1,331.25 on Rs 8,875. Thus, the saving resulting from a drop in the average collection period is Rs 1,331.25.The total benefits associated with the cash discount:

Profit on additional sale	Rs 18,000.00
Saving in cost	1,331.25
Total	19,331.25

Cash discount: The cost involved in the cash discount on credit sales, that is, 2% of credit sales:

= 0.02 x Rs 2,07,000 (i.e. 0.60 Rs 3,45,000)

= Rs 4,140

Against a cost of Rs 4,140, the benefit from initiating cash discount is Rs 19,331.25;

i.e. net gain of Rs 15,191.25 (Rs 19,331.25 – Rs 4,140).

The firm should adopt the proposal to allow 2% cash discount for payment within 10 days of the credit purchase by the customers.

Credit Period

Effect of Increase in Credit Period

Item	Direction of Change (I = Increase D = Decrease)	Effect on Profits (Positive or Negative)
Sales Volume	I	+
Average Collection Period	I	–
Bad Debt Expenses	I	–

Illustration: Suppose, a firm is planning to increase the credit period from 30 to 60 days. The average collection period which is at present 45 days is expected to increase to 75 days. It is also likely that the bad debt expenses will increase from the current level of 1% to 3% of sales.Total credit sales are expected to increase from the level of 30,000 units to 34,500 units. The present average cost per unit is Rs 8, the variable cost and sales per unit is Rs 6 and Rs 10 per unit respectively. Assume the firm expects a rate of return of 15%. Should the firm extend the credit period?

Solution:

(i) Profit on additional sales:

= (Rs 4 x 4,500) = Rs 18,000

(ii) Cost of additional investments in receivables:

= Average investments with the proposed credit period less average investments in receivables with the present credit period:

Proposed plan:

= Cost of sales/Turnover of receivables

$$= \frac{(\text{Rs } 8 \times 30{,}000) + (\text{Rs } 6 \times 4{,}500)}{360 \div 75} = \text{Rs } 55{,}625$$

Present plan:

$$= \frac{(\text{Rs } 8 \times 30{,}000)}{360 \div 45} = \text{Rs } 30{,}000$$

Additional investment in accounts receivable:

= Rs 55,625 – Rs 30,000

= Rs 25,625

Cost of additional investment at 15%:

= 0.15 x Rs 25,625

= Rs 3,843.75.

(iii) Additional bad debt expenses:

Bad debt with proposed credit period

= 0.03 x Rs 3,45,000 = Rs 10,350

Bad debt with present credit period

= 0.01 x Rs 3,00,000 = Rs 3,000

Additional bad debt expense

= (Rs 10,350 - Rs 3,000) = Rs 7,350

The incremental cost associated with the extension of the credit period is Rs 11,193.75 (Rs 3,843.75 + Rs 7,350).

As against this, the benefits are Rs 18,000. There is, therefore, a net gain of Rs 6,806.25, that is, (Rs 18,000 – Rs 11,193.75). The firm should extend the credit period from 30 to 60 days.

c) Collection Policies

It refer to the procedures followed to collect accounts receivable when, after the expiry of the credit period, they become due.

These policies cover two aspects:

- degree of effort to collect the overdues.
- type of collection efforts.

Degree of Collection Effort

To illustrate the effect of the collection effort, the credit policies of a firm may be categorized into

a) Strict

b) Lenient

The management has to consider a trade-off between liberal and tight policy.

The effect of tightening the collection:In the first place, the bad debt expenses would decline.Moreover, the average collection period will be reduced. As a result of these two effects, the firm will benefit and its profits will increase. But there would be a negative effect also.

- Increased collection costs.
- Decline in the volume of sales.

This may be because some customers may not like the pressure and intense efforts initiated by the firm, and may switch to other firms.

Trade-off from Tight Collected Effort

Item	*Direction of Change (I = Increase D = Decrease)*	*Effect on Profits [Positive (+) or Negative (–)]*
Bad Debt Expenses	D	+
Average Collection Period	D	+
Sales Volume	D	–
Collection Expenditure	I	–

*Example:*A firm is considering stricter collection policies. At present, the firm is selling 36,000 units on credit at a price of Rs 32 each. the variable cost per unit is Rs 25 while the average cost per unit is Rs 29. average collection period is 58 days; and collection expenses amount to Rs 10,000. bad

debts are 3%.If the collection procedures are tightened, additional collection charges amounting to Rs 20,000 would be required, bad debts will be 1%;the collection period will be 40 days; sales volume is likely to decline by 500 units. Assuming a 20% rate of return on investments. Should the firm implement the decision?

Solution

(i) Bad debt expenses:

- Present plan:

(0.03 x Rs 11,52,000) = Rs 34,560

- Proposed plan:

(0.01 x Rs 11,36,000) = Rs. 11,360

- Savings in bad debt expenses:

= 23,200

(ii) Average collection period/average investment in receivables:

$$\text{Present plan} = \frac{36{,}000 \times \text{Rs } 29}{360 \div 58} \qquad 1{,}68{,}200 \text{ (a)}$$

$$\text{Proposed plan} = \frac{(36{,}000 \times \text{Rs } 29) - (500 \times \text{Rs } 25)}{360 \div 40} \qquad 1{,}14{,}611 \text{ (b)}$$

Savings in average investments (a – b) = 53,589

At 20% return, the firm would earn Rs 10,718 on this saving.

(iii) Sales volume: Since the sales volume will decline by 500 units, there would be a loss of Rs 3,500 (500 x Rs 7)

(iv) Additional collection charges = Rs 20,000.

- Thus, the total benefits from a tightening of the collection policy will be Rs 33,918 (Rs 23,200 + Rs 10,718) and the total cost will be Rs 23,500 (Rs 3,500 + Rs 20,000).
- Therefore, there would be a net gain of Rs 10,418 (Rs 33,918 – Rs 23,500).
- The firm should adopt the proposed strategy.

Type of Collection Efforts

After the credit period is over and payment remains due, the firm should initiate measures to collect them. The effort should in the beginning be polite, but, with the passage of time, it should gradually become strict.

The steps usually taken are:

i. letters and reminders to expedite payment

ii. telephone calls for personal contact

iii. personal visits

iv. help of collection agencies; and finally

v. legal action

vi. The firm should take stringent actions, like legal action, only after all other avenues have been fully exhausted.

vii. They not only involve a cost but also affect the relationship with the customers.

viii. The aim should be to collect as early as possible; genuine difficulties of the customers should be given due consideration.

Summary

- Working capital management is concerned with the management of current assets in a firm. Management of working capital is an integral part of financial management. If a firm focus more on Profitability, then its liquidity will be adversely affected, and on the other hand, if it focuses more on liquidity, its profitability will be affected. Hence, the firm has to strike a balance between the profitability and the liquidity.
- Gross working capital refers to the firm's investment in current assets. Current assets are the assets which can be converted into cash within an accounting year. E.g., cash, short-term securities, debtors, bills receivable, stock (inventory). Net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders which are expected to mature for payment within an accounting year.
- The concept of operating cycle related to the time duration required to convert raw material into inventories into sales and finally into cash. A firm needs to maintain liquidity to purchase raw materials and pay expenses. Similarly, stocks of raw material and work-in-process are kept to ensure smooth production. Also, stock of finished goods is required to meet the demands of customers. Debtors are created because goods are sold on credit for marketing and competitive reasons.
- Net Operating Cycle is the difference between gross operating cycle and payables deferral period.
- There are various factors which affects the working capital requirement in the firm such as Nature of Business, Market and Demand Conditions, Technology and Manufacturing Policy, Credit Policy, Availability of Credit from Suppliers, Operating Efficiency, Price Level Changes
- Depending on the mix of short and long-term financing, the approach followed by a company may be referred to as Matching Approach, Conservative Approach and Aggressive Approach
- Cash Management: The firm should keep sufficient cash, neither more nor less. Cash management is concerned with the managing of: Cash flows into and out of the firm, Cash flows within the firm, and Cash balances held by the firm at a point of time by financing deficit or investing surplus cash.
- A firm may hold cash due to the following reasons: The Transactions motive, The Precautionary motive and The Speculative motive
- Cash planning is a technique to plan and control the use of cash. It helps to anticipate the future cash flows and needs of the firm and reduces the possibility of idle cash balances. Cash planning protects the financial condition of the firm by developing a projected cash statement, from a forecast of expected cash inflows and outflows, for a given period. Cash plans are very crucial in developing the overall operating plans of the firm.
- For making forecasts of cash receipts and payments, two approaches are used in practice: The receipts and disbursements method and the adjusted net income method
- Financial manager should ensure that there does not exist a significant deviation between projected cash flows and actual cash flows. To achieve this, cash management efficiency will have to be improved through a proper control of cash collection and disbursement.

- The Baumol model of cash management provides a formal approach for determining a firm's optimum cash balance under certainty. It is a model that provides for cost-efficient transactional balances and assumes that the demand for cash can be predicted with certainty and determines the optimal conversion size.
- The optimum cash balance, C is obtained when the total cost is minimum:

$$C^* = \sqrt{\frac{2cT}{k}}$$

- In practice, firms do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. The Miller-Orr (MO) model overcomes this shortcoming and allows for daily cash flow variation. MO model provides for upper control limit and the lower control limit as well as a return point.
- The net effect is that the firms hold the average cash balance equal to:

Average Cash Balance = Lower Limit + 4/3 Z

- The excess amount of cash held by the firm to meet its variable cash requirements and future contingencies should be temporarily invested in marketable securities, which can be regarded as near moneys. A number of marketable securities may be available in the market such as Treasury bills, Commercial papers, Certificates of deposits, Bank deposits, Inter-corporate deposits, Money market mutual funds.
- Receivables Management: A firm may sell its goods and services either on cash or on credit. Trade credit happens when a firm sells its products or services on credit. This trade credit creates account receivables. A credit sale has three characteristics: Involve element of Risk, it is based on economic value, It implies futurity.
- There are several costs associated with the receivable such as: Collection cost, Capital cost, Delinquency cost and Default cost.
- Dimensions of Receivables management are Credit policies, Credit terms and Collection policies

Keywords

Working capital Management, Current Assets, Operating Cycle, Cash management, Receivables Management, Credit Policy

Self Assessment

1. The average collection period for a firm measures the number of days

A. After a typical credit sale is made until the firm receives the payment
B. For a typical check to "clear" through the banking system
C. Beyond the end of the credit period before a typical customer payment is received
D. Before a typical account becomes delinquent

2. Which of the following does not result from liberalizing credit standards?

A. It leads to higher bad debt loss
B. It causes an increase in sales
C. It reduces the cost of collection
D. It increases the investment in receivables

3. Which of the following statements is true about the terms of trade credit 2/10, net 30?

A. 10% cash discount is offered for payment before 30 days
B. 2% cash discount is awarded for payment on the 30th day after purchase
C. 10% cash discount can be taken if paid by the second day after invoicing
D. No cash discount is offered from the eleventh day onwards after the date of purchase

4. Which of the following would NOT be a reasonable approach to reducing delinquencies?

A. send reminder letters
B. offer a trade discount
C. only accept cash
D. factor out all receivables

5. Which one of the following represents the correct order of the collections cycle?

A. send reminder letters, make telephone calls, sue the customer, hire a collection agency
B. send reminder letters, make telephone calls, hire a collection agency, sue the customer
C. make telephone calls, hire a collection agency, sue the customer, send reminder letters
D. sue the customer, make telephone calls, hire a collection agency, send reminder letters

6. Speculative motive of holding cash refers to

A. Holding the cash to utilize it in internal projects
B. Holding the cash for any future loss the company is expecting
C. Holding the cash to avail any future investment opportunity
D. Holding the cash to utilize it for international project

7. Marketable securities are primarily

A. short-term debt instruments.
B. short-term equity securities.
C. long-term debt instruments.
D. long-term equity securities.

8. Collection float is the _____.

A. total time between the mailing of the check by the customer and the availability of cash to the receiving firm
B. time consumed in clearing the check through the banking system
C. time the check is in the mail
D. time during which the check received by the firm remains uncollected

9. Deposit float is the _____.

A. total time between the mailing of the check by the customer and the availability of cash to the receiving firm
B. time consumed in clearing the check through the banking system
C. time the check is in the mail
D. time during which the check received by the firm remains uncollected

10. Concentration banking occurs when the firm _____.

A. moves cash from regional lockboxes to a centralized cash pool at a single institution
B. replaces their lockbox system with a system that involves the direct payment to the firm
C. reduces the control over the inflow and outflow of corporate cash
D. increases the quantity of cash balances that are "idle" (not earning a return)

11. The major current assets are _____

A. cash and marketable securities
B. accounts receivable (debtors)
C. inventory (stock)
D. All of the above

12. Which of the following is an example of current liability:

A. accounts payable
B. bank overdraft
C. outstanding expenses.
D. All of the above

13. Net working capital refers to

A. total assets minus fixed assets.
B. current assets minus current liabilities.
C. current assets minus inventories.
D. current assets.

14. Which of the following would be consistent with a more aggressive approach to financing working capital?

A. Financing short-term needs with short-term funds.
B. Financing permanent inventory buildup with long-term debt.
C. Financing seasonal needs with short-term funds.
D. Financing some long-term needs with short-term funds.

15. Permanent working capital:

A. varies with seasonal needs.
B. includes fixed assets.
C. is the amount of current assets required to meet a firm's long-term minimum needs?
D. includes accounts payable.

Answers for Self Assessment

1.	A	2.	C	3.	D	4.	C	5.	B
6.	C	7.	A	8.	A	9.	D	10.	A

11. D 12. D 13. B 14. D 15. C

Review Questions

1. Explain the components of operating cycle.
2. Discuss the approaches to finance working capital
3. Analyze the Baumol's model and Miller-Orr model of determining optimum cash balance
4. List the various dimensions of receivables management.
5. Discuss the various options available for Investing surplus cash.

Further Readings

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Unit 13: Corporate Governance

CONTENTS

Objectives

After studying this unit, you will be able to:

- explain the concept of corporate Governance.
- discuss the Importance of Corporate Governance.
- outline the regulatory framework in India and mandates.
- explain the theories of corporate governance.
- discuss the impact of Corporate Governance on HRM.
- analyze the evaluation procedure of Board of Directors.
- explain succession planning.
- list the steps in succession planning.
- discuss the Corporate Governance issues in Public Sector Undertakings.
- discuss the concept of Insider trading.
- learn from the lessons of corporate failure in Indian corporations.

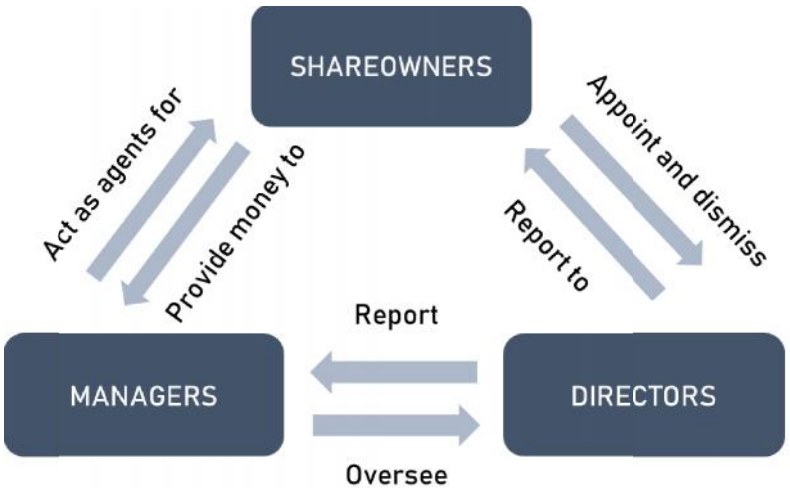
Introduction

After discussing all the important functions of corporate finance, we will now shift our focus to Corporate Governance. Corporate Governance is basically a detailed disclosure of information and an account of an organization's financial situation, performance, ownership and governance, relationship with shareholders and commitment to business ethics and values.The relevance of corporate governance has increased several times since the concept was introduced.Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, senior management executives, customers, suppliers, financiers, the government, and the community.

13.1 Corporate Governance: Meaning

Corporate governance is a system of rules, policies, and practices that dictate how a company's board of directors manages and oversees the operations of a company. Corporate governance includes principles of transparency, accountability, and security. It is the interaction between various participants (Shareholder, Board of Director and Company Management) in shaping corporation's performance. It deals with determining ways to take effective strategic decisions and developed added value to the stakeholder.

The principal Actors: Shareholders, Directors, Managers



Significance of Corporate Governance

- It shows a company's direction and business integrity.
- It helps companies build trust with investors and the community.
- It promotes financial viability by creating a long-term investment opportunity for market participants.

Need for Corporate Governance

Corporate governance is needed due to the following reasons:

- To monitor the Corporate Performance
- It enhanced Investor's Trust
- It helps in combating Corruption
- Helps in getting easy finance from Institutions
- Helps in enhancing Enterprise Valuation
- Reduced Risk of Corporate Crisis and Scandals
- Promotes Accountability

Principles in Corporate Governance

Corporate governance is based on various principles:

- Protection of shareholders rights

- Interests of other stakeholders
- Role and responsibilities of the board
- Responsible and ethical behavior
- Disclosure and transparency in reporting

Benefits of Corporate Governance

- It provides the proper incentives for the board and management to pursue objectives that are in the interest of the company and shareholders
- It provides Shareholders with greater security on their investment.
- It ensures that shareholders are sufficiently informed on decisions concerning fundamental issues like amendments of statutes or articles of incorporation, sale of assets, etc.

Transparency

For a company, this means it allows its processes and transactions observable to outsiders. It also makes necessary disclosures, informs everyone affected about its decisions, and complies with legal requirements.Facts to be considered under the head Transparency:

- How transparent is your corporate board?
- Are the directors' actions readily verifiable by internal and external audit?
- Is their leadership visible from the top to all the way down?
- Is transparency applicable to everyone?

Accountability

Shareholders are deeply interested in who will take the blame when something goes wrong in one of a company's many processes. And even when everything goes smoothly as expected, knowing that someone will be held accountable for future mishaps increases shareholders confidence, which in turn increases their desire to invest more.It's about having ownership over one's actions whether the consequences of those actions are good or bad.When the idea of accountability is approached with this positive outlook, people will be more open to it as a means to improve their performance.

Facts to be considered under accountability

- How's the level of accountability in your corporate board.
- Are your directors there to simply fill in a seat while going through their board books, or are they actively engaged in decisions and strategies for your company.

Security

A company is expected to make their processes transparent and their people accountable while keeping their enterprise data secure from unauthorized access. Companies that experience security breaches involving the exposure of their client's personal information quickly lose their credibility.

Facts to be considered under security:

- How high is the awareness level of your company's directors when it comes to security?
- How high is the awareness level of your company's employees when it comes to security?

Value Based Organisation

Value Based Organisation is a living, breathing culture of shared core values among all employees. This is different from the traditional structure which is a more machine-like, business approach that focuses on an authoritarian type relationship or rigid organizational structure. A values-based organization is a culture shaped by a clear set of ground rules establishing a foundation and guiding principles for decision-making, actions and a sense of community. In a values-driven culture, employees find alignment between their personal values and the organization's values creating a unified and motivated workforce. A strongly held values-based culture or purpose will remain more stable over time characterized by productivity and employee commitment.

Regulatory framework in India and mandates

In recognition of the importance of corporate governance as an integral part of corporate financial practices, the SEBI has mandated corporate governance in the listing requirement in Clause 49 of the Listing Agreement.The main elements of this clause relate to:

I. Board of Directors
II. Audit Committee
III. Subsidiary Companies
IV. CEO/CFO Certification
V. Report on Corporate Governance
VI. Compliance

I. Board of Directors

(A) Composition of Board of Directors:

- The Board of Directors of the company should consist of at least 50% non-executive directors.
- At least one-third or one-half of the Board should comprise independent directors in case of non-executive and executive chairman respectively.
- An independent director means a non-executive director who:
- apart from receiving directors' remuneration, does not have any material pecuniary relationship/ transaction with the company/its promoters/directors/senior management / holding company/ subsidiary company and associates.
- is not related to promoters/persons occupying management position at the Board/one level below that.
- has not been an executive in the preceding three financial years.
- is/was not a partner/executive during the preceding three years of the statutory/internal audit firm associated with the company/the legal/consulting firm having a material association with the company.
- is not a material supplier / service provider / customer / lessee of the company.
- is not a substantial shareholder owning two per cent or more of the voting shares. Nominee directors would be deemed to be independent directors.

(B) Non-executive Directors' Compensation and Disclosures

- Fee/compensation including stock options, paid to all non-executive directors should be approved by the shareholders.

(C) Other Provisions as to Board and Committees

- The Board of Directors should meet at least four times a year.
- A director can be a member of 10 committees or act as chairman of five committees across all companies in which he is a director.

(D) Code of Conduct:

- The Board should periodically review compliance reports of all laws applicable to the company.
- It should also lay down a code of conduct for all Board members and senior management, who should affirm compliance with the code on an annual basis.

II. Audit Committee

(A) Qualified and Independent Audit Committee:

- A qualified and independent Audit Committee should be set up with at least three member-directors, two-thirds being independent.
- All members should be financially literate (i.e., they should possess the ability to read and understand the basic financial statements) and at least one member should have accounting or related financial management expertise.
- The chairman of the audit committee should be an independent director and the company secretary would be its ex-officio secretary.

(B) Meeting of Audit Committee

- The committee should meet at least four times in a year.

(C) Powers of Audit Committee

- The powers of the Audit Committee should include—investigating any activity within its terms of reference, seeking information from any employee, obtaining outside legal/other professional advice and securing attendance of outsiders with relevant expertise.

(D) Role of Audit Committee

- Overview of the financial reporting process to ensure correctness, sufficiency and credibility of the financial statements;
- to recommend the appointment/ re-appointment/ replacement of auditors and their fee, review with the management

(a) the annual and quarterly financial statements for submission to the Board for approval

(b) performance of auditors/ adequacy of internal control systems,

- review the adequacy of internal audit function,
- review the findings of any internal investigation into suspected fraud/irregularity/failure of internal control systems of a material nature,
- look into reasons for substantial default in payment to depositors/creditors/debenture holders and so on,
- review the functioning of the 'whistle blower' mechanism and so on.

(E) Review of Information by Audit Committee

- Management discussion/analysis of financial condition/result of operations
- Statement of significant related party transactions and
- Letter of internal control weaknesses by the auditors.

III. Subsidiary Companies

- A material non-listed Indian subsidiary company should have on its Board, at least one independent director of the holding company.
- The minutes of its Board meetings should be placed at the Board meeting of the listed holding company.
- Its financial statements should also be reviewed by the audit committee of the listed company.

IV. Disclosures

The disclosure requirements of the corporate governance clause pertain to:

- Basis of related party transactions, disclosure of accounting treatment, risk management, proceeds from public/rights/preferential issues, remuneration of directors, management discussion/analysis report, and information to shareholders on the appointment/reappointment of a director.

V. CEO/CFO Certification

The CEO and the CFO should certify to the Board of Directors that:

- the financial statements present a true and fair view
- no transaction is fraudulent, illegal/violative of the code of conduct
- they accept full responsibility for establishing/maintaining internal controls and
- they have indicated to the auditors/audit committee significant changes in internal control/accounting policies and instances of significant frauds which they became aware of.

VI. Report on Corporate Governance

- The annual reports should contain a separate section on Corporate Governance.
- Non-compliance of any mandatory requirement with reasons and the extent of adoption of non-mandatory requirements should be highlighted.
- Companies should submit a quarterly report signed by the compliance officer/ CFO, to the stock exchanges, within 15 days from the close of the quarter in the prescribed format.

VII. Compliance

- The company should annex with the directors' report to the shareholders, a certificate from the auditors/company secretaries regarding compliance with the conditions of corporate governance.
- This should also be sent to the stock exchange, along with the company's annual report.
- Non-mandatory requirements may be implemented at the discretion of the company.

13.2 Theories of Corporate Governance

There are mainly four theories of Corporate governance.

- The Agency Theory

- The Stewardship Theory
- The Stakeholder Theory
- The Political Theory

The Agency Theory

Main concern is to develop rules and incentives, to eliminate or minimize the conflict of interests between owners and managers. The firm devises rules and incentives at is own, in additions to legal regulations in a country.

The Stewardship Theory

This theory views managers as stewards.They are self-directed and are motivated by high achievements and responsibility in discharging their duties. In this theory, managers are goal-oriented and self-motivated.

The Stakeholder Theory

Based on the premise that the fundamental responsibility of managers is to maximize the total wealth of all stakeholders of the firm, rather than only the shareholders' wealth.

The Political Theory

This theory states that it is the government that decides the allocation of control, rights, responsibility, profit etc. between owners, managers, employees and other stakeholders. The corporate governance efforts will depend on the allocated powers of the stakeholders.

13.3 Corporate Governance and Human Resources

Corporate governance systems are the systems through which a company is controlled and directed.Strategic human resource management (SHRM) is based on the belief that human resource decisions must be aligned with the strategy of the company. How does corporate governance impact the decisions related to strategic human resource management?

Archetypes of Corporate Governance Systems

The shareholder value model: In this model, market logics dominate: the interests of the shareholders are paramount. The culture is unitary: the firm is a harmonious team (top to bottom) united in the pursuit of shareholder value.

The communitarian stakeholder model: Pluralist, democratic logics drive this model, which recognizes and focuses on the legitimate interests of other stakeholders — from employees to the community at large.

The enlightened shareholder value model: This is a hybrid model that represents a tempered version of the shareholder value model. The unitary culture built on shareholder value dominates, but with some (enlightened) recognition for the business case of other interests (e.g., stakeholder interests, social values).

The employee-ownership model: This is a second hybrid that represents a tempered version of the communitarian governance model. Employees own or partially own the firm. They recognize the needs of all stakeholders but are also focused on gaining a return on their investment as shareholders — in essence, a pluralist culture that combines democratic and market logics.

Each of these different corporate governance typologies impacts a firm's human resource choices and the implementation of those choices in different ways.Shareholder value firms have control and calculative HR policies intended to ensure employee compliance and employee efficiency.A

few high value employees receive a disproportionate level of compensation.Communitarian stakeholder firms feature a commitment to people.

Communitarian stakeholder firms trade the low-trust board-employee mentality of shareholder value firms for a dynamic high trust approach.The hybrid models offer a mix of these two HR approaches. Enlightened shareholder value firms temper the control/calculative practices of shareholder value firms with commitment/collaborative practices. While a few "star" employees are highly paid, the firm tries to engage less value-adding and less scarce employees.The employee-ownership hybrid tempers the high commitment/collaborative practices of the communitarian stakeholder model with some control/calculative practices. Thus, the firm pushes training and development but contracts will include transactional features such as incentive-based pay for performance.

Business Application

Each of the four models has important challenges to overcome. The transactional human resource relationships of the shareholder value model promote short-termism and low trust. The communitarian model can be unrealistic — can all stakeholder interests be truly satisfactorily addressed? The enlightened shareholder value and employee-ownership hybrid models have their own drawbacks. The inclusive HR rhetoric of the enlightened shareholder value is refuted by practices such as rewarding a few high-value employees at the expense of job insecurity for the majority of employees.

Meanwhile, employee-ownership firms promote employee involvement, but as shareholders, employee owners support transactional HR practices to protect their investment.One way to overcome these inconsistencies and challenges is through a corporate sustainability frame, which mandates a set of corporate values and a culture that ensures the long-term survival and prosperity of the firm. Through independent boards, corporate sustainability not only helps resolve the challenges described above, but also reinforces the legitimacy of the firm.

- Elements that a corporate sustainable approach to human resources might entail.
- Creating a high trust dynamic across all levels of employment.
- Implementing employee share ownership linked to a long-term commitment to firm and market value.
- Reinforcing the legitimacy of the firm through sustainability, ethics and diversity.
- Training employees on environmental, ethical and diversity issues.
- Enabling employee involvement in sustainability initiatives and decisions.

Linking performance appraisal and rewards to sustainability, ethics and diversity.Objectives and culture of sustainability-driven firm provide a potential frame for resolving the tensions highlighted in different models.

13.4 Evaluation of Performance ofBoard of Directors

The Companies Act, 2013 and SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 contain broad provisions on Board Evaluation:

(i) The Board as a whole.

(ii) Individual directors (including independent directors and Chairperson).

(iii) Various Committees of the Board.

The provisions also specify responsibilities of various persons and committees for conduct of such evaluation and certain disclosure requirements.

Brief overview of the law involved

Clause 49 of the Listing Agreement applicable to listed companies.

- One of the key functions of the Board is to monitor and review Board Evaluation framework.
- Performance evaluation of Independent Directors is stipulated.
- The Nomination & Remuneration Committee shall lay down the evaluation criteria of the Independent Director and evaluation shall be done by the entire Board of Directors (excluding the director being evaluated).
- The Criteria shall be disclosed in the Annual Report.
- On the basis of the report of performance evaluation, it shall be determined whether to extend or continue the term of appointment of the independent directors

Purposes of the Board evaluation

- Improving the performance of Board towards corporate goals and objectives.
- Assessing the balance of skills, knowledge and experience on the Board.
- Identifying the areas of concern and areas to be focused for improvement.
- Identifying and creating awareness about the role of directors individually and collectively as Board.
- Building Team work among Board members.
- Effective Coordination between Board and Management.
- Overall growth of the organization.

Companies Act 2013 and its Rules

In the Board's Report a statement has to be given indicating the manner in which formal annual evaluation has been made by the Board of its own performance and that of its committees and individual directors [Section 134 & Companies {Accounts} Rules 2014].

The Nomination and Remuneration Committee shall identify persons who are qualified to become directors and who may be appointed in senior management in accordance with the criteria laid down, recommend to the Board their appointment and removal and shall carry out evaluation of every director's performance {Section 178 & Companies [Meetings of Board and its Powers] Rules 2014}

The performance evaluation of independent directors {as defined in these provisions} shall be done by the entire Board of Directors, excluding the director being evaluated. On the basis of the report of performance evaluation, it shall be determined whether to extend or continue the term of appointment of the independent director {Section 149 – Schedule IV & Companies [Appointment and Qualification of Directors] Rules 2014}. Code for Independent Directors has been laid down. {Section 149 – Schedule IV}

Individual director & overall board evaluation process

The criteria are based on the assessment of peer directors and assessment of the overall performance of the Board.Each director has to complete a evaluation sheet by giving the appropriate rating number related to:

(i) Performance of individual peer directors

(ii) Overall performance of the Board

Individual Peer Review (by all directors)

a. Whether the Directors uphold ethical standards of honesty and virtue?

b. Whether the Directors have appropriate qualifications to meet the objectives of the Company?
c. Whether they have financial/accounting or business literacy/skills?
d. Whether they have real estate industry knowledge?
e. How actively and successfully do they refresh their knowledge and skill & are they up-to-date with the latest developments?
f. How well prepared and well informed are they for Board/Committee meetings?
g. Do they show willingness to spend time and effort learning about the Company and its business?
h. Is the attendance of Directors at Board/Committee meetings satisfactory?
i. Do they actively participate in the Board /Committee meetings?
j. Can they present their views convincingly, yet diplomatically?
k. Do they listen to the views of others?
l. How cordial are their relationships with other Board/Committee members and Senior Management?
m. What have been the quality and value of Director's contributions at Board/Committee meetings?
n. What has been their contribution to the development of strategy and risk management and how successfully they have brought their knowledge and experience to bear in the consideration of these areas?
o. Where necessary, how resolute are they in holding to their views and resisting pressure from others?
p. How effectively have they followed up matters about which they have expressed concern?
q. How well do they communicate with other Board/Committee members, senior management and others?

Board/Committee Evaluation (by all directors)

1. Whether Board / Committee have diversity of experiences,backgrounds & appropriate composition?
2. Whether Board / Committee monitor compliance with corporate governance, laws, regulations and guidelines?
3. Whether Board / Committee demonstrate integrity, credibility, trustworthiness, an ability to handle conflict constructively, and the willingness to address issues proactively?
4. Whether Board / Committee dedicate appropriate time and resources needed to execute their responsibilities?
5. Whether Agenda and related information are circulated in advance of Board / Committee meetings to allow Directors sufficient time to study and understand the information?
6. Whether written materials provided to Board / Committee members are relevant and concise?
7. Whether the Chairman encourages inputs on agenda of Board / Committee meetings from their members, management, the internal auditors, and the independent auditor?
8. Whether meetings of Board / Committee are conducted effectively, with sufficient time spent on significant matters?
9. How well does management respond to request from the Board/ Committee for clarification or additional information?

10. Whether proper minutes are maintained of each meeting of Board / Committee?
11. Whether Board / Committee meetings are held with enough frequency to fulfil the Board's /Committee's duties?
12. Whether Board / Committee {as required} consider the quality and appropriateness of financial/ accounting and reporting, including the transparency of disclosures?
13. Whether Board / Committee consider the statutory audit plan and provide recommendations?
14. Whether Board / Committee ensure that management takes action to achieve resolution when there are repeat comments from statutory auditors?
15. Whether adjustments to the financial statements that resulted from the statutory audit are reviewed by the Audit Committee, regardless of whether they were recorded by management?
16. Whether Board / Committee oversee the role of the statutory auditors and have an effective process to evaluate the auditor's qualifications and performance?
17. Whether Board / Committee review the audit fees paid to the statutory auditors?
18. Whether Board / Committee consider internal audit reports, management's responses, and steps toward improvement?
19. Whether Board / Committee oversee the process and are notified of communications received from governmental or regulatory agencies related to alleged violations or areas of non-compliance?
20. Whether the contributions of the Board / Committee to ensuring robust and effective risk management are adequate?

Model criteria for evaluation of independent directors

- Each Independent director shall be evaluated by all other directors of the Board but not by him/her.
- Rating Criteria for peer review as stated hereinabove shall also apply to Independent directors to the extent there is no overlapping with the Rating Criteria of Independent Directors as stated hereinafter.
- Whether Independent director/s follow/s Professional Conduct, carry out their Roles and Functions and Duties as required in section 149 and Schedule IV of the Companies Act 2013:

Evaluation based on professional conduct

1. Upholds ethical standards of integrity and probity?
2. Acts objectively and constructively while exercising their duties?
3. Exercises his/her responsibilities in a bona fide manner in the interest of the Company?
4. Devotes sufficient time and attention to his/her professional obligations for informed and balanced decision making?
5. Not allow any extraneous considerations that will vitiate his/her exercise of objective independent judgment in the paramount interest of the Company as a whole, while concurring in or dissenting from the collective judgment of the Board in its decision making?

6. Does not abuse his/her positions to the detriment of the Company or its shareholders or for the purpose of gaining direct or indirect personal advantage or advantage for any associated person?
7. Refrains from any action that would lead to loss of his/her independence?
8. Where circumstances arise which make an independent director lose his/her independence, whether the ID has immediately informed the Board accordingly?
9. Assists the Company in implementing the best corporate governance practices?

Evaluation based on Role and functions

10. Helps in bringing an independent judgment to bear on the Board's deliberations especially on issues of strategy, performance, risk management, resources, key appointments and standards of conduct?
11. Brings an objective view in the evaluation of the performance of Board and management?
12. Scrutinizes the performance of management in meeting agreed goals and objectives and monitor the reporting of performance?
13. Satisfies himself/herself on the integrity of financial information and those financial controls and the systems of risk management are robust and defensible?
14. Taken actions to safeguard the interests of all stakeholders, particularly the minority shareholders?
15. Balances the conflicting interest of the stakeholders?
16. During the Board/ Committee meetings along with other members determines appropriate levels of remuneration of executive directors, key managerial personnel and senior management have a prime role in appointing and where necessary recommend removal of executive directors, key managerial personnel and senior management?
17. Moderates and arbitrates in the interest of the Company as a whole, in situations of conflict between management and shareholder's interest?

Evaluation based on Duties

18. Undertakes appropriate induction and regularly update and refresh his/her skills, knowledge and familiarity with the Company?
19. Seeks appropriate clarification or amplification of information and, where necessary, take and follow appropriate professional advice and opinion of outside experts?
20. Strive to attend all meetings of the Board of Directors and of the Committees of which he/she is a member?
21. Participates constructively and actively in the Committees of the Board in which he/she is chairperson or member?
22. Strives to attend the general meetings of the Company?
23. Has concerns about the running of the Company or a proposed action, whether he/she ensures that these are addressed by the Board and, to the extent that they are not resolved, insist that their concerns are recorded in the minutes of the Board meeting?
24. Does not unfairly obstruct the functioning of an otherwise proper Board or Committee of the Board?
25. Gives sufficient attention and ensure that adequate deliberations are held before approving related party transactions and assure himself/herself that the same are in the interest of the Company?

26. Ascertains and ensures that the Company has an adequate and functional vigil mechanism and also ensures that the interests of a person who uses such mechanism are not prejudicially affected on account of such use?
27. Reports concerns about unethical behaviour, actual or suspected fraud or violation of the Company's Code of Conduct?
28. Acts within his/her authority, assist in protecting the legitimate interests of the Company, shareholders and its employees?
29. Does not disclose confidential information, including commercial secrets, technologies, advertising and sales promotion plans, unpublished price sensitive information, unless such disclosure is expressly approved by the Board or required by law?

Model compliances

- The Nomination & Remuneration Committee of the Board shall lay down the evaluation criteria of the Independent Director and evaluation shall be done by the entire Board (excluding the director being evaluated).
- All evaluation shall be done annually.
- Criteria and Evaluation shall be disclosed in the Annual Report of the Company.
- On the basis of the report of performance evaluation, it shall be determined by the Nomination & Remuneration Committee & Board whether to extend or continue the term of appointment of the independent director subject to all other applicable compliances.

Review

These criteria shall need to be reviewed by the Nomination & Remuneration Committee and the Board from time to time.

13.5 Succession Planning: Introduction

Succession planning or replacement planning is a strategy for passing on leadership roles to an employee or group of employees. It ensures that businesses continue to run smoothly after a company's most important people move on to new opportunities, retire, or pass away.

How Succession Planning Works

- It involves evaluating each leader's skills, identifying potential replacements both within and outside the company.
- In the case of internal replacements, training those employees so that they're prepared to take over.
- Succession plans should be reevaluated and updated each year.
- In large corporations, the board of directors will typically oversee succession planning.
- In large corporations, succession planning impacts not just owners and employees, but shareholders as well.
- For small businesses, succession planning means training the next generation to take over the business.

Recruitment

- It starts with proper hiring practices with the goal of choosing candidates that are capable of rising through the ranks as time goes on.

- For example, an experienced person from another company might be hired and groomed for an executive-level position.

Training

- Training includes the development of skills, company knowledge, and certifications.
- The training might include having employees cross-train and shadow various positions or jobs in all the major departments.
- The cross-training process can help identify the employees that are not up to the task of developing multiple skill sets needed to run the company.

Benefits of Succession Planning

There are various benefits of succession planning for the organization:

- Fulfillment of leadership gaps
- Handle attrition
- Avoid uninspiring results in executive recruitment
- Economy
- Uncovering the weaknesses
- Rapid recruitment to meet growth needs
- Planning for the disaster
- Motivates the employees
- Strengthens departmental relationships
- Development of new skills and adjusting development programs accordingly

Steps in Succession Planning

Succession planning involves various steps:

Step 1: Planning:

- Planning a blueprint of how the succession plan is to be implemented.
- The long-term vision and goals of the organization are identified and the current personnel policies and procedures are studied.
- Essential to integrate the plan with the aspirations of the senior employees who are being groomed for succession.

Step 2: Analysis:

- Future challenges and skills the CEO would need are analyzed.
- Current supply of manpower should be studied in relation to the anticipated demand.
- It is necessary to identify the overall long term talent needs of the company and not just of a particular position.

Step 3: Identification of Talent Pools:

- May be measured by the use of performance evaluation tools like 360° Feedback, critical incident methods and rating scales.
- Also, necessary to evaluate the employee's capacity to perform in more responsible jobs in future.

- The skill sets of the employees should be compared with the skills needed for the key leadership roles and any gaps between the two should be identified.

Step 4: Development Planning:

- After the gaps have been identified, the next step involves creating development plans.
- The development plan includes the formal development procedures, coaching and mentoring, special job assignments, learning projects, etc.
- The employee's progress will be monitored against the plan.

Step 5: Implementing the Succession Plan:

- The succession plan should be linked to the HR processes like compensation, recruitment, performance planning, workforce planning, etc.
- It is a long-term plan, and sometimes the succession planning process is started from the time a brilliantly outstanding employee begins his career.
- For. E.g., Jack Welch was being groomed for senior positions from the time he started his career.

Difference between Career Planning and Succession Planning

The main difference between Career planning and succession planning is that career planning covers all levels of employees.Whereas,Succession planning is generally meant for higher-level executives.Succession planning is essential for the survival and success of an organization.It provides opportunities to the existing potential employees to advance their careers.While creating a succession plan, every key executive is asked to identify few employees at junior levels who have the potential to replace them when needed.

Career planning consists of charts representing the possible career paths for different categories of employees; whereas succession planning involves succession charts for a specific high- level position, such as general manager.The career paths for different types of jobs:

- A supervisor has to achieve different milestones, such as assistant manager, deputy manager, and manager, to become a chief manager.
- A lecturer has to pass from the designations of associate professor, professor, dean of faculty, and pro-vice chancellor to acquire the position of vice chancellor.

Corporate Governance in Public Sector Undertakings.

Public enterprises in India are classified under three categories:

1. Departmental Undertaking,
2. Statutory corporations financed by Government,
3. Government companies set up under the Companies Act, 2013 or Public-Sector undertakings.

Contribution of PSUs

PSUs were created as vehicles for industrial and regional development, creation of basic infrastructure networks, and employment generation. PSUs have done exemplary work for the upliftment of local communities by addressing their education and drinking water needs through CSR initiatives. GOI has taken several steps to improve their performance including through better corporate governance.

Corporate Governance Framework

Provisions as contained in the Companies Act, 2013; SEBI guidelines on Corporate Governance; and DPE guidelines on Corporate Governance for Central Public-Sector Enterprises provide the Corporate Governance framework for listed PSUs in India. SEBI guidelines are not applicable to non-listed PSUs.

Provisions contained in Companies Act, 2013:

- Companies Act 2013 replaced Companies Act, 1956.
- The Ministry of Corporate Affairs has also notified Companies Rules, 2014 on management and Administration, Appointment and Qualification of Directors, Meetings of Board etc.
- The Companies Act, 2013 and the Companies Rules provide framework for Corporate Governance for all companies including PSUs.

Some of the important requirements which have been laid down are with regard to:

1. Qualifications for Independent Directors along with the duties and guidelines for professional conduct (Section 149(8) and Schedule IV thereof).
2. Mandatory appointment of one-woman director on the board of listed companies [Section 149(1)].
3. Mandatory establishment of certain committees like Corporate Social Responsibility Committee [Section (135)], Audit Committee [Section 177(1)], Nomination and Remuneration Committee [Section 178(1)], and Stakeholders Relationship Committee [Section 178(5)].
4. Holding of a minimum of four meetings of Board of Directors every year in such a manner that not more than 120 days shall intervene between two consecutive meetings of the Board [Section 173(1)].

SEBI Guidelines on Corporate Governance

- SEBI is the capital market regulator in India.
- It amended Clause 49 of the Listing Agreement in 2014 in order to align it with the Corporate Governance provisions specified in the Companies Act, 2013.
- It is applicable to all companies, including PSUs, which are listed on a recognized stock exchange.

DPE guidelines on Corporate Governance for Central Public-Sector Enterprises

- The Department of Public Enterprises (DPE) issued first ever guidelines on Corporate Governance in November 1992 for PSUs which were voluntary in nature.
- These have been revised from time to time.
- These guidelines are mandatory and are applicable to all PSUs – listed or not listed.
- The guidelines issued by DPE has covered areas like composition of Board of Directors, composition and functions of Board committees like Audit Committee, Remuneration committee, details on subsidiary companies, disclosures, reports and the schedules for implementation.

- DPE has also incorporated Corporate Governance as a performance parameter in the MoUs of all PSUs.

Issues in Corporate Governance of PSUs

To increase competitiveness and improve investor confidence, it is important for PSUs to embrace corporate governance standards which would ensure further growth in an ethical and transparent manner. The major hinderance in achieving desired level of competitiveness is governance deficit due to certain key issues:

Autonomy of the Board

- A competent and autonomous Board is important for success of any corporate.
- However, Ministerial diktats may sometimes influence the Board agenda in case of PSUs.
- Without full autonomy, it is difficult to have a structured performance evaluation system for the Board members and fix accountability.

Ownership policy

- There is no ownership policy in place.
- It is needed to clearly lay down role and responsibilities of the Government towards minority shareholders and other stakeholders such as employees, vendors, customers and communities.
- The Organization for Economic Cooperation and Development states that "the government should develop and issue an ownership policy that defines the overall objectives of state ownership, the state's role in corporate governance of state-owned enterprises and how this policy is likely to be implemented."
- The ownership policy should be clearly disclosed and communicated to fix accountability.

Appointment of independent, non-executive directors and women directors

- Legal provisions and Guidelines issued by SEBI and DPE have laid down requirements for the constitution of PSUs Board to ensure their independence and gender diversity.
- It has been established that properly structured Board is necessary for ensuring objectivity of Board's decisions.
- Out of the top 27 PSUs, according to a recent study, 25% do not meet the criteria for independence of the Board and nearly 25% do not have a woman director.

Non-compliance with legal requirements and SEBI and DPE Guidelines

- Many of the top PSUs are falling behind in complying with minimum requirements contained in Clause 49 and DPE Guidelines.
- Even the compliance audit conducted by the Comptroller and Auditor General of India has highlighted this issue.

Excessive regulation

- Besides Parliament, PSUs are also accountable to other authorities like Comptroller & Auditor General of India, (CAG); Central Vigilance Commission, (CVC); Competition Commission of India, (CCI); and Right to Information Act, (RTI) etc.

- Over regulation has not only created accountability problems but has also killed corporate governance.

Ways to improve Corporate Governance in PSUs

- As PSUs are India's most important national assets, It has been the constant endeavor of the Government to improve governance in PSUs.
- But it has not been able to reorient its role away from day-to-day management of PSUs towards exercising its core ownership rights based on sound corporate governance principles.

Professionalize PSUs Boards

a. PSU boards should include candidates from the private sector as well.
b. PSU CMDs should be actively consulted for the selecting and appointing independent and non-executive directors on PSU boards. The role of the Public Enterprises Selection Board (PESB) requires to be reconsidered in this context.
c. Give PSUs boards greater decision-making authority with regard to decisions on executive compensation, performance management systems and initiation and execution of projects. Government should minimize its involvement to policy matters and matters of national interest only.
d. A mechanism to evaluate the board's overall functioning should be instituted.

Reorient the State's Ownership Role

a. Administrative ministries should focus on core ownership functions and limit their day-to-day role.
b. Improve the performance monitoring or MOU system.
c. The ownership policy should clearly spell out how will it be applied in matters that have ramifications for minority.

Ensure Compliance with Legal requirements & SEBI and DPE Guidelines

- The government should deal firmly with non-compliance of corporate governance norms by both listed and unlisted PSUs.
- Provisions with regard to constitution, appointment of chairman and meetings of Audit Committee should be strictly adhered to.

13.6 Insider Trading: Introduction

Insider trading is dealing in securities of a listed company by any person who has knowledge of material inside information which is not available to general public.It is breach of a fiduciary duty or other relationship of trust, and confidence.It is a crime if made to get wrongful gain or avoid losses.An example of an insider may be a corporate executive who has access to an financial report before it is publicly released.

Definition

The Securities and Exchange Board of India (Prohibition of Insider Trading) Regulations 1992, does not directly define the term Insider Trading. But it defines the term "Insider", "Connected Person" and "Price Sensitive Information". Insider Trading is the trading of securities of a company by an Insider using company's non-public, price sensitive information while causing losses to the company or profit to oneself.

- **Insider:** a "connected person" or a person possessing or having access to unpublished price sensitive information.
- **Connected person:** one who has been associated with the company in any capacity such as a director, officer or employee or in a contractual or fiduciary relationship with the company; and includes a list of "deemed connected persons"
- **Unpublished price sensitive information (UPSI):** any information relating to securities of a company that is not generally available and, upon being available, is likely to materially affect the price of the company's securities.

It includes matters such as financial results, dividends, changes in capital structure, significant corporate transactions and changes in key managerial personal.

Examples of Insider Trading:

The CEO of a company shares important information about the acquisition of his company to a friend who owns a substantial shareholding in the company. The friend acts upon the information and sells all his shares before the information is made public.A high-level employee overhears some conversation about a merger and understands its market impact and consequently buys the shares of the company in his father's account.

Examples of Price Sensitive Information

- Financial results of the company.
- Intended declaration of Dividends.
- Issue of shares by way of public rights, bonus, etc
- Any major expansion plans or execution of new projects.
- Amalgamation, mergers and takeovers.

Reasons to control Insider Trading

To protect general investors:

- The manipulation of market by using Insider trading generally causes great losses to a company

To protect the interest and reputation of the company:

- Once a company faces a problem of Insider Trading, investors tend to lose confidence in the company and stop investing in the company.

To maintain confidence in the stock exchange operations:

- If any Insider gets a chance to get past the laws, it decreases the investors' confidence in the stock exchange operations itself.

To maintain public confidence in the financial system:

- To have a healthy economy, a proper financial system is a must and for that, confidence in the market is of utmost importance.

Penalties in case of Insider Trading

SEBI may impose a penalty of not more than Rs. 25 Crores or three times the amount of profit made out of Insider Trading; whichever is higher.SEBI may initiate criminal prosecution; or SEBI may issue order declaring transactions in Securities based on unpublished price sensitive information; or SEBI may issue orders prohibiting an insider or refraining an insider from dealing in the securities of the company.

Insider Trading & Corporate Governance

Insider trading has many governance implications, affecting:

- The organization of companies.
- The duties of directors of managing boards and supervisory boards and other corporate insiders.
- The permitted flow of information within companies.
- The disclosure duties imposed to companies.
- The main problem in insider trading is conflict of interests and the misuse of power –in this case it relates to the power over privileged information.
- Therefore, there is a strong connection between corporate governance and insider trading.

Mechanism to Prevent Insider Trading

The Securities and Exchange Board of India (SEBI) has prescribed internal controls on sharing of information.

- It has decided to hold company promoters, irrespective of their shareholding status, responsible for violation of insider trading norms if they possess unpublished price-sensitive information (UPSI) regarding the company without any 'legitimate' purpose.
- SEBI has specified that the term "legitimate purpose" will include sharing of the UPSI in the ordinary course of business by an insider with:
- Partners, collaborators, lenders, customers, suppliers, merchant bankers, legal advisors, auditors, insolvency professionals or other advisors or consultants, provided that such sharing has not been carried out to evade or circumvent the prohibitions of these regulations.
- Simply put, a promoter who is not an advisor in official capacity or does not hold any position on the board will not be considered a person having "legitimate purpose" to hold the UPSI.
- It has recommended that the board of directors shall ensure that a structured digital database is maintained containing the names of such persons or entities, as the case may be, with whom the information is shared.

Lessons from Corporate Failure

"Strong corporate governance is indispensable to resilient and vibrant capital markets and is an important instrument of investor protection. It is the blood that fills the veins of transparent corporate disclosure and high-quality accounting practices. It is the muscle that moves a viable and accessible financial reporting structure."Report of Kumar Mangalam Birla Committee on Corporate Governance constituted by SEBI (1999). Recently, many large Indian companies were impacted due to Corporate Governance failure like:

- Jet Airways (India) Limited

- Interglobe Aviation Limited (Indigo)
- Yes Bank Limited
- Dewan Housing Finance Corporation Limited (DHFL)
- Punjab and Maharashtra Co-operative Bank Limited

1. Jet airways (India) limited

About Company:

- Jet Airways was one of the largest airlines in India, Headquartered in Mumbai.
- Mr. Naresh Goyal is the Founder of Jet Airways.

Issue

- Company became a highly debt-ridden.
- Lenders denied to release further funds to keep carrier flying due to continues increase in debt level.
- Consequently, Jet Airways closed reservations to international services, from April 2019 and suspended all operations citing financial issues.
- Moreover, it has left approx. 20,000 employees.

Reasons for failure:

Mismanagement:

- Heavy losses and increase in debt of the company due to the poor decision making and management of company.
- Board of directors could not contribute to operating and financing decisions as the decision of the company lacked transparency.

High Costs: Purchasing Jets at high cost.

- Ignoring advice of the experts.

Positioning:

- Jet Airways catered to the corporates and failed to recognise that other low-cost carriers were attracting price sensitive customers.

Failure to get money from investors:

- Failure to find a strategic investor to pump money in to Jet Airways is another reason the failure.

2. Yes Bank Limited

About Company:

- Founded in the year 2004, Yes Bank Limited is an Indian private sector bank, founded by Rana Kapoor and Ashok Kapur.
- India's fourth largest private sector bank.
- High quality, customer centric and service driven Bank.

Issue

- In the year 2015, RBI conducted an asset quality review to check and clean up the rising toxic loan problem in the country's financial sector.

- Several banks were asked to report loan divergences (the difference between the RBI's assessment of bad loans and the one reported by the bank) in their quarterly results.
- Yes Bank Ltd had managed to keep a check on its non-performing assets (NPAs).
- RBI found out some serious issues related to loan divergence and NPAs at Yes Bank Ltd, during the AQR review in 2015.

Reasons for failure:

- Yes Bank consistently showed NPAs below 2%.
- The gross NPAs reported by the bank in Financial Year 2016 were at Rs. 748.98 Crores.
- It turned out that the NPAs identified by RBI were at Rs. 4925.68 Crores.
- A 557% higher NPA was observed during the AQR review with respect to actual reported.
- The Gross NPA % disclosed by Yes Bank as on March 2016 stood at 0.76%.
- This Gross NPA actually should have been at 5.01% as per RBI observations.
- RBI also observed very astounding deviation of 1166% for Net NPAs.
- The Net NPA % disclosed by Yes Bank was at 0.29% for Mar 2016, which according to RBI should have been 3.67%.
- After AQR review, RBI detected a large deviation of Rs. 4,176 crore in the reported gross NPAs in the books of accounts of Yes Bank for 2015-16.
- RBI detected gross NPAs at Rs. 8,373.8 crore for Yes Bank for 2016-17 against the declared gross NPAs at Rs. 2,018 crore.
- RBI has considered this as the governance and compliance failures and violations of statutory and regulatory rules at Yes Bank Ltd.

3. Interglobe Aviation Limited

About the company:

- Interglobe Aviation Limited is one of the largest Indian Airline Company, headquartered in Gurgaon, Haryana, India.
- It was founded by Rakesh Gangwal and Rahul Bhatia in 2006.

Issue:

- Rakesh Gangwal alleged serious governance lapses by its co-founder Rahul Bhatia.
- Rahul Bhatia had denied about any such governance failures.
- Gangwal reach out to Securities Exchange Board of India for its intervention.
- Gangwal further alleged that the Company is not adequately following core principles and values of governance.
- Gangwal also questioned certain related party transactions and said that the Shareholder's Agreement provides Rahul Bhatia controlling rights over Indigo.

Reasons for failure:

- The Company did not follow due process for Related Party Transaction approvals and other Corporate Governance measures.

Summary

- Corporate governance is a system of rules, policies, and practices that dictate how a company's board of directors manages and oversees the operations of a company. Corporate governance includes principles of transparency, accountability, and security. It is the

interaction between various participants (Shareholder, Board of Director and Company Management) in shaping corporation's performance. It deals with determining ways to take effective strategic decisions and developed added value to the stakeholder.

- Principles in Corporate Governance:
  - Protection of shareholders rights
  - Interests of other stakeholders
  - Role and responsibilities of the board
  - Responsible and ethical behavior
  - Disclosure and transparency in reporting
- Regulatory framework in India and mandates
  - In recognition of the importance of corporate governance as an integral part of corporate financial practices, the SEBI has mandated corporate governance in the listing requirement in Clause 49 of the Listing Agreement. The main elements of this clause relate to:
  - Board of Directors
  - Audit Committee
  - Subsidiary Companies
  - CEO/CFO Certification
  - Report on Corporate Governance
  - Compliance
- There are mainly four theories of corporate governance.
  - The Agency Theory
  - The Stewardship Theory
  - The Stakeholder Theory
  - The Political Theory

- The Companies Act, 2013 and SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 contain broad provisions on Board Evaluation:
  - The Board as a whole.
  - Individual directors (including independent directors and Chairperson).
  - Various Committees of the Board.
- Succession planning or replacement planning is a strategy for passing on leadership roles to an employee or group of employees. It ensures that businesses continue to run smoothly after a company's most important people move on to new opportunities, retire, or pass away.
- The main difference between Career planning and succession planning is that career planning covers all levels of employees.Whereas,Succession planning is generally meant for higher-level executives.Succession planning is essential for the survival and success of an organization.It provides opportunities to the existing potential employees to advance their careers. While creating a succession plan, every key executive is asked to identify few employees at junior levels who have the potential to replace them when needed.
- Insider trading is dealing in securities of a listed company by any person who has knowledge of material inside information which is not available to general public. It is breach of a fiduciary duty or other relationship of trust, and confidence. It is a crime if made to get wrongful gain or avoid losses. An example of an insider may be a corporate executive who has access to a financial report before it is publicly released.

Keywords

Corporate Governance, Succession Planning, Insider Trading, Board evaluation, Directors evaluation

Self Assessment

1. Corporate governance is a form of

A. external regulation
B. self-regulation
C. government control
D. charitable action

2. Which of the following is/are feature of corporate governance?

A. Non-universality
B. Accountability
C. Ambiguity
D. None of the above

3. Corporate governance is a approach

A. Top-down
B. Bottom-up
C. Hybrid
D. Scientific

4. Which among the following is the role of board of directors?

A. manage inventory
B. understanding human behavior
C. budgeting
D. Overseas strategy implementation and performance

5. Persons who take the procedural steps to set up a company and who make business preparations for the company are known as

A. directors
B. shareholders
C. registrars
D. promoters

6. Under the_____, both internal and external corporate governance mechanism intended to induce managerial actions that maximize profit and shareholder value

A. Shareholder theory
B. Agency theory
C. Stakeholder theory
D. Corporate governance theory

7. The corporate governance structure of a company reflects the individual companies

A. Cultural & economic system
B. Legal & business system
C. Social & regulatory system
D. All of the above

8. CEO stands for

A. Chief Executive Officer

B. Chief External Officer
C. Chief Environmental Officer
D. Current Executive Officer

9. Which of the following is a true statement related to corporate governance?

A. It refers to the manner in which an entity is managed and governed.
B. It excludes entity management.
C. It requires entities to have a board of directors.
D. It is a uniquely distinct concept from those charged with governance.

10. Section 173 of Companies Act deals with meetings of the board

A. 2013
B. 2015
C. 2011
D. 2009

11. _____ is the ongoing process of identifying future leaders in an organisation

A. Career Planning
B. Man Power Planning
C. Succession Planning
D. Staffing

12. Succession Planning is developing employees in a structured plan to _____

A. Replace Leaders
B. Replace Management
C. Support Leaders
D. Support Management

13. The process of succession planning doesn't include

A. Studying current workforce
B. Focusing only on talented employee
C. Forecasting future trend
D. Review Organization strategic plan

14. To be successful Succession planning must be a part of

A. HR process
B. Career planning process
C. Man power planning process
D. Organisation planning process

15. A proper succession planning must ideally first identify _____

A. Critical Position
B. High talents
C. Proper person to be trained
D. Skills to be developed

16. Kingfisher airlines is owned by the Bengaluru based

A. United Breweries Group
B. Quick Jet
C. Menzies Aviation Bobba
D. Star Air

17. Satyam Computers Services Limited was the first India company to publish its financial statements by following

A. Indian Accounting Standards (AS 32)
B. Interim Financial Reporting
C. International Financial Reporting Standards
D. Indian Accounting Standards (AS 36)

18. PNB scam was done by

A. Nirav Modi
B. Vijay Malya
C. Satyam
D. Harshad Mehta

19. Which of the following is insider trading?

A. You sell your company's stock because you know it is about to announce poor earnings
B. Your company starts supplying parts for a customer's secret major product, so you buy the client's stock
C. You dump a company's shares after your broker confidentially tells you the CEO at that company just sold stock, but the sale has not yet been publicly reported
D. All of the above

20. _____ trading occurs when a company employee or company advisor uses material non-public information to make a profit by trading in the securities of the company.

A. Interior
B. Intra-office
C. Insider
D. Inter-office

Answers for Self Assessment

1.	B	2.	B	3.	A	4.	D	5.	D
6.	C	7.	D	8.	A	9.	A	10.	A
11.	C	12.	A	13.	B	14.	A	15.	A
16.	A	17.	C	18.	A	19.	D	20.	C

Review Questions

1. Discuss Corporate Governance and its principles.
2. Explain the steps involved in Succession Planning.
3. Discussion Insider Trading with example.
4. Briefly explain the points in the evaluation of performance of board of Directors.
5. Briefly explain the points to be considered in the evaluation of performance of individual directors.

Further Readings

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Unit 14: Economic outlook and Business Valuation

CONTENTS

Objectives

After studying this unit, you will be able to:

- explain the business environment.
- understand the approaches of Corporate Valuation.
- discuss the Impact of Changing Business environment on Corporate Valuation.
- explain business sustainability.
- understand ESG criteria.
- analyse the link between ESG factors and corporate valuation.

Introduction

Business environment is dynamic in nature and it directly affect the business performance. Hence it becomes important to analyze how the changing business environment is affecting the corporate valuation. Hence, now we will discuss about the impact of changing environment on corporate valuation. We will also cover how climate change and other sustainability issues are impacting valuation of the companies. Role of each pillar of sustainability viz. Social, Environmental and Governance (ESG) issues will also be discussed in this chapter.

14.1 Business Environment: Meaning

Business environment refers to the sum total of all individuals, institutions and other forces that are outside the control of a business enterprise, but that may affect its performance. The economic, social, political, technological and other forces which operate outside a business enterprise are part of the business environment. Moreover, the individual consumers or competing enterprises as well as the governments, consumer groups, competitors, courts, media and other institutions working outside an enterprise constitute its environment.

 *Examples:*

- Increase in taxes can make things expensive to buy.
- Technological improvements may make existing products obsolete.
- Political uncertainty may create fear in the minds of investors.
- Changes in fashions may shift demand in the market.
- Increased competition may reduce profit margins of firms.

14.2 Dimensions of Business Environment

Business environment is an umbrella term which consists of several types of environments such as Economic, Social, Technological, Political and legal environment. Let's discuss each of these environments one by one.

Economic Environment

Economic environment consists of the factors such as interest rates, inflation rates, changes in disposable income of people, stock market indices and the value of currency. These factors have a direct impact on the management of the business firm. Short- term and long-term interest rates significantly affect the demand for product and services whereas, a rise in the disposable income of people creates increasing demand for products.Similarly, high inflation rates increase the costs of business.

Social Environment

This type of environment includes forces like customs, traditions, values, social trends, society's expectations from business.In business terms, the values mean freedom of choice in the market, business's responsibility towards the society and non-discriminatory employment practices.Social trends present various opportunities and threats to business enterprises. For example, the health- and fitness trend has become popular which is affecting many businesses.

Technological Environment

Technological Environment includes forces relating to innovations which provide new ways of producing goods and services. For e.g. There are modifications in the ways in which companies advertise their products.Manufacturers also have flexible manufacturing systems. Customers can look for flight times, destinations and fares and book their tickets online.

Political Environment

This type of environment includes political conditions such as general stability and peace in the country and the specific attitudes that elected government representatives hold towards business. The significance of political conditions in business success lies in the predictability of business activities under stable political conditions. On the other hand, there may be uncertainty of business activities due to political unrest and threats to law and order.

Legal Environment

It includes various legislations passed by the Government, administrative orders issued by government authorities, court judgments as well as the decisions rendered by various commissions and agencies at every level of the government.It is mandatory for the management of every enterprise to obey the law of the land.For e.g.,packets of cigarettes carry the statutory warning 'Cigarette smoking is injurious to health'.

14.3 Corporate Valuation

After the discussion on the types of business environments, let us now discuss the term corporate valuation. A business valuation is a general process of determining the economic value of a business. Business valuation can be used to determine the fair value of a business for reasons like purchase or sale of business, Secure external financing or adding new shareholders.

14.4 Corporate Valuation Approaches

There are three types of approaches or ways through which we can quantify the business valuation.

a) Asset-based approaches
b) Earning value approaches
c) Market value approaches

a) Asset-Based Approaches

Asset based approach will total up all the investments in the company. It can be done in one of two ways:

- A going concern asset-based approach lists the business's total assets, and subtracts its total liabilities (Book value).
- A liquidation asset-based approach determines the net cash that would be received if all assets were sold and liabilities paid off.

Imagine that Company A had Rs. 1,000 Crores in assets and Rs. 300 Crores in liabilities. Using going concern approach, you would subtract liabilities from assets to arrive at the company's value. In this case, the value would be Rs. 700 Crores.Using the liquidation asset-based approach, you would take the company's assets and see what price you could receive if you sold everything. If your balance sheet shows Rs. 1,000 Crores in assets, but you could only sell the assets for Rs. 900 Crores, then the value of the company would be Rs. 600 Crores.

b) Earning value approaches

An earning value approach is based on the idea that a business's value lies in its ability to produce wealth in the future.Capitalizing earnings determines an expected level of income for the company using a company's record of past earnings, normalizes them for unusual revenue or expenses, and divides the annual income by a capitalization rate.If a business had an income of Rs. 1 crore last year and the average capitalization rate in the industry is 5%, you could estimate value by dividing Rs. 1 crore by 5%. The resulting value would be Rs. 20 crores.

Another earning value method involves discounting future earnings instead of working with past earnings. To use this approach, you would first project the company's cash flows coming years. Then you would calculate what is called the "terminal value" of the company, which is the value of the company beyond the forecasted period of earnings. Once you have the estimated cash flows and the terminal value, you would discount those values back to the current day using an appropriate discount rate for the company.

c) Market Value Approach

Market value approaches to business valuation attempt to establish the value of a business by comparing the company to similar ones that have recently sold. The idea is similar to using real estate comparable, to value a house.

14.5 Factors Affecting Valuation

The valuation of a company is affected by several factors. The valuation of a company will be determined by a combination of factors such as:

i. Historical financial performance:

This factor takes into consideration the financial performance of the company in the last few years. During the business sales process, the buyer will look at profit and loss statements, balance sheets, and tax returns.

ii. Future growth potential

The firm's future growth potential is also an important factor. It includes the questions like how much a buyer can grow the company and What are the key trends affecting the industry? And also, how much will be the revenues and profits in the future, and why?

iii. Size of customer base

The size of the customer base is an indication of the amount of diversification, and therefore an indication of risk. A customer base that is well diversified and large in number would lower the perceived risks in the minds of buyers.

iv. Dependence on owner

The owners of most small businesses do not intend to stay with the business after the sale. For small business sales, the less dependent the business is on the owner, the higher the business valuation can be.

v. Competitive advantages

A business location in a high-traffic area may give the company a competitive advantage; this location will be of greater value in a sale than a business location in a lower-traffic area.

14.6 Changes in the Business Environment

The changes in the business environment are happening due to the following reasons mainly:

- Rapidly changing technology.
- Increasing purchasing power of customers.
- Greater access to capital.
- Effects of Globalization.
- Political factors.

Metrics for Business Impact

We can quantify the impact of the changing business environment on the corporate valuation through the following measures:

- Effect on the market share
- Number of markets in which a firm participates
- Number of new markets
- Sales growth
- Size of the average sale

14.7 Impact of changes in Business Environment on Valuation

Changes in business environment mainly causes the following effect on the business firm. They may lead to the following results in a firm:

- Changes in Growth rate.
- Changes in Risk Class.
- Change in future Cash flows.
- Change in the Cost of Capital.

Climate Change

Currently, climate change is the most pressing issue in the entire world. It refers to the long-term shifts in the earth's weather patterns that can be caused by natural phenomena or human activity. The term is used to mean rising average global temperatures caused by the concentration of greenhouse gas emissions.

Risks created by climate change includes acute changes to the environment such as extreme heat and storms, wildfires and sea-level rise, desertification and changes in precipitation patterns. Climate change also gives rise to transition risks as a result of the actions needed by governments and consumers to mitigate climate change. Both these risks have the potential to disrupt business operations and impact a company's revenues, costs, risk profile and ultimately its value.

Impact on corporate valuation

From the corporate point of view, climate change is an important issue as it can significantly affect the business performance. Climate change risks and opportunities can impact revenues, costs and risk profiles of companies as well as investment attractiveness. The value of a company is defined by the present value of the stream of cash flows that can be produced in the future taking into account the size of the cash flows, their timing and the risk associated with achieving them. There is an inherent uncertainty as to the exact impact the climate change will have on a business's financial projections and future cash flows and how this needs to be considered in the company's valuation. Let's discuss the probable impact of the climate change on the following sectors:

Building and Construction

This sector gets affected by the rises in energy prices.Moreover, it could come under increasing consumer pressure to reduce waste generated during construction.Economic development in emerging economies can translate into substantial demand for new, greener housing and infrastructure.

Chemicals

Chemical sector will face increasing consumer pressure to be more water-efficient, and to better manage emissions of chemical waste. Demand is set to rise for chemicals used in high-performance insulation, energy-efficient lighting, renewable energy technologies.

Power

Global electricity demand is increasing, hence, the coal's global share of total power generation is expected to decrease, while renewables are set to increase. The 'decarbonization' of electricity will present opportunities for the sector to advance renewable energy technologies.

Extractives

The operational costs of this sector are increasing. The legislation to extend protected areas that support marine and terrestrial biodiversity may limit the extractive areas.Whereas, the opportunities may come through an increased demand for certain minerals and metals used in renewable energy and energy efficiency technologies.

Finance

The property and casualty insurers will likely see increasing claims due to severe weather. On the other hand, the capital needed to address climate change will result in a greatly-expanded market for financing.Financial institutions will need to enhance coordination with the scientific community to ensure access to environmental data and analysis.

Food and Beverage

High levels of water usage and heavy reliance on ecosystem services render this sector especially vulnerable to environmental change. As the markets for organic food and beverages is increasing, companies certified as sustainable food producers can also tap into growing customer demand.

Healthcare

Biodiversity loss will limit the discovery of natural compounds used in new medicines.Approximately one fourth of the global disease burden can be attributed to environmental factors and the demand for healthcare services could rise further.

Information and Communication Technology (ICT)

ICT companies' operating costs will rise due to the increases in energy prices. Concerns about the environmental impacts of the sourcing of key materials in developing countries may lead to increasing consumer and regulatory pressure on the industry.

Tourism

Extreme weather events, impacts of climate change, water scarcity, and declining biodiversity can make particular destinations more or less attractive.Demand is set to grow globally, especially the market for nature-based tourism and eco-tourism.

Transport

Regulations to reduce greenhouse gas emissions can increase costs.Complying with regulations to reduce levels of air pollution could also add to operational costs.Demand for cleaner transportation options will rise.

14.8 Impact on Valuation

Climate change and business valuations are directly linked. When determining the value of a business, one must consider all the risks and opportunities, of which climate change is one. Climate change will have significant and lasting impacts on the economic growth and prosperity. It is a defining factor in companies' long-term prospects because of its effect on cash flow assumptions, terminal values and exit values. These factors make it a business risk and a mainstream business issue. Let's discuss the impact of climate change in each of these factors:

i. Operating Costs

For many companies, climate risks are substantive financial risks because they have a direct impact on the production and distribution of their goods and services.Global efforts to reduce carbon emissions will place different levels of stress on the cash flows and valuations of businesses in different industries.

ii. Influencing Cashflows

Anticipating impact on prices, cost and demand.Responding quickly to shifts in demand orregulatory changes.Positioning to capitalize on new opportunities and or increase brand value and brand power.Outperforming against peers and improved long-term returns.

iii. Investment decisions

Investors are understanding how physical risks as well as the ways climate policy, technology and changing consumer preferences will impact prices, costs and demand across the entire economy.This concern is leading to a reassessment of risk and asset values as climate change considerations become part of investment decisions.

Influencing Discount rate

Reduced degree of exposure to physical and transition risks.Increased attractiveness to investors.Reduced exposure to geopolitical risk.Reduced share volatility.

Financing decisions

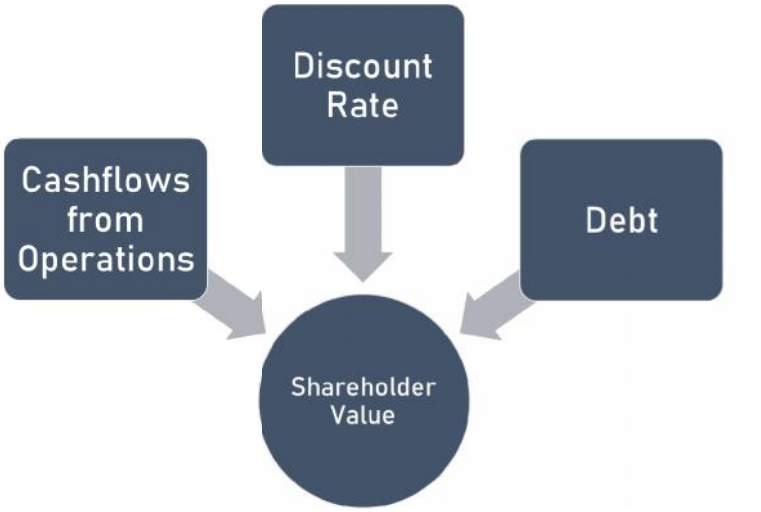
Climate risk is also a systemic risk. Central banks and other supervisory authorities are nowconsidering climate change as a risk to financial stability. Some of the biggest risks of climate change will be social instability, mass migration and health impacts brought on by physical climate impacts.

Influencing Capital Structure

Reduced cost of financing.Increased availability of financing and leverage.

Affecting Shareholder Value:

Climate change issues affects the shareholder value through the changes in the cashflows from operations, discount rate and the debt levels.



14.9 Sustainability

Sustainability is the ability to exist and develop without depleting natural resources for the future.The United Nations defined sustainable development as: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Resources are limited, and should be used conservatively and carefully to ensure that there is enough for future generations, without decreasing present quality of life. A sustainable society must be socially responsible, focusing on environmental protection and dynamic equilibrium in human and natural systems.

Importance of Sustainability

The sustainability has emerged as the most important factor for the business in the recent past due to the following reasons:

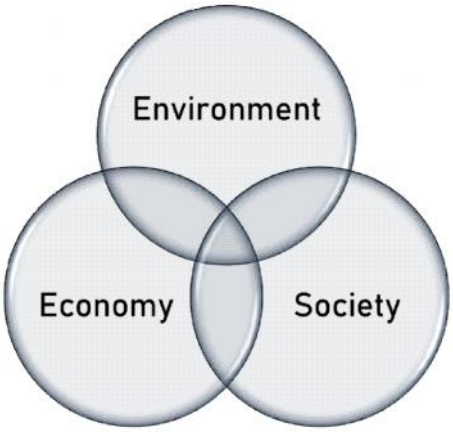
- It improves trust and engagement between staff, investors, customers and other stakeholders.
- It helps in attracting and retaining employees.
- It helps in building credibility and improves relationships.
- It encouragesinnovation that benefits other measurements.

Examples of Sustainability Practices:

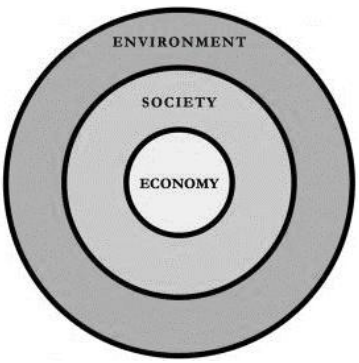
Recently, Nike has focused on reducing waste and minimizing its footprint.Adidas has created a greener supply chain and targeted specific issues like dyeing and eliminating plastic bags.Pepsi and Coca-Cola have increasing focus on water stewardship and setting targets on water replenishment.Unilever and Nestlé have both taken on major commitments.Unilever notably on organic palm oil and its overall waste and resource footprint.Nestlé in areas such as product life cycle, climate, water efficiency and waste.

14.10 Pillars of Sustainability

There are mainly three pillars of Sustainability namely, Economy and Society and the Environment.



Sustainability can be depicted using three concentric circles. It is also referred to as Triple Bottom Line.



Environmental Protection

It includes points such as reduction of carbon footprints, water usage, non-decomposable packaging, and wasteful processes as part of a supply chain. These processes can often be cost-effective, and financially useful as well as important for environmental sustainability.

Social Development

The points under this pillar are: Treating employees fairly and ensuring responsible, ethical, and sustainable treatment of employees, stakeholders, and the community in which a business operates. Involves fairly-paid, adult employees who can operate in a safe environment.

Economic Development

This includes factors such as: To be economically sustainable, a business must be profitable and produce enough revenues to be continued into the future. Rather than making money at any cost, companies should attempt to generate profit in accordance with other elements of sustainability.

Measuring Sustainability

Sustainability is measured by assessing performance of the three main principles altogether.Although, there is no universal measurement of sustainability exists, many organizations are developing industry-specific tools and practices.

How does Sustainability affect Business?

Sustainability enables an organization to attract employees, shareholders and customers who are invested in the goals of sustainability and share these values.The sustainability can have positive impact on a business' image as well as revenue.Investors, customers and employees are demanding that businesses have a positive impact on the environment and society.

Value Drivers

Sustainable business activities may positively impact one or more of the value drivers and in turn enhance business value. Value drivers refers to any factor that can be measured and controlled and, in turn, affects the value of the business. The value drivers can be:

- Cost Saving
- Talent Attraction and Retention
- Brand And Reputation
- Customer Attraction and Retention
- License to operate
- Access to capital
- Productivity

Theories of Sustainability and Value

There are two conflicting theories of sustainability and the firm value. Value creating theory and the value destroying theory. The value-creating theory predicts that integration of ESG factors into corporate strategies reduces firm risk and promotes long-term value creation. Whereas, the value-destroying theory predicts that social responsibility may impair opportunities to maximize the profit that are not in the best interest of shareholders.

14.11 ESG Factors

ESG stands for Environmental, Social and Governance factors.It refers to the three key factors when measuring the sustainability and ethical impact of an investment in a company. Most socially responsible investors check companies out using ESG criteria to screen investments.

a. Environmental criteria

Examines how a business performs as a steward of our natural environment. It focuses on:

- Waste and pollution
- Resource depletion
- Greenhouse gas emission
- Deforestation
- Climate change

b. Social criteria

Looks at how the company is governed. It focuses on:

- Tax strategy
- Executive remuneration
- Donations and political lobbying
- Corruption and bribery
- Board diversity and structure

c. Governance criteria

Looks at how the company is governed. It focuses on:

- Tax strategy
- Executive remuneration
- Donations and political lobbying
- Corruption and bribery
- Board diversity and structure

ESG links to cash flow in five important ways due to the following reasons:

i. It helps in facilitating top-line growth.
ii. It helps in reducing costs.
iii. Helps in minimizing regulatory and legal interventions.
iv. Leads to increasing employee productivity.
v. Helps in optimizing investment and capital expenditures.

i. Top-line Growth

A strong ESG proposition helps companies tap new markets and expand into existing ones. When governing authorities trust corporate actors, they are more likely to award them the access, approvals, and licenses that afford fresh opportunities for growth.

ii. Cost Reductions

Executing ESG effectively can help combat rising operating expenses which can affect operating profits due to:

- Lower energy consumption
- Reduce water intake

iii. Reduced regulatory and legal interventions

Helps reduce companies' risk of adverse government action. It also helps to achieve greater strategic freedom through deregulation and earn subsidies and government support.

iv. Employee productivity uplift

A strong ESG proposition can help companies attract and retain quality employees.It also helps in enhancing employee motivation by instilling a sense of purpose and thus, increasing the productivity overall. Employee satisfaction is positively correlated with shareholder returns.

v. Investment and asset optimization

A strong ESG proposition can enhance investment returns by allocating capital to more promising and more sustainable opportunities. It also leads to avoid investments that may not pay off because of longer-term environmental issues.

Conclusion

Various studies have shown that there is a positive impact of sustainability and ESG factors on the firm's Value. ESG factors helps in business growth, reducing the costs, minimizing regulatory and legal interventions, increasing employee productivity and optimizing investment and capital expenditures.All these factors in turn, affect the value of the corporation.

Summary

- Business environment refers to the sum total of all individuals, institutions and other forces that are outside the control of a business enterprise, but that may affect its performance. The economic, social, political, technological and other forces which operate outside a business enterprise are part of the business environment. Moreover, the individual consumers or competing enterprises as well as the governments, consumer groups, competitors, courts, media and other institutions working outside an enterprise constitute its environment.
- Business environment is an umbrella term which consists of several types of environments such as Economic, Social, Technological, Political and legal environment.
- A business valuation is a general process of determining the economic value of a business. Business valuation can be used to determine the fair value of a business for reasons like purchase or sale of business, Secure external financing or adding new shareholders.
- There are three types of approaches or ways through which we can quantify the business valuation.
    - Asset-based approaches
    - Earning value approaches
    - Market value approaches
- The valuation of a company is affected by several factors. Historical financial performance, Future growth potential, Size of customer base, Dependence on owner, Competitive advantages
- The changes in the business environment are happening due to the following reasons mainly: Rapidly changing technology, Increasing purchasing power of customers, Greater access to capital, Effects of Globalization, Political factors.
- Changes in business environment mainly causes the following effect on the business firm. They may lead to the following results in a firm:
    - Changes in Growth rate.
    - Changes in Risk Class.
    - Change in future Cash flows.
    - Change in the Cost of Capital.
- Currently, climate change is the most pressing issue in the entire world. It refers to the long-term shifts in the earth's weather patterns that can be caused by natural phenomena or human activity. The term is used to mean rising average global temperatures caused by the concentration of greenhouse gas emissions.

- Climate change risks and opportunities can impact revenues, costs and risk profiles of companies as well as investment attractiveness. The value of a company is defined by the present value of the stream of cash flows that can be produced in the future taking into account the size of the cash flows, their timing and the risk associated with achieving them.
- Climate change will have significant and lasting impacts on the economic growth and prosperity. It is a defining factor in companies' long-term prospects because of its effect on cash flow assumptions, terminal values and exit values. These factors make it a business risk and a mainstream business issue.
- Sustainability is the ability to exist and develop without depleting natural resources for the future.A sustainable society must be socially responsible, focusing on environmental protection and dynamic equilibrium in human and natural systems.
- There are mainly three pillars of Sustainability namely, Economy and Society and the Environment. Sustainability can be depicted using three concentric circles. It is also referred to as Triple Bottom Line.
- Sustainability enables an organization to attract employees, shareholders and customers who are invested in the goals of sustainability and share these values. The sustainability can have positive impact on a business' image as well as revenue. Investors, customers and employees are demanding that businesses have a positive impact on the environment and society.
- There are two conflicting theories of sustainability and the firm value. Value creating theory and the value destroying theory. The value-creating theory predicts that integration of ESG factors into corporate strategies reduces firm risk and promotes long-term value creation. Whereas, the value-destroying theory predicts that social responsibility may impair opportunities to maximize the profit that are not in the best interest of shareholders.
- ESG stands for Environmental, Social and Governance factors. It refers to the three key factors when measuring the sustainability and ethical impact of an investment in a company. Most socially responsible investors check companies out using ESG criteria to screen investments.

Keywords

Business environment, ESG, Climate change, Sustainability, Corporate Valuation, Value drivers,

SelfAssessment

1. Corporate wealth maximization is the value maximization for_____

A. Equity shareholders
B. Stakeholders
C. Employees
D. Debt capital owners

2. Which of the following are the dimensions of the business environment:

A. Economic & Social
B. Technological & Economic

C. Legal & Social
D. All of the above

3. Which of the following are the impact of govt. policy changes on business & industry?

A. Increased competition
B. Need for change
C. Demanding customers
D. All of the above

4. Which of the following is not a component of specific forces of business environment?

A. Technological conditions
B. Customers
C. Employees
D. Investors

5. _____ are generally considered as controllable factors.

A. Internal factors
B. External factors
C. Cost of production
D. None of these

6. What does ESG stand for?

A. Environmental, sustainable, green
B. Ethical, social, goals-based
C. Environmental, social, governance
D. None of the above

7. ESG links to cash flow in five important ways:

A. Facilitating top-line growth.
B. Reducing costs.
C. Minimizing regulatory and legal interventions.
D. All of the above

8. Which of the following options is not incorporated as sustainable development parameters?

A. Gender disparity and diversity
B. Inter and intra-generational equity
C. Carrying capacity
D. None of the above

9. Modern concept of sustainable development focuses more on

A. economic development

B. social development
C. environmental protection
D. all of the above

10. The advantages of business sustainability are:

A. Improves trust and engagement between staff, investors, customers and other stakeholders.
B. Attracts and retains employees.
C. Builds credibility and improves relationships.
D. All of the above

11. CSR stands for

A. Corporate Search and Rescue
B. Corporate Social Responsibility
C. Corporate Sensitive Reliability
D. Corporate Social Reality

12. The stakeholder view of social responsibility states that organizations must respond to the needs of

A. employees and customers
B. shareholders and owners
C. all interested parties
D. all those who might sue the organisation

13. A socially responsible mutual fund will only purchase stocks in companies that

A. A. have a no-smoking policy in place
B. B. have a culturally diverse management team
C. C. hire some job candidates who are HIV positive
D. D. have good social performance.

14. Why, according to stakeholder theory, is it in companies' best interests to pay attention to their stakeholders?

A. If firms only act in their own self-interest employees may feel exploited
B. If firms only act in their own self-interest government might put more regulation on them
C. If firms only act in their own self-interest customers might not like the image that the company portray
D. If firms only act in their own self-interest and inflict harm on stakeholders then society might withdraw its support

15. What is the triple bottom line?

A. An accounting tool that looks at the impact on people, planet and profits
B. A management strategy which states all the attention should be on profits
C. An accounting tool that looks at cost, profit and loss
D. A management strategy which focuses on corporate social responsibility

Answers for Self Assessment

1.	A	2.	D	3.	D	4.	A	5.	A
6.	C	7.	D	8.	D	9.	D	10.	D

11. B 12. C 13. D 14. D 15. A

Review Questions

1. Analyze the impact of climate change on the corporate valuation
2. List the different types of business environments
3. Explain the concept of sustainability. List the three pillars of sustainability.
4. Discuss in brief the various value drivers in the context of business firm
5. Explain the concept of ESG. List the points to be considered under each of its component.

Further Readings

1. https://corporatefinanceinstitute.com/resources/knowledge/other/esg-environmental-social-governance/
2. https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp
3. https://www.cfainstitute.org/en/research/esg-investing

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