

PONDICHERRY UNIVERSITY

(A Central University)

DIRECTORATE OF DISTANCE EDUCATION

MASTER OF COMMERCE



M.Com – First Year

Course Code: 59

Paper Code: MCOM1004

FINANCIAL MANAGEMENT

DDE – WHERE INNOVATION IS A WAY OF LIFE

PONDICHERRY UNIVERSITY

(A Central University)

DIRECTORATE OF DISTANCE EDUCATION

MASTER OF COMMERCE



M.Com – First Year

Course Code:59

Paper Code:MCOM1004

FINANCIAL MANAGEMENT

Financial Management

Authors:

Unit I & II Written by

Prof. Balachandran
Karaikudi University
Karaikudi.

Unit III & IV Written by

Dr. G. Raghavan
Professor of Finance
SDM Institute of Management Development
Mysore.

Unit V Written by

Dr. G. Shanmuga Sundaram
Associate Professor
Dept. of Commerce
Pondicherry University
Puducherry-605 014.

All rights reserved
For Private Circulation only

PAPER – IV FINANCIAL MANAGEMENT

UNIT I

Financial Management: Meaning - Nature and Scope of Finance - Financial Goal - Profit vs. Wealth Maximization; Finance Functions - Investment, Financing and Dividend decisions.

UNIT II

Capital Budgeting: Nature of Investment Decisions; Investment Evaluation Criteria - Net Present Value, Internal Rate of Return, Profitability Index, Payback Period, Accounting Rate of Return: NPV and IRR comparison; Capital Rationing; Risk Analysis in Capital Budgeting. Cost of Capital: Meaning and significance of Cost of Capital - Calculation of Cost of Debt, Preference Capital, Equity Capital and Retained Earnings - Combined Cost of Capital (weighted); Cost of Equity and CAPM;

UNIT III

Operating and Financial Leverage: Measurement of leverages; Effects of Operating and Financial Leverage on Profit; Analyzing Alternate Financial Plans; Combined Financial and Operating Leverage. Capital Structure Theories: Traditional and M.M. Hypotheses - without taxes and with taxes; Determining capital structure in practice.

UNIT IV

Dividend Policies: Issues in Dividend Decisions - Walter's model - Gordon's model - M-M hypothesis - Dividend and Uncertainty - Relevance of Dividend - Dividend Policy in Practice; Forms of Dividends - Stability in Dividend Policy - Corporate Dividend Behaviour.

UNIT V

Management of working Capital: Meaning, significance and types of Working Capital - Calculating Operating Cycle Period and Estimation of Working Capital Requirements - Financing of Working Capital and Norms of Bank Finance - Sources of Working Capital - Factoring services; various committee Reports on Bank Finance - Dimensions of Working Capital Management.

Note: Question Paper Shall covers 60% Theory and 40% Problems

REFERENCES:

Khan MY, Jain PK, BASIC FINANCIAL MANAGEMENT, *Tata McGraw Hill, Delhi, 2005.*

Chandra, Prasanna, FINANCIAL MANAGEMENT, *Tata McGraw Hill, Delhi.*

Bhabatosh Banerjee, FUNDAMENTALS OF FINANCIAL MANAGEMENT, *PHI, Delhi, 2010*

Chandra Bose D, FUNDAMENTALS OF FINANCIAL MANAGEMENT, *PHI, Delhi, 2010*

Preeti Singh, FUNDAMENTALS OF FINANCIAL MANAGEMENT, *Ane, 2011.*

TABLE OF CONTENTS	
Title	Page No.
Unit –I An Introduction	1-66
Unit –II Capital Budgeting-A Conceptual Framework	67-138
Unit-III Capital Structure Theories	139-187
Unit – IV Dividend Policies	188-233
Unit – V Working Capital Management	234-327

PAPER – VI : FINANCIAL MANAGEMENT

UNIT – I

LESSON – 1

FINANCE – AN INTRODUCTION

LESSON OUTLINE

- Significance
- Definition of Finance
- Functions of Finance
- Types of Finance
- Business Finance
- Direct Finance
- Indirect Finance
- Public Finance
- Private Finance
- Corporation Finance
- Finance in Relation to other Allied Disciplines

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand the significance and definition of finance
- Know the functions of finance
- Identify the different types of finance
- Describe this relationship between finance with other allied disciplines

Significance

Finance is the life blood of business. Before discussing the nature and scope of financial management, the meaning of 'finance' has to be explained. In fact, the term, finance has to be understood clearly as it has different meaning and interpretation in various context. The time and extent of the availability of finance in any organization indicates the health of a concern. Every organization, may it be a company, firm, college, school, bank or university requires finance for running day to day affairs. As every organization previews stiff competition, it requires finance not only for survival but also for strengthening themselves. Finance is said to be the circulatory system of the economy body, making possible the required cooperation between the innumerable units of activity.

Definition of Finance

According to F.W.Paish, Finance may be defined as the position of money at the time it is wanted.

In the words of John J. Hampton, the term finance can be defined as the management of the flows of money through an organization, whether it will be a corporation, school, bank or government agency.

According to Howard and Upton, "finance may be defined as that administrative area or set of administrative functions in an organization which relates with the arrangement of each and credit so that the organization may have the means to carry out the objectives as satisfactorily as possible.

In the words of Bonneville and Dewey, Financing consists in the raising, providing, managing of all the money, capital or funds of any kind to be used in connection with the business.

As put forth by Hurband and Dockery in his book 'Modern Corporation Finance', finance is defined as "an organism composed of a myriad of separate enterprise, each working for its own ends but simultaneously making a contribution to the system as a whole, some force is necessary to bring about direction and co-ordination. Something must direct the flow of economic activity and facilitate its smooth operation. Finance is the agent that produces this result".

The Encyclopedia Britannica defines finance as "the act of providing the means of payment." It is thus the financial aspect of corporate planning which may be described as the management of money.

An analysis of the aforesaid definition, makes it clear that finance directs the flow of economic activity and facilitates the smooth operation. Finance provides the required stimulus for continued business operations of all categories. Finance is essential for expansion, diversification, modernization, establishment, of new projects and so on. The financial policy of any organization to a greater extent, determines not only its existence, and survival but also the performance and success of that organization. Finance is required for investment, purposes as well as to meet substantial capital expenditure projects.

Functions of Finance

According to Paul G. Hasings, "finance" is the management of the monetary affairs of a company. It includes determining what has to be paid for and when, raising the money on the best terms available, and devoting the available funds

to the best uses. Kenneth Midgley and Ronald Burns state: "Financing is the process of organising the flow of funds so that a business can carry out its objectives in the most efficient manner and meet its obligations as they fall due."

Finance squeezes the most out of every available rupee. To get the best out of the available funds is the major task of finance, and the finance manager performs this task most effectively if he is to be successful. In the words of Mr.A.L.Kingshott, "Finance is the common denominator for a vast range of corporate objectives, and the major part of any corporate plan must be expressed in financial terms."

The description of finance may be applied to money management provided that the following three objectives are properly noted :

Many activities associated with finance such as saving, payment of things, giving or getting credit, do not necessarily require the use of money.

In the first place, the conduct of international trade has been facilitated. The development of the pecuniary unit in the various commercial nations has given rise to an international denominator of values. The pecuniary unit makes possible a fairly accurate directing of capital to those parts of the world where it will be most productive. Within any given country, the flow of capital from one region to another is guided in a similar manner.

The term 'finance' refers to the financial system in a rudimentary or traditional economy, that is, an economy in which the per capita output is low and declining over a period of time. The financial organisation in rudimentary finance is characterized by the absence of any financial instruments of the saving deficit units of their own which they can issue and attract savings. There will not be any inducement for higher savings by offering different kinds of financial assets to suit the varied interests and preferences of the investing

public. The other characteristic of such a financial system is that there are no markets where firms can compete for private savings.

Types of Finance

Business Finance: The term 'business finance' is very comprehensive. It implies finances of business activities. The term, 'business' can be categorized into three groups: commerce, industry and service. It is a process of raising, providing and managing of all the money to be used in connection with business activities.

It encompasses finance of sole proprietary organizations, partnership firms and corporate organizations. No doubt, the aforesaid organizations have different characteristics, features, distinct regulations and rules. And financial problems faced by them vary depending upon the nature of business and scale of operations. However, it should be remembered that the same principles of finance are applicable to large and small organizations, proprietary and non-proprietary organizations.

According to Guthmann & Dougall, business finance can be broadly defined as the activity concerned with planning, raising, controlling and administering of funds used in the business.

Business finance deals with a broad spectrum of the financial activities of a business firm. It refers to the raising and procurement of funds and their appropriate utilisation. It includes within its scope commercial finance, industrial finance, proprietary finance corporation finance and even agricultural finance.

The subject of business finance is much wider than that of corporation finance. However, since corporation finance forms the lion's share in the business activity, it is considered almost inter-changeable with business finance.

Business finance, apart from the financial environment and strategies of financial planning, covers detailed problems of company promotion, growth and pattern. These problems of the corporate sector go a long way in widening the horizon of business finance.

The finance manager has to assume the new responsibility of managing the total funds committed to total assets and allocating funds to individual assets in consonance with the overall objectives of the business enterprise.

Direct Finance

The term 'direct', as applied to the financial organisation, signifies that savings are effected directly from the saving-surplus units without the intervention of financial institutions such as investment companies, insurance companies, unit trusts, and so on.

Indirect Finance

The term 'indirect finance' refers to the flow of savings from the savers to the entrepreneurs through intermediary financial institutions such as investment companies, unit trusts and insurance companies, and so on.

Finance administers economic activities. The scope of finance is vast and determined by the financial needs of the business enterprise, which have to be identified before any corporate plan is formulated. This eventually means that financial data must be obtained and scrutinised. The main purpose behind such scrutiny is to determine how to maintain financial stability.

Public Finance

It is the study of principles and practices pertaining to acquisition of funds for meeting the requirements of government bodies and administration of these funds by the government.

Private Finance

It is concerned with procuring money for private organization and management of the money by individuals, voluntary associations and corporations. It seeks to analyse the principles and practices of managing one's own daily affairs. The finance of non-profit organization deals with the practices, procedures and problems involved in the financial management of educational chartable and religions and the like organizations.

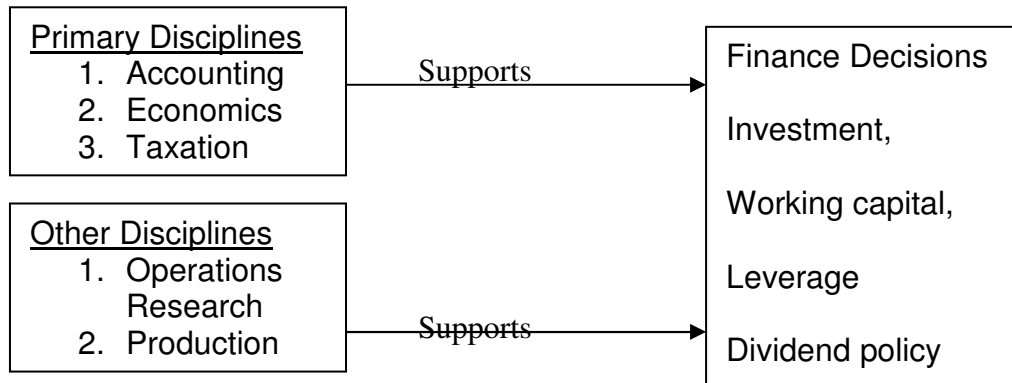
Corporation Finance: Corporation finance deals with the financial problems of a corporate enterprise. These problems include the financial aspects of the promotion of new enterprises and their administration during their early period ; the accounting problems connected with the distinction between capital and income, the administrative problems arising out of growth and expansion, and, finally, the financial' adjustments which are necessary to bolster up to rehabilitate a corporation which has run into financial difficulties.

The term 'corporation finance' includes, apart from the financial environment, the different strategies of financial planning. It includes problems of public deposits, inter-company loans and investments, organised markets such as the stock exchange, the capital market, the money market and the bill market. Corporation finance also covers capital formation and foreign capital and collaborations.

Finance in Relation to Other Allied Disciplines: The finance function cannot work effectively unless it draws on the-disciplines which are closely associated with it. Management is heavily dependent on accounting for operating facts. Accounting' has been described by Richard M. Lynch and Robert W. Williamson as "the - measurement and communication of financial

and economical data. In fact, accounting information relates to the production, sales, expenses, investments, losses and gains of the business. Accounting has three branches namely, financial accounting, cost accounting and management accounting.

Relationships between Finance and other Disciplines



Financial Accounting: It is concerned with the preparation of reports which provide information to users outside the firm. The most common reports are the financial statements included in the annual reports of stock-holders and potential investors. The main objective of these-reports is to inform stockholders, creditors and other investors how assets are controlled by a firm. In the light of the financial statements and certain other information, the accountant prepares funds film statement, cash flow statement and budgets.

A master plan (Budget) of the organization includes and coordinates the plans of every department in financial terms. According to Guthmann and Dougall, “Problems of finance are intimately connected while problems of purchasing, production and marketing”.

Cost Accounting: It deals primarily with cost data. It is the process of classifying, recording, allocating and reporting the various costs incurred in the operation of an enterprise. It includes a detailed system of control for material, labour and overheads. Budgetary control and standard casting are integral part of

cost accounting. The purpose of cost accounting is to provide information to the management for decision making, planning and control. It facilitates cost reduction and cost control. It involves reporting of cost data to the management.

Management Accounting: It refers to accounting for the management. It provides necessary information to assist the management in the creation of policy and in the day to day operations. It enables the management to discharge all its functions, namely, planning, organizing, staffing, direction and control efficiently with the help of accounting information. Functions of management accounting include all activities connected with collecting, processing, interpreting and presenting information to the management. According to J. Batty, 'management accounting' is the term used to describe the accounting methods, systems and technique which coupled with special knowledge and ability, assist management in its task of maximizing profits or minimizing losses. Management accounting is related to the establishment of cost centres, preparation of budgets, preparation of cost control accounts and fixing of responsibility for different functions.

SUMMARY

Finance is the life blood of business. Before discussing the nature and scope of financial management, the meaning of 'finance' has to be explained. In fact, the term, finance has to be understood clearly as it has different meaning and interpretation in various contexts. The time and extent of the availability of finance in any organization indicates the health of a concern. Finance may be defined as the position of money at the time it is wanted. Financing consists in the raising, providing, managing of all the money, capital or funds of any kind to be used in connection with the business.

The term 'business finance' is very comprehensive. It implies finances of business activities. The term, 'business' can be categorized into three groups: commerce, industry and service. It is a process of raising, providing and managing of all the money to be used in connection with business activities. The term 'corporation finance' includes, apart from the financial environment, the different strategies of financial planning. It includes problems of public deposits, inter-company loans and investments, organised markets such as the stock exchange, the capital market, the money market and the bill market.

The finance function cannot work effectively unless it draws on the-disciplines which are closely associated with it. Management is heavily dependent on Accounting, Economics, Taxation, Operations research, Production and Marketing.

KEYWORDS

Finance : It is defined as the position of money at the time it is wanted.

Business Finance : According to Guthmann & Dougall, business finance can be broadly defined as the activity concerned with planning, raising, controlling and administering of funds used in the business.

Corporation Finance : The term 'corporation finance' includes, apart from the financial environment, the different strategies of financial planning. It includes problems of public deposits, inter-company loans and investments, organised markets such as the stock exchange, the capital market, the money market and the bill market.

Accounting : It relates to the production, sales, expenses, investments, losses and gains of the business.

Financial Accounting : The most common reports are the financial statements included in the annual reports of stock-holders and potential investors.

Cost Accounting : It deals primarily with cost data. It is the process of classifying, recording, allocating and reporting the various costs incurred in the operation of an enterprise. It includes a detailed system of control for material, labour and overheads.

Management Accounting : It refers to accounting for the management. It provides necessary information to assist the management in the creation of policy and in the day to day operations. It enables the management to discharge all its functions, namely, planning, organizing, staffing, direction and control efficiently with the help of accounting information.

Management : Process of attainment of predetermined goals by directing activities of a group of persons and employing other resources.

REVIEW QUESTIONS

1. Explain fully the concept of finance.
2. Bring out the importance of finance.
3. It is often said that financial activities hinge on the money management.
Do you agree with this point of view?
4. "Financial accounting is essentially of a stewardship nature." Comment.
5. What is business finance? Explain its significance.
6. How can you classify finance?
7. How is finance related to other disciplines?

LESSON 2

FINANCE FUNCTION

LESSON OUTLINE

- Nature of Finance Function
- Content of Finance Function
- Finance Function - Objectives
- Changing Concept of Finance
- Scope of Finance Function
- Organisation of the Finance Function
- Meaning of the Finance Function
- Finance Function - A New Perspective

LEARNING OBJECTIVES

After reading this lesson, you should be able to

- Understand the nature of finance function
- Analyse the content of finance function
- Know the objectives of finance function
- Understand the changing concept of finance.
- Discuss the scope of the finance function
- Describe the organization of finance function
- Know the meaning of controller and treasure
- Understand the new perspective of finance function

Nature of Finance Function

The finance function is the process of acquiring and utilizing funds of a business. Finance functions are related to overall management of an organization. Finance function is concerned with the policy decisions such as like of business, size of firm, type of equipment used, use of debt, liquidity position. These policy decisions determine the size of the profitability and riskiness of the business of the firm. Prof. K.M.Upadhyay has outlined the nature of finance function as follows:

- i) In most of the organizations, financial operations are centralized. This results in economies.
- ii) Finance functions are performed in all business firms, irrespective of their sizes / legal forms of organization.
- iii) They contribute to the survival and growth of the firm.
- iv) Finance function is primarily involved with the data analysis for use in decision making.
- v) Finance functions are concerned with the basic business activities of a firm, in addition to external environmental factors which affect basic business activities, namely, production and marketing.
- vi) Finance functions comprise control functions also
- vii) The central focus of finance function is valuation of the firm.

Content of Finance Functions

The areas of responsibility covered by finance functions may be regarded as the content of finance function. These areas are specific functions of finance. Famous authors of financial management have enumerated the contents of finance function, as outlined, below:

Name of the Author	Content of Finance Functions
1) James C. Van Horne	<ul style="list-style-type: none"> ❖ Investment Decision ❖ Financing Decision ❖ Dividend Decisions
2) Earnest W. Walker	<ul style="list-style-type: none"> ❖ Financial Planning ❖ Financial Co-ordination ❖ Financial Control
3) J. Fred Weston and Eugene F. Brigham	<ul style="list-style-type: none"> ❖ Financial Planning and Control ❖ Management of Working Capital ❖ Investment in Fixed Assets ❖ Capital Structure Decisions ❖ Individual Financing Episodes

It is clear from the above, that, finance functions can be grouped as outlined below:

- i) Financial planning
- ii) Financial control
- iii) Financing decisions
- iv) Investment decision
- v) Management of income and dividend decision
- vi) Incidental functions

Finance Function – Objectives

The objective of finance function is to arrange as much funds for the business as are required from time to time. This function has the following objectives.

1. Assessing the Financial requirements. The main objective of finance function is to assess the financial needs of an organization and then finding out suitable sources for raising them. The sources should be commensurate with the needs of the business. If funds are needed for longer periods then long-term sources like share capital, debentures, term loans may be explored.

2. Proper Utilisation of Funds : Though raising of funds is important but their effective utilisation is more important. The funds should be used in such a way that maximum benefit is derived from them. The returns from their use should be more than their cost. It should be ensured that funds do not remain idle at any point of time. The funds committed to various operations should be effectively utilised. Those projects should be preferred which are beneficial to the business.

3. Increasing Profitability. The planning and control of finance function aims at increasing profitability of the concern. It is true that money generates money. To increase profitability, sufficient funds will have to be invested. Finance function should be so planned that the concern neither suffers from inadequacy of funds nor wastes more funds than required. A proper control should also be exercised so that scarce resources are not frittered away on uneconomical operations. The cost of acquiring funds also influences profitability of the business.

4. Maximising Value of Firm. Finance function also aims at maximizing the value of the firm. It is generally said that a concern's value is linked with its profitability.

The changing concept of finance

According to Ezra Solomon, the changing concept of finance can be analysed by dividing the entire process into three broad groupings.

First Approach

This approach just emphasizes only on the liquidity and financing of the enterprise.

Traditional Approach

This approach is concerned with raising of funds used in an organization. It compasses

- a) instruments, institutions and practice through which funds are augmented.
- b) the legal and accounting relationship between a company and its source of funds.

Modern approach

This approach is concerned not only with the raising of funds, but their administration also. This approach encompasses

- a) determination of the sum total amount of funds to employ in the firm.
- b) Allocation of resources efficiently to various assets.

- c) Procuring the best mix of financing – i.e. the type and amount of corporate securities.

An analysis of the aforesaid approaches unfold that modern approach involving an integrated approach to finance has considered not only determination of total amount of funds but also allocation of resources efficiently to various assets of the firm. Thus one can easily decipher that the concept of finance has undergone a perceptible change.

This is evident from the views expressed by one of the financial experts, namely, James C Van Horne and the same are reproduced below:

Finance concept (function or scope) has changed from a primarily descriptive study to one that encompasses regions analysis and normative theory; from a field that was concerned primarily with the procurement of funds to one that includes the management of assets, the allocation of capital and the valuation of the firm as a whole; and from a field that emphasized external analysis to the firm to one that stresses decision making within the firm. Finance, today, is best characterized as ever changing with new ideas and techniques. The role of financial manager is considerably different from what it was a few years ago and from what it will no doubt be in another coming years. Academicians and financial mangers must grow to accept the changing environment and master its challenge.

Scope of Finance Function

The scope of finance function is very wide. While accounting is concerned with the routine type of work, finance function is concerned with financial planning, policy formulation and control. Earnest W. Walker and William are of the opinion that the financial function has always been important in business management. The financial organiastion depends upon the nature of the

organization – whether it is a proprietary organisation, a partnership firm or corporate body. The significance of the finance function depends on the nature and size of a business firm. The role of various finance officers must be clearly defined to avoid conflicts and the overlapping of responsibilities. The operational functions of finance include :

- Financial planning
- Deciding the capital structure
- Selection of source of finance
- Selection of pattern of investment

i) **Financial Planning.** The first task of a financial manager is to estimate short-term and long-term financial requirements of his business. For this purpose, he will prepare a financial plan for present as well as for future. The amount required for purchasing fixed assets as well as needs of funds for working capital will have to be ascertained. The estimations should be based on sound financial principles so that neither there are inadequate nor excess funds with the concern. The inadequacy of funds will adversely affect the day-to-day operations of the concern whereas excess funds may tempt a management to indulge in extravagant spending or speculative activities.

ii) **Deciding Capital Structure.** The Capital structure refers to the kind and proportion of different securities for raising funds. After deciding about the quantum of funds required it should be decided which type of securities should be raised. It may be wise to finance fixed assets through long-term debts. Even if gestation period is longer, then share capital may be most suitable. Long-term funds should be raised. It may be wise to finance fixed assets through long-term debts. Even here if gestation period is longer, then share capital may be most

suitable. Long-term funds should be employed to finance working capital also, if not wholly then partially. Entirely depending upon overdrafts and cash creditors for meeting working capital needs may not be suitable. A decision about various sources for funds should be linked to the cost of raising funds. If cost of raising funds is very high then such sources may not be useful for long.

iii) **Selection of Source of Finance.** After preparing a capital structure, an appropriate source of finance is selected. Various sources from which finance may be raised, include: share capital, debentures, financial institutions, commercial banks, public deposits, etc. If finances are needed for short periods then banks, public deposits and financial institutions may be appropriate; on the other hand, if long-term finances are required then share capital and debentures may be useful. If the concern does not want to tie down assets as securities then public deposits may be a suitable source. If management does not want to dilute ownership then debentures should be issued in preference to share.

iv) **Selection of Pattern of Investment.** When funds have been procured then a decision about investment pattern is to be taken. The selection of an investment pattern is related to the use of funds. A decision will have to be taken as to which assets are to be purchased? The funds will have to be spent first on fixed assets and then an appropriate portion will be retained for Working Capital. The decision-making techniques such as Capital Budgeting, Opportunity Cost Analysis, etc. may be applied in making decisions about capital expenditures. While spending on various assets, the principles of safety, profitability and liquidity should not be ignored. A balance should be struck even in these principles.

Organization of the Finance Functions

Today, finance function has obtained the status of a science and an art. As finance function has far reaching significance in overall management process, structural organization for further function becomes an outcome of an important organization problem. The ultimate responsibility of carrying out the finance function lies with the top management. However, organization of finance function differs from company to company depending on their respective requirements. In many organizations one can note different layers among the finance executives such as Assistant Manager (Finance), Deputy Manager (Finance) and General Manager (Finance). The designations given to the executives are different. They are

Chief Finance Officer (CFO)

Vice-President (Finance)

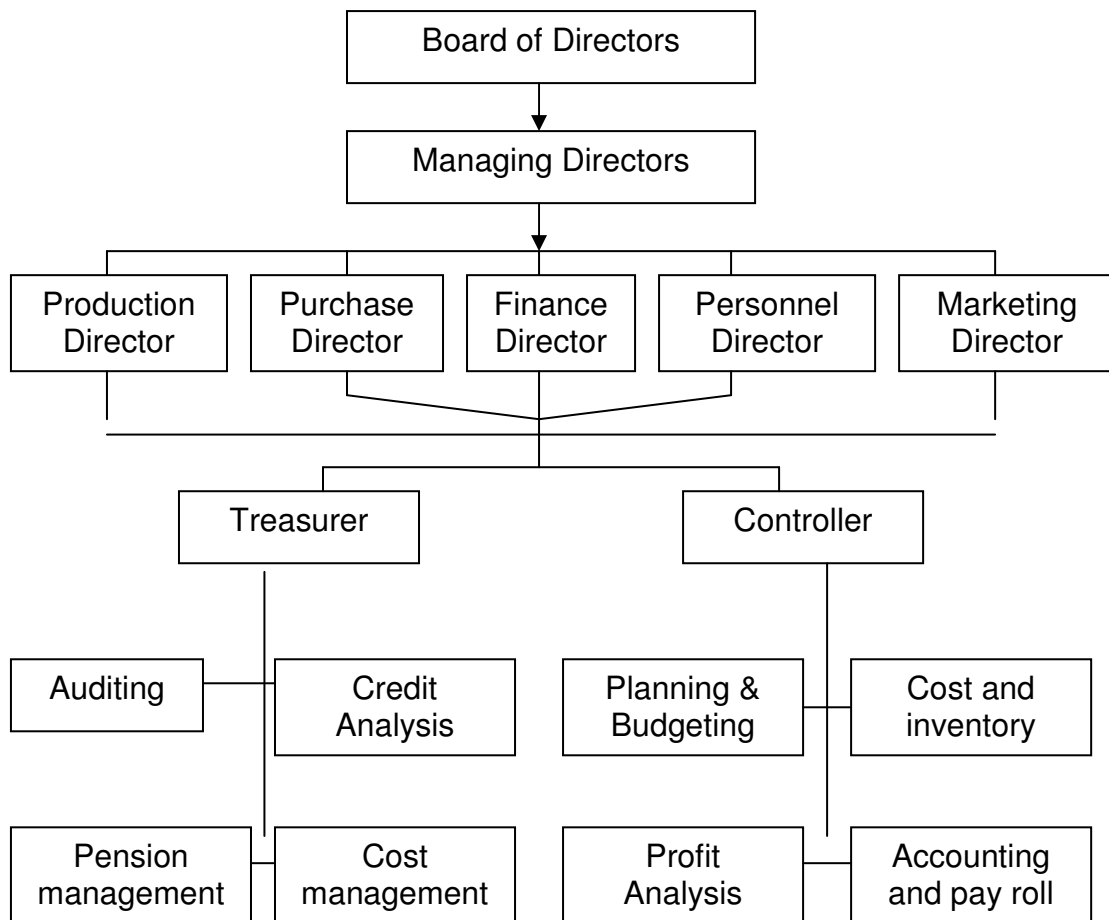
Financial Controller

General Manager (Finance)

Finance Officers

Finance, being an important portfolio, the finance functions are entrusted to top management. The Board of Directors who are at the helm of affairs, normally constitute a 'Finance Committee' to review and formulate financial policies. Two more officers, namely '*treasurer*' and '*controller*' – may be appointed under the direct supervision of CFO to assist him/her. In larger companies with modern management, there may be Vice-President or Director of finance, usually with both controller and treasurer. The organization of finance function is portrayed below:

Organization of Finance Function



It is evident from the above that Board of Directors is the supreme body under whose supervision and control Managing Director, Production Director, Personnel Director, Financial Director, Marketing Director perform their respective duties and functions. Further while auditing credit management, retirement benefits and cost control banking, insurance, investment function under treasurer, planning and budgeting, inventory management, tax

administration, performance evaluation and accounting functions are under the supervision of controller.

Meaning of Controller and Treasurer

The terms 'controller' and 'treasurer' are in fact used in USA. This pattern is not popular in Indian corporate sector. Practically, the controller / financial controller in India carried out the functions of a Chief Accountant or Finance Officer of an organization. Financial controller who has been a person of executive rank does not control the finance, but monitors whether funds so augmented are properly utilized. The function of the treasurer of an organization is to raise funds and manage funds. The treasurer's functions include forecasting the financial requirements, administering the flow of cash, managing credit, flotation of securities, maintaining relations with financial institutions and protecting funds and securities. The controller's functions include providing information to formulate accounting and costing policies, preparation of financial reports, direction of internal auditing, budgeting, inventory control payment of taxes, etc. According to Prof. I.M. Pandey, while the controller's functions concentrate the asset side of the balance sheet, the treasurer's functions relate to the liability side.

Finance Function – A Fresh look

The designation Finance Manager or Director (Finance) is very popular in Indian Corporate sector. The key function of any financial manager in India is management of funds. It means given the constraints, he must ensure optimum utilization of funds. The financial managers have significant involvement in injecting financial discipline in corporate management processes. They are responsible for emphasizing the need for rational use of funds and the necessity for monitoring the operations of the firm to achieve expected results. The

finance functions of augmenting resources and utilisation of funds, no doubt, have a significant impact on other functions also. Infact, between finance on one side and production, marketing and other functions on the other side, an inseparable relationship exists. The Board of Directors have been bestowed with the onerous responsibility of reviewing financial procedures, formulation of financial policies, selection of right finance personnel with professional capabilities like Chartered Accountant, Cost Accountant and Company Secretaries. The Board of Directors with counsel and direction given by the financial manager finalise decisions pertaining to formulation of new projects, diversification of projects, expansion of undertaking, introduction of new products, widening the branch areas, diversification of new product lines. It should be remembered that the financial controller, in fact, does not control finance. For management control and planning, the financial controller develops, uses and interprets information.

Summary

The finance function is the process of acquiring and utilizing funds of a business. Finance functions are related to overall management of an organization. Finance function is concerned with the policy decisions such as like of business, size of firm, type of equipment used, use of debt, liquidity position. These policy decisions determine the size of the profitability and riskiness of the business of the firm. The areas of responsibility covered by finance functions may be regarded as the content of finance function. These areas are specific functions of finance. The main objective of finance function is to assess the financial needs of an organization and then finding out suitable sources for raising them.

The funds should be used in such a way that maximum benefit is derived from them. Finance function also aims at maximizing the value of the firm. It is generally said that a concern's value is linked with its profitability. Finance, today, is best characterized as ever changing with new ideas and techniques. The role of financial manager is considerably different from what it was a few years ago and from what it will no doubt be in another coming years. Academicians and financial managers must grow to accept the changing environment and master its challenge. Finance, being an important portfolio, the finance functions are entrusted to top management. The Board of Directors who are at the helm of affairs, normally constitute a 'Finance Committee' to review and formulate financial policies. Two more officers, namely 'treasurer' and 'controller' – may be appointed under the direct supervision of CFO to assist him/her. The Board of Directors have been bestowed with the onerous responsibility of reviewing financial procedures, formulation of financial policies, selection of right finance personnel with professional capabilities like Chartered Accountant, Cost Accountant and Company Secretaries. The Board of Directors with counsel and direction given by the financial manager finalise decisions pertaining to formulation of new projects, diversification of projects, expansion of undertaking, introduction of new products, widening the branch areas, diversification of new product lines.

Keywords

Finance Function : The finance function is the process of acquiring and utilizing funds of a business.

Content of finance function - The areas of responsibility covered by finance functions may be regarded as the content of finance function.

Controller – He is concerned with the management and control of firm's assets.

Treasurer – He is concerned with managing the firm's funds and safeguarding assets.

Review Questions

- 1) What is finance function?
- 2) State the objectives of finance function.
- 3) Explain the significance of finance function.
- 4) Analyse the various approaches to finance function.
- 5) Explain the role of CFO in financial management.
- 6) Discuss the support extended by the Board of Directors in managing finance.
- 7) Explain the scope of finance function.
- 8) Elucidate the changing facet of finance function.

LESSON 3

FINANCIAL MANAGEMENT – NATURE AND SCOPE

LESSON OUTLINE

- Financial Management - Significance
- Financial Management - Definition
- Evaluation of Financial Management
- Nature of Financial Management
- Financial Management – Key Areas
- Financial manager–Functions
- Financial Management - As science or art

LEARNING OBJECTIVES

After reading this lesson, you should be able to

- Understand the significance of financial management
- Know the definition of financial management
- Details the evaluation of Financial management
- Analyse the nature of financial management
- Identify the key areas of financial management
- Enumerate the functions of financial manager
- Understand how financial management is considered both an art and science

Financial Management – Significance

Financial management has undergone fundamental changes as regards its scope and coverage. Financial management is the application of planning and control to the finance function. It helps in profit planning, measuring costs, controlling inventories, accounts receivables. It also helps in monitoring the effective deployment of funds in fixed assets and in working capital. It aims at ensuring that adequate cash is on hand to meet the required current and capital expenditure. It facilitates ensuring that significant capital is procured at the minimum cost to maintain adequate cash on hand to meet any exigencies that may arise in the course of business. Financial management helps in ascertaining and managing not only current requirements but also future needs of an organization.

- It ensures that funds are available at the right time and procurement of funds does not interfere with the right of management / exercising control over the affairs of the company.
- It influences the profitability / return on investment of a firm.
- It influences cost of capital. Efficient fund managers endeavour to locate less cost source so as to enhance profitability of organization.
- It affects the liquidity position of firms.
- It enhances market value of the firm through efficient and effective financial management.
- Financial management is very much required for the survival, growth, expansion and diversification of business.
- It is required to ensure purposeful resource allocation.

Financial Management – Definition

According to Weston and Brigham, financial management is an area of financial decision making, harmonizing individual motives and enterprise goals.

In the words of Phillipatus, financial management is concerned with the managerial decisions that result in the acquisition and financing of long-term and short-term credits for the firm. As such it deals with the situations that require selection of specific assets / combination of assets, the selection of specific liability / combination of liabilities as well as the problem of size and growth of an enterprise. The analysis of these decisions is based on the expected inflows and outflows of funds and their effects upon managerial objectives.

Evolution of Financial Management

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.

In the 1920s, liquidity management and raising of capital assumed importance. The book, 'FINANCIAL POLICY OF CORPORATIONS' written by Arthur Stone Dewing in 1920 was a scholarly text on financing and liquidity management, i.e., cash management and raising of capital in 1920s.

In the 1930s there was the Great Depression, i.e., all round price decline, business failures and declining business. This forced the business to be extremely concerned with solvency, survival, reorganisation and so on. Financial Management emphasized on solvency management and on debt-equity proportions. Besides external control on businesses became more pronounced.

Till early 1950s financial management was concerned with maintaining the financial chastity of the business. Conservatism, investor/lendor related

protective covenants/information processing, issue management, etc. were the prime concerns. It was an outsider-looking-in function.

From the middle of 1950s financial management turned into an insider-looking-in function. That is, the emphasis shifted to utilisation of funds from raising of funds. So, choice of investment, capital investment appraisals, etc., assumed importance. Objective criteria for commitment of funds in individual assets were evolved.

Towards the close of the 1950s Modigliani and Miller even argued that sources of capital were irrelevant and only the investment decisions were relevant. Such was the total turn in the emphasis of financial management.

In the 1960s portfolio management of assets gained importance. In the selection of investment opportunities portfolio approach was adopted, certain combinations of assets give more overall return given the risk or give a certain return for a reduced risk. So, selection of such combination of investments gained eminence.

In the 1970s the capital asset pricing model (CAPM), arbitrage pricing model (APM), option pricing model (OPM), etc., were developed - all concerned with how to choose financial assets. In the 1980s further advances in financial management were found. Conjunction of personal taxation with corporate taxation, financial signalling, efficient market hypothesis, etc., was some newer dimensions of corporate financial decision paradigm. Further Merger and Acquisition (M&A) became an important corporate strategy.

The 1960s, saw the era of financial globalization. Educational globalization is the order of the day. Capital moved West to East, North to South and so on. So, global financial management, global investment management, foreign exchange risk management, etc., become more important topics.

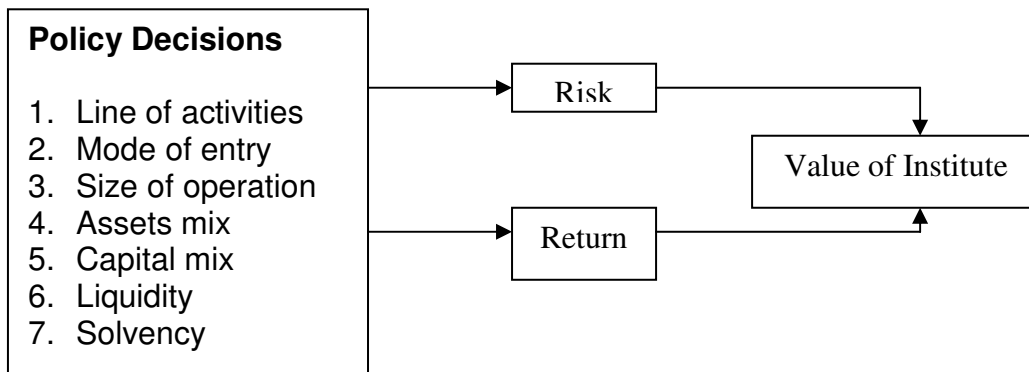
In late 1990s and 2000s, corporate governance got preeminence and financial disclosure and related norms are being great concerns of financial management. The dawn of 21st Century is heralding a new era of financial management with cyber support. The developments till mid 1950s are branded as classical financial management. This dealt with cash management, cash flow management, raising capital, debt-equity norms, issue management, solvency management and the like. The developments since mid - 1950s and upto 1980s, are branded as modern financial management. The emphasis is on asset management, portfolio approach, capital asset pricing model, financial signalling, efficient market hypothesis and so on. The developments since the 1990s may be called post modern financial management with great degree of global financial integration net supported finances and so on.

Nature of Financial Management

Financial management is applicable to every type of organization, irrespective of the size, kind or nature. Every organization aims to utilize its resources in a best possible and profitable way.

- i) Financial Management is an integral part of overall management. Financial considerations are involved in all business decisions. Acquisition, maintenance, removal or replacement of assets, employee compensation, sources and costs of different capital, production, marketing, finance and personnel decision, almost all decisions for that matter have financial implications. Therefore, financial management is pervasive throughout the organisation.
- ii) The central focus of financial management is valuation of the firm. Financial decisions are directed at increasing/maximization/optimizing the value of the institution. Weston and Brigham depict the above orientation in the exhibit given below:

Orientation of Financial Management



- iii) Financial management essentially involves risk-return trade-off. Decisions on investment involve choosing of types of assets which generate returns accompanied by risks. Generally higher the risk returns might be higher and vice versa. So, the financial manager has to decide the level of risk the firm can assume and satisfy with the accompanying return. Similarly, cheaper sources of capital have other disadvantages. So to avail the benefit of the low cost funds, the firm has to put up with certain risks, so, risk-return trade-off is there throughout.
- iv) Financial management affects the survival, growth and vitality of the institution. Finance is said to be the life blood of institutions. The amount, type, sources, conditions and cost of finance squarely influence the functioning of the institution.
- v) Finance functions, i.e., investment, raising of capital, distribution of profit, are performed in all firms - business or non-business, big or small, proprietary or corporate undertakings. Yes, financial

management is a concern of every concern including educational institutions.

- vi) Financial management is a sub-system of the institutional system which has other subsystems like academic activities, research wing, etc., In systems arrangement financial sub-system is to be well-coordinated with others and other sub-systems well matched with the financial sub-system.
- vii) Financial management of an institution is influenced by the external legal and economic environment. The legal constraints on using a particular type of funds or on investing in a particular type of activity, etc., affect financial decisions of the institution. Financial management is, therefore, highly influenced/constrained by external environment.
- viii) Financial management is related to other disciplines like accounting, economics, taxation, operations research, mathematics, statistics etc., It draws heavily from these disciplines.
- ix) There are some procedural finance functions - like record keeping, credit appraisal and collection, inventory replenishment and issue, etc., These are routinized and are normally delegated to bottom level management executives.
- x) The nature of finance function is influenced by the special characteristic of the business. In a predominantly technology oriented institutions like CSIR, CECRI, it is the R & D functions which get more dominance, while in a university or college the different courses offered and research which get more priority and so on.

Financial Management – Key Areas

The key areas of financial management are discussed in the following paragraphs.

(i) **Estimating the Capital requirements of the concern.** The Financial Manager should exercise maximum care in estimating the financial requirement of his firm. To do this most effectively, he will have to use long-range planning techniques. This is because, every business enterprise requires funds not only for long-term purposes for investment in fixed assets, but also for short term so as to have sufficient working capital. He can do his job properly if he can prepare budgets of various activities for estimating the financial requirements of his enterprise. Carelessness in this regard is sure to result in either deficiency or surplus of funds. If his concern is suffering because of insufficient capital, it cannot successfully meet its commitments in time, whereas if it has acquired excess capital, the task of managing such excess capital may not only prove very costly but also tempt the management to spend extravagantly.

(ii) **Determining the Capital Structure of the Enterprise.** The Capital Structure of an enterprise refers to the kind and proportion of different securities. The Financial Manager can decide the kind and proportion of various sources of capital only after the requirement of Capital Funds has been decided. The decisions regarding an ideal mix of equity and debt as well as short-term and long-term debt ratio will have to be taken in the light of the cost of raising finance from various sources, the period for which the funds are required and so on. Care should be taken to raise sufficient long-term capital in order to finance the fixed assets as well as the extension programme of the enterprise in such a

wise manner as to strike an ideal balance between the own funds and the loan funds of the enterprise.

(iii) **Finalising the choice as to the sources of finance.** The capital structure finalised by the management decides the final choice between the various sources of finance. The important sources are share-holders, debenture-holders, banks and other financial institutions, public deposits and so on. The final choice actually depends upon a careful evaluation of the costs and other conditions involved in these sources. For instance, although public deposits carry higher rate of interest than on debentures, certain enterprises prefer them to debentures as they do not involve the creation of any charge on any of the company's assets. Likewise, companies that are not willing to dilute ownership, may prefer other sources instead of investors in its share capital.

(iv) **Deciding the pattern of investment of funds.** The Financial Manager must prudently invest the funds procured, in various assets in such a judicious manner as to optimise the return on investment without jeopardising the long-term survival of the enterprise. Two important techniques— (i) Capital Budgeting; and (ii) Opportunity Cost Analysis—can guide him in finalising the investment of long-term funds by helping him in making a careful assessment of various alternatives. A portion of the long-term funds of the enterprise should be earmarked for investment in the company's working capital also. He can take proper decisions regarding the investment of funds only when he succeeds in striking an ideal balance between the conflicting principles of safety, profitability and liquidity. He should not attach all the importance only to the canon of profitability. This is particularly because of the fact that the company's

solvency will be in jeopardy, in case major portion of its funds are locked up in highly profitable but totally unsafe projects. .

(v) Distribution of Surplus judiciously. The Financial Manager should decide the extent of the surplus that is to be retained for ploughing back and the extent of the surplus to be distributed as dividend to shareholders. Since decisions pertaining to disposal of surplus constitute a very important area of Financial Management, he must carefully evaluate such influencing factors as—(a) the trend of earnings of the company; (A) the trend of the market price of its shares; (c) the extent of funds required for meeting the self-financing needs of the company; (d) the future prospects; (e) the cash flow position, etc.

(vi) Efficient Management of cash. Cash is absolutely necessary for maintaining enough liquidity. The Company requires cash to—(a) pay off creditors; (b) buy stock of materials; (c) make payments to labourers; and (d) meet routine expenses. It is the responsibility of the Financial Manager to make the necessary arrangements to ensure that all the departments of the Enterprise get the required amount of cash in time for promoting a smooth flow of all operations. Short-age of cash on any particular occasion is sure to damage the credit- worthiness of the enterprise. At the same time, it is not advisable to keep idle cash also. Idle cash should be invested in near-cash assets that are capable of being converted into cash quickly without any loss during emergencies. The exact requirements of cash during various periods can be assessed by the Financial Manager by preparing a cash-flow statement in advance.

Finance Manager – Functions

Finance manager is an integral part of corporate management of an organization. With his profession experience, expertise knowledge and competence, he has to play a key role in optimal utilization of financial resources of the organization. With the growth in the size of the organization, degree of specialization of finance function increases. In large undertakings, the finance manager is a top management executive who participates in various decision making functions. He has to update his knowledge with regard to Foreign Direct Investment (FDI), Foreign portfolio investment, mergers, amalgamations acquisitions, and corporate restructuring, performance management, risk management corporate governance, investor relations, working capital management, derivative trading practices, investor education and investor protection etc.

- 1) *Forecasting of Cash Flow.* This is necessary for the successful day to day operations of the business so that it can discharge its obligations as and when they rise. In fact, it involves matching of cash inflows against outflows and the manager must forecast the sources and timing of inflows from customers and use them to pay the liability.
- 2) *Raising Funds:* the Financial Manager has to plan for mobilising funds from different sources so that the requisite amount of funds are made available to the business enterprise to meet its requirements for short term, medium term and long term.
- 3) *Managing the Flow of Internal Funds:* Here the Manager has to keep a track of the surplus in various bank accounts of the organisation and ensure that they are properly utilised to meet the requirements of the

business. This will ensure that liquidity position of the company is maintained intact with the minimum amount of external borrowings.

- 4) *To Facilitate Cost Control:* The Financial Manager is generally the first person to recognise when the costs for the supplies or production processes are exceeding the standard costs/budgeted figures. Consequently, he can make recommendations to the top management for controlling the costs.
- 5) *To Facilitate Pricing of Product, Product Lines and Services:* The Financial Manager can supply important information about cost changes and cost at varying levels of production and the profit margins needed to carry on the business successfully. In fact, financial manager provides tools of analysis of information in pricing decisions and contribute to the formulation of pricing policies jointly with the marketing manager.
- 6) *Forecasting Profits:* The Financial manager is usually responsible for collecting the relevant data to make forecasts of profit levels in future.
- 7) *Measuring Required Return:* The acceptance or rejection of an investment proposal depends on whether the expected return from the proposed investment is equal to or more than the required return. An investment project is accepted if the expected return is equal or more than the required return. Determination of required rate of return is the responsibility of the financial manager and is a part of the financing decision.
- 8) *Managing Assets:* The function of asset management focuses on the decision-making role of the financial manager. Finance personnel meet with other officers of the firm and participate in making decisions affecting the current and future utilization of the firm's resources. As an example, managers may discuss the total amount of assets needed by the

firm to carry out its operations. They will determine the composition or a mix of assets that will help the firm best achieve its goals. They will identify ways to use existing assets more effectively and reduce waste and unwarranted expenses.

The decision-making role crosses liquidity and profitability lines. Converting the idle equipment into cash improves liquidity. Reducing costs improves profitability.

- 9) *Managing Funds:* In the management of funds, the financial manager acts as a specialised staff officer to the Chief Executive of the company. The manager is responsible for having sufficient funds for the firm to conduct its business and to pay its bills. Money must be located to finance receivables and inventories, to make arrangements for the purchase of assets, and to identify the sources of long-term financing. Cash must be available to pay dividends declared by the board of directors. The management of funds has therefore, both liquidity and profitability aspects.

Financial Management as Science or Art

Financial management is both a science and an art. Its nature is nearer to applied sciences as it envisages use of classified and tested knowledge as a help in practical affairs and solving business.

Theory of financial management is based on certain systematic principles, some of which can be tested in mathematical equations like the law of physics and chemistry. Financial management contains a much larger body of rules or tendencies that hold true in general and on the average. The use of computers, operations research, statistical techniques and econometric models find wide application in financial management as tools for solving corporate

financial problems like budgeting, choice of investments, acquisition or mergers etc. This takes the financial management nearer to treatment as a subject of science.

Most practical problems of finance have no hard and fast answers that can be worked out mathematically or programmed on a computer. They must be solved by judgment, intuition and the "feel" of experience. Thus, despite its frequent acceptance as an applied science, finance remains largely an art. Because, according to George A. Christy and Feyton Foster Roden (Finance: Environment and Decisions) knowledge of facts, principles and concepts is necessary for making decisions but personal involvement of the manager through his intuitive capacities and power of judgment becomes essential. As the application of human judgement and skills is also required for effective financial management, financial management is also an art.

In the entire study of financial management whether it is related to investment decisions, financing decisions i.e. deciding about the sources of financing, or dividend decisions, there is a mixture of science as well as art. When techniques for analytical purposes are used, *it is science* and when choice is application of the results *it is an art*.

Summary

Financial management is the application of planning and control to the finance function. It helps in profit planning, measuring costs, controlling inventories, accounts receivables. It also helps in monitoring the effective deployment of funds in fixed assets and in working capital. It aims at ensuring that adequate cash is on hand to meet the required current and capital expenditure. It facilitates ensuring that significant capital is procured at the minimum cost to maintain adequate cash on hand to meet any exigencies that may arise in the course of

business. Financial management is applicable to every type of organization, irrespective of the size, kind or nature. Every organization aims to utilize its resources in a best possible and profitable way. Financial management essentially involves risk-return trade-off. Decisions on investment involve choosing of types of assets which generate returns accompanied by risks. Generally higher the risk returns might be higher and vice versa. So, the financial manager has to decide the level of risk the firm can assume and satisfy with the accompanying return. Financial management affects the survival, growth and vitality of the institution. Financial management is related to other disciplines like accounting, economics, taxation, operations research, mathematics, statistics etc., It draws heavily from these disciplines. Financial management is both a science and an art. Its nature is nearer to applied sciences as it envisages use of classified and tested knowledge as a help in practical affairs and solving business. In the entire study of financial management whether it is related to investment decisions, financing decisions i.e. deciding about the sources of financing, or dividend decisions, there is a mixture of science as well as art. When techniques for analytical purposes are used, *it is science* and when choice is application of the results *it is an art*.

Keywords

Financial Management : Financial management is the application of planning and control to the finance function. It helps in profit planning, measuring costs, controlling inventories, accounts receivables.

Planning : Determining future course of action.

Art of Management : Application of science in the attainment of practical results.

Science of Management : A body of knowledge consisting of concepts, principles and techniques organized around managerial functions.

Review Questions

- 1) What is financial management?
- 2) Define financial management. Explain its significance.
- 3) Explain the various areas of financial management.
- 4) Analyse the nature of financial management.
- 5) Describe the evolution of financial management.
- 6) Financial management – is it a science or an art.
- 7) What are key areas of financial management.
- 8) Explain the role of financial manager in the current scenario.

LESSON – 4
FINANCIAL GOALS

LESSON OUTLINE

- Objectives / goals – Meaning
- Significance goals of Financial Management
- Goals of Financial Management
- Profit Maximisation
- Arguments in favour of Profit Maximisation
- Criticisms leveled against Profit Maximisation
- Wealth maximisation
- Profit maximization Vs Wealth Maximisation

LEARNING OBJECTIVES

After reading this lesson, you should be able to

- Understand the meaning of objectives / goals
- Know the significance of financial goals
- Spell out the different goals of financial management
- To understand the significance of profit maximization
- Put-forth arguments in favour of profit maximization
- Point out criticisms
- Understand the significance of wealth maximization
- Distinguish between PM & WM

Objectives / Goals – Meaning

Objectives or goals are the end results towards which activities are aimed. Formulation and definition of objectives of an organization is the basic requirement of effective management. According to George R. Terry, “a managerial objective is the intended goal which prescribes definite safe and suggests direction to efforts of a manager”. Further objectives can either be short term or long-term. As business activities involve allocation of source resources among alternative uses, expected return must be balanced against its opportunity cost. It is a *fait accompli* to observe firms wishing to pursue several goals, of which profit maximization is of primary objective. Every firm or an organization wish to maximize profits, while at the same time minimizes expenses.

Significance

Finance guides and regulates investment decisions and expenditure of administers economic activities. The scope of finance is vast and determined by the financial requirements of the business organization. The objective provides a frame work for optimum financial decision – making. In other words, to ensure optimum decisions the goals of financial management must be made more clear. The financial management functions covers decision making in three inter-related areas, namely investment, financing and dividend policy. The financial manager has to take these decisions with reference to the objectives of the firm. Financial management provides a framework for selecting a proper course of action and deciding a viable commercial strategy. The main objective of a business is to maximize the owners economic welfare. The goals of financial management of a corporate enterprise succinctly brought out by Alfred Rappaport which is reproduced below: “In a market based economy which recognize the rights of private property, the only social responsibility of business

is to create value and do so legally and with integrity. It is a profound error to view increases in a company's value as a concern just for its shareholders. Enlightened managers and public officials recognize that increase in stock prices reflect improvement in competitiveness – an issue which affects everyone who has a stake in the company or economy”.

Goals of Financial Management

Goals act as motivators, serve as the standards for measuring performance, help in coordination of multiplicity of tasks, facilitate in identifying inter departmental relationships and so on. The goals can be classified as official goals, operative goals and operational goals.

The **official goals** are the general objective of any organization. They include mechanism of ROI and market value of the firms.

The **operative goals** indicate the actual efforts taken by an organization to implement various plans, policies and norms.

The **operational goals** are more directed, quantitative and verifiable. In fine, it can be inferred that the official, operative and operational goals are set with a pyramidal shape, the official goals at the helm of affairs (concerned with top level executives) operative goals at the middle level and operational goals at the lower level.

Following are the other objectives of financial management.

- a) To build up reserves for growth and expansion
- b) To ensure a fair return to shareholders
- c) To ensure maximum operational efficiency by efficient and effective utilization of finances.

The financial decisions can rationally be made only when the business enterprise has certain well thought out objectives. It is argued that the

achievement of central goal of maximisation of the owner's economic welfare depends upon the adoption of two criteria, viz., i) profit maximisation; and (ii) wealth maximisation.

Profit Maximisation : The term 'profit maximization' implies generation of largest amount of profits over the time period being analysed, secondary to Prof. Peter Drucker, business profits play a functional role in three different ways. In the words of Peter Drucker.

- i) profits indicate the effectiveness of business profits
- ii) they provide the premium to cover costs of staying in business
- iii) they ensure supply of future capital.

Profits are source of funds from which organizations are able to defray certain expenses like replacement, obsolescence, marketing etc.

Maximization of profits for a long term is desirable and appreciable. The tendency to maximize profits in the short run may invite innumerable problems to the organization concerned. In fact, maximization of profits in the short run may give an impression of being exploitative. The extent of uncertainty in business increases the appreciation of proprietor / partner / company and hence many prefer short-run profit maximisation to long –run profit maximisation.

The underlying basic of profit maximization is efficiency. It is assumed that profit maximization causes the efficient allocation of resources under the competitive impact conditions and profit is regarded as the most appropriate measure of a firm's performance.

Arguments in favour of profit maximization

Arguments in favour of profit maximization as the objective of business are enumerated below:

1. Profits are the major source of finance for the growth and development of its business.
2. Profitability serves as a barometer for measuring efficiency and economic prosperity of a business entity.
3. Profits are required to promote socio-economic welfare.

Criticisms levelled against profit maximization

However, profit maximization objective has been criticized on innumerable grounds. Under the changed economic and corporate environment, profit-maximisation is regarded as unrealistic, difficult, inappropriate and socially not much liked goal for business organizations. Profit maximization as an objective of financial management has been considered inadequate and rejected because of the following drawbacks.

- 1) There are several goals towards which a business firm / organization should direct themselves profit – maximization is one of the goals of the organization and not the only goal.
- 2) Maintenance of firm's share in the market, development and growth of the firm, expansion and diversification are other goals of business concern.
- 3) Rendering social responsibility
- 4) Enhancing the shareholders' wealth maximization.

As Solomon opines, profit maximisation has been rejected as an operational criterion for maximising the owner's economic welfare as it cannot help us in ranking alternative courses of action in terms of their economic efficiency. This is because—(i) it is vague; (ii) it ignores the timing of returns; (iii) it ignores risk.

Profit maximisation is considered as an important goal in financial decision-making in an organisation. It ensures that firm utilizes its available resources most efficiently under conditions of competitive markets. Profit maximisation as corporate goal is criticised by scholars mainly on following grounds:

- (i) It is vague conceptually.
- (ii) It ignores timing of returns.
- (iii) It ignores the risk factor.
- (iv) it may tempt to make such decisions which may in the long run prove disastrous.
- (v) Its emphasis is generally on short run projects.
- (vi) It may cause decreasing share prices.
- (vii) The profit is only one of the many objectives and variables that a firm considers.

Wealth Maximisation

Wealth Maximisation refers to all the efforts put in for maximizing the net present value (i.e. wealth) of any particular course of action which is just the difference between the gross present value of its benefits and the amount of investment required to achieve such benefits.

Wealth maximisation principle is also consistent with the objective or 'maximising the economic welfare of the proprietors of the firm. This, in turn, calls for an all out bid to maximise the market value of shares of that firm which are held by its owners. As Van Horne aptly remarks, the market price of the shares of a company (firm) serves as a performance index or report card of its progress. It indicates how well management is doing on behalf of its shareholders.

The wealth maximization objective serves the interests of suppliers of loaned capital, employees, management and society. This objective not only serves shareholders interests by increasing the value of holding but also ensures security to lenders also. According to wealth maximization objective, the primary objective of any business is to maximize share holders wealth. It implies that maximizing the net present value of a course of action to shareholders.

According to Solomon, net, present – value or wealth of a course of action is the difference between the present value of its benefits and the present value of its costs. The objective of wealth maximization is an appropriate and operationally feasible criteria to chose among the alternative financial actions. It provides an unambiguous measure of what financial management should seek to maximize in making investment and financing decisions on behalf of shareholders. However, while pursuing the objective of wealth maximization, all efforts must be employed for maximizing the current present value of any particular course of action. It implies that every financial decision should be based on cost – benefit analysis. The shareholders, who obtained great benefits, would not like a change in the management. The share's market price serves as a performance index. It also reflects the efficiency and efficacy of the management.

The Necessity of a Valuation Model. Porterneld has shown how the attainment of the objective of maximising the market value of the firm's shares (i.e. wealth maximisation) requires an appropriate Valuation model to assess the value of the shares of the firm in Question. The Financial Manager should realise or atleast assume the extent of influence various factors are capable of wielding upon the market price of his company's shares. If not he may, not be able to maximise the value of such shares.

Financial management is concerned with mobilization of financial resources and their effective utilization towards achieving the organization its goals. Its main objective is to use funds in such a way that the earnings are maximized. Financial management provides a framework for selecting a proper course of action and deciding a viable commercial strategy. A business firm has a number of objectives. Peter Driven has outlined the possible objectives of a firm as follows.

- Market standing
- Innovation
- Productivity
- Economical use of physical and financial resources
- Increasing the profitability
- Improved performance
- Development of worker's performance and co-operatives
- Public responsibility

The wealth maximizing criterion is based on the concept of cash flows generated by the decision rather than according profit which is the basis of the measurement of benefits in the case of profit maximization criterion. Measuring benefits in terms of cash flows avoids the ambiguity associated with accounting profits.

Presently, maximisation of present value (or wealth) of a course of action is considered appropriate operationally flexible goal for financial decision-making in an organisation. The net present value or wealth can be defined more explicitly in the following way:

$$W = \frac{A_1}{(1 + K_1)} + \frac{A_2}{(1 + K_1)} + \frac{A_3}{(1 + K_1)} + \dots + \frac{A_n}{(1 + K_1)} - C_0 = \frac{\Sigma A_t}{\Sigma(1 + K)t} - C_0$$

Where A_1 and A_2 represent the stream of benefits expected to occur if a course of action is adopted. C_0 is the cost of that action and K is the appropriate discount rate, and W is the Net present worth or wealth which is the difference between the present worth or wealth of the stream of benefits and the initial cost.

The management of an organisation maximises the present value not only for shareholders but for all! including employees, customers, suppliers and community at large. This goal for the maximum present value is generally justified on the following grounds:

- (i) It is consistent with the object of maximising owners economic welfare.
- (ii) It focuses on the long run picture.
- (iii) It considers risk.
- (iv) It recognises the value of regular dividend payments.
- (v) It takes into account time value of money.
- (vi) It maintains market price of its shares
- (vii) It seeks growth in sales and earnings.

Maximizing the shareholders' economic welfare is equivalent to maximizing the utility of their consumption every time. With their wealth maximized, shareholders can afford their cash flows in such a way as to optimize their consumption. From the shareholders point of view, the wealth created by a company through the actions is reflected in the market value of the company's shares.

Profit Maximisation versus Shareholder Wealth Maximization

Profit maximization is basically a single-period or, at the most, a short-term goal. It is usually interpreted to mean the maximization of profits within a given period of time. A firm may maximize its short-term profits at the expense of its long-term profitability and still realize this goal. In contrast, shareholder wealth maximization is a long-term goal shareholders are interested in future as well as present profits. Wealth maximization is generally preferred because it considers (1) wealth for the long term, (2) risk or uncertainty, (3) the timing of returns, and (4) the "shareholders' return. The following table provides a summary of the advantages and disadvantages of these two often conflicting goals.

Table 1.1 – Profit Maximisation versus shareholder wealth maximization

Goal	Objective	Advantages	Disadvantages
Profit Maximisation	Large amount of profits	<ol style="list-style-type: none"> 1. Easy to calculate profits 2. Easy to determine the link between financial decisions and profits 	<ol style="list-style-type: none"> 1. Emphasizes the short-term 2. Ignores risk or uncertainty 3. Ignores the timing of returns 4. Requires immediate resources
Shareholder wealth maximization	Highest market value of common stock	<ol style="list-style-type: none"> 1. Emphasizes the long term 2. Recognises risk or uncertainty 3. Recognises the timing of returns 4. Considers' return 	<ol style="list-style-type: none"> 1. Offers no clear relationship between financial decisions and stock price. 2. Can lead to management anxiety and frustration

Summary

Objectives or goals are the end results towards which activities are aimed. Formulation and definition of objectives of an organization is the basic requirement of effective management. Finance guides and regulates investment decisions and expenditure of administers economic activities. The scope of finance is vast and determined by the financial requirements of the business organization. The objective provides a frame work for optimum financial decision – making. In other words, to ensure optimum decisions the goals of financial management must be made more clear. The financial management functions covers decision making in three inter-related areas, namely investment, financing and dividend policy. The financial manager has to take these decisions with reference to the objectives of the firm. The financial decisions can rationally be made only when the business enterprise has certain well thought out objectives. It is argued that the achievement of central goal of maximisation of the owner's economic welfare depends upon the adoption of two criteria, viz., i) profit maximisation; and (ii) wealth maximisation. The term 'profit maximization' implies generation of largest amount of profits over the time period. Wealth Maximisation refers to all the efforts put in for maximizing the net present value (i.e. wealth) of any particular course of action which is just the difference between the gross present value of its benefits and the amount of investment required to achieve such benefits. The other objectives of financial management include a) To build up reserves for growth and expansion, b) To ensure a fair return to shareholders and c) To ensure maximum operational efficiency by efficient and effective utilization of finances.

Key words

Optimal Decisions : The decision which relate to physical inputs, outputs and other variables (i.e. non-financial variables).

Profit Maximisation : The term ‘profit maximization’ implies generation of largest amount of profits over the time period.

Wealth Maximisation : It refers to all the efforts put in for maximizing the net present value (i.e. wealth) of any particular course of action which is just the difference between the gross present value of its benefits and the amount of investment required to achieve such benefits.

Review Questions

- 1) Explain the objectives or goals of financial management.
- 2) Explain the concept of wealth in the context of wealth maximization objective.
- 3) “The wealth maximization objective provides an operationally appropriate decision criterion” – Analyse the statement.
- 4) In what respect is the objective of wealth maximization superior to the profit maximization objective?
- 5) Give the arguments for profit maximization as an objective of a firm.
- 6) What are the arguments levelled against profit maximization objective?
- 7) What are the other objectives of financial management?

LESSON – 5
FINANCIAL DECISIONS

LESSON OUTLINE

- Introduction
- Financial decision – types
- Investment decisions
- Financing decision
- Dividend decision
- Liquidity
- Relationship of financial Decisions
- Factors influencing Financial decisions

LEARNING OBJECTIVES

After reading this lesson, you should be able to

- To understand the various types of financial decisions
- To describe the relationship of financial decisions
- To identify the various factors influencing financial decisions.

Introduction

Finance comprises of blend of knowledge of credit, securities, financial related legislations, financial instruments, financial markets and financial system. As finance is a scarce resource, it must be systematically raised from the cheapest source of funds and must be judiciously utilized for the development and growth of the organization. Charles Gertenberg visualizes the significance of scientific arrangement of records with the help of which the inflow and outflow of funds can be efficiently managed, stocks and bonds can be efficiently marketed and the efficacy of the organization can be greatly improved.

The financial manager in his new role, is concerned with the efficient allocation of funds. The firm's investment and financing decisions are continuous. The financial manager according to Ezra Solomon must find a rationale for answering the following three questions.

- 1) How large should an enterprise be and how fast should it grow?
- 2) In what form should it hold its assets?
- 3) How should the funds required be raised?

It is therefore clear from the above discussion that firms take different financial decisions continuously in the normal course of business. Liquidity, solvency, profitability and flexibility optimization goals and risk, would lead to reaping of wealth maximization goal.

Financial Decisions – Types

Financial decisions refer to decisions concerning financial matters of a business firm. There are many kinds of financial management decisions that the firm makers in pursuit of maximising shareholder's wealth, viz., kind of assets to be

acquired, pattern of capitalisation, distribution of firm's income etc. We can classify these decisions into three major groups :

1. Investment decisions
2. Financing decision.
3. Dividend decisions.
4. Liquidity decisions.

1. Investment Decisions / Capital Budgeting Decisions

Investment Decision relates to the determination of total amount of assets to be held in the firm, the composition of these assets and the business risk complexities of the firm as perceived by the investors. It is the most important financial decision. Since funds involve cost and are available in a limited quantity, its proper utilization is very necessary to achieve the goal of wealth maximisation.

The investment decisions can be classified under two broad groups; (i) long-term investment decision and (ii) Short-term, investment decision. The long-term investment decision is referred to as the capital budgeting and the short-term investment decision as working capital management.

Capital budgeting is the process of making investment decisions in capital expenditure. These are expenditures, the benefits of which are expected to be received over a long period of time exceeding one year. The finance manager has to assess the profitability of various projects before committing the funds. The investment proposals should be evaluated in terms of expected profitability, costs involved and the risks associated with the projects. The investment decision is important not only for the setting up of new units but also for the expansion of present units, replacement of permanent assets, research

and development project costs, and reallocation of funds, in case, investments made earlier, do not fetch result as anticipated earlier.

2. Financing Decisions / Capital Structure Decisions

Once the firm has taken the investment decision and committed itself to new investment, it must decide the best means of financing these commitments. Since, firms regularly make new investments, the needs for financing and financial decisions are on going, Hence, a firm will be continuously planning for new financial needs. The financing decision is not only concerned with how best to finance new asset, but also concerned with the best overall mix of financing for the firm.

A finance manager has to select such sources of funds which will make optimum capital structure. The important thing to be decided here is the proportion of various sources in the overall capital mix of the firm. The debt-equity ratio should be fixed in such a way that it helps in maximising the profitability of the concern. The raising of more debts will involve fixed interest liability and dependence upon outsiders. It may help in increasing the return on equity but will also enhance the risk. The raising of funds through equity will bring permanent funds to the business but the shareholders will expect higher rates of earnings. The financial manager has to strike a balance between anxious sources so that the overall profitability of the concern improves. If the capital structure is able to minimise the risk and raise the profitability then the market prices of the shares will go up maximising the wealth of shareholders.

3. Dividend Decision

The third major financial decision relates to the disbursement of profits back to investors who supplied capital to the firm. The term dividend refers to that part of profits of a company which is distributed by it among its shareholders. It is

the reward of shareholders for investments made by them in the share capital of the company. The dividend decision is concerned with the quantum of profits to be distributed among shareholders. A decision has to be taken whether all the profits are to be distributed, to retain all the profits in business or to keep a part of profits in the business and distribute others among shareholders. The higher rate of dividend may raise the market price of shares and thus, maximise the wealth of shareholders. The firm should also consider the question of dividend stability, stock dividend (bonus shares) and cash dividend.

4. Liquidity Decisions

Liquidity and profitability are closely related. Obviously, liquidity and profitability goals conflict in most of the decisions. The finance manager always perceives / faces the task of balancing liquidity and profitability. The term liquidity implies the ability of the firm to meet bills and the firm's cash reserves to meet emergencies. Whereas the profitability means the ability of the firm to obtain highest returns within the funds available. As said earlier, striking a proper balance between liquidity and profitability is an arduous task. If a finance manager wants to meet all the bills, then profitability will decline similarly where he wants to invest funds in short term securities he may not be having adequate funds to pay-off its creditors. Lack of liquidity in extreme situations can lead to the firm's insolvency.

Risk – Return Trade Off

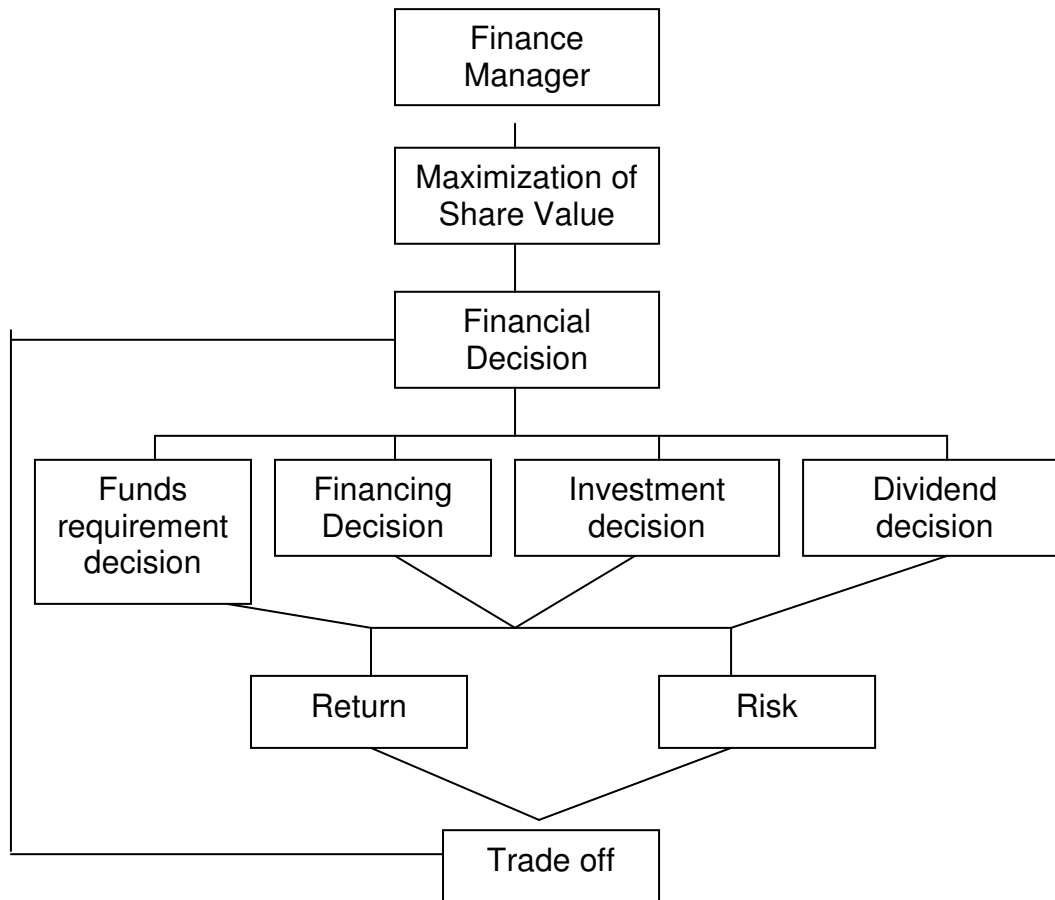
Further where the company is desirous of mobilizing funds from outside sources, it is required to pay interest at fixed period. Hence liquidity is reduced. A successful finance manager has to ensure acceleration of cash receipts (cash inflows in to business) and deceleration of cash (cash outflows) from the firm.

Thus forecasting cash flows and managing cash flows are one of the important functions a finance manager that will lead to liquidity. The finance manager is required to enhance his professionalism and intelligence to ensure that return is optimized.

$$\text{Return} = \text{Risk-free rate} + \text{Risk premium}$$

Risk free rate is a compensation for time and risk premium for risk. Higher the risk of an action, higher will be the risk premium leading to higher required return on that action. This levelling of return and risk is known as risk return trade off. At this level, the market value of the company's shares should be the maximum. The diagram given below spells out the interrelationship between market value, financial decisions and risk-return trade off.

Interrelationship between market value, financial decisions and risk-return trade off



Value of Firm – Risk Return

The finance manager tries to achieve the proper balance between, the basic considerations of 'risk and return' associated with various financial management decisions to maximise the market, value, of the firm.

It is well known that "higher the return other things being equal, higher the market value; higher the risk, other things being equal, lower the market

value'. In fact, risk and return go together. It is quite evident from the aforesaid discussion that financial decisions have a great impact on all other business activities. The modern finance manager has to facilitate making these decisions in the most rational way. The decisions have to be made in such a way that the funds of the firms / organizations are used optimally. The financial reporting system must be designed to provide timely and accurate picture of the firm's activities.

Relationship of Financial Decisions

The financial manager is concerned with the optimum utilization of funds and their procurement in a manner that the risk, cost and control considerations are properly balanced in a given situation. Irrespective of nature of decisions, i.e. investment decisions, financing or capital structure decisions / dividend decisions all these decisions are interdependent. All these decisions are inter-related. All are intended to maximize the wealth of the shareholders. An efficient financial manager has to ensure optimal decision by evaluating each of the decision involved in relation to its effect on shareholders wealth.

Factors Influencing Financial Decisions

There are innumerable factors that influence the financial decision. They are classified as external factors and internal factors.

External factors

Capital structure

Capital market and money market

State of economy

Requirements of investors

Government policy

Taxation policy

Financial institutions / banks lending policy

Internal factors

Nature of business

Age of the firm

Size of the business

Extent and trend of earnings

Liquidity position

Working capital requirements

Composition of assets

Nature of risk and expected return.

Summary

Finance comprises of blend of knowledge of credit, securities, financial related legislations, financial instruments, financial markets and financial system. As finance is a scarce resource, it must be systematically raised from the cheapest source of funds and must be judiciously utilized for the development and growth of the organization. Financial decisions refer to decisions concerning financial matters of a business firm. There are many kinds of financial management decisions that the firm makes in pursuit of maximising shareholder's wealth, viz., kind of assets to be acquired, pattern of capitalisation, distribution of firm's income etc. We can classify these decisions into three major groups : 1) Investment decisions, 2) Financing decision, 3) Dividend decisions, and 4) Liquidity decisions.

Investment Decision relates to the determination of total amount of assets to be held in the firm, the composition of these assets and the business

risk complexities of the firm as perceived by the investors. The financing decision is not only concerned with how best to finance new asset, but also concerned with the best overall mix of financing for the firm. A finance manager has to select such sources of funds which will make optimum capital structure. The dividend decision is concerned with the quantum of profits to be distributed among shareholders. A decision has to be taken whether all the profits are to be distributed, to retain all the profits in business or to keep a part of profits in the business and distribute others among shareholders. The higher rate of dividend may raise the market price of shares and thus, maximise the wealth of shareholders. The term liquidity implies the ability of the firm to meet bills and the firm's cash reserves to meet emergencies. Whereas the profitability means the ability of the firm to obtain highest returns within the funds available. As said earlier, striking a proper balance between liquidity and profitability is an arduous task. The finance manager tries to achieve the proper balance between, the basic considerations of 'risk and return' associated with various financial management decisions to maximise the market, value, of the firm. The financial manager is concerned with the optimum utilization of funds and their procurement in a manner that the risk, cost and control considerations are properly balanced in a given situation.

Keywords

Financial decisions: It refer to decisions concerning financial matters of a business firm.

Risk Free Rate : It is a compensation for time and risk premium for risk.

Risk – Return Trade Off: Levelling of risk and return is known as risk – return trade off.

Review Questions

- 1) What is meant by financial decision?
- 2) Explain investment decision.
- 3) Explain liquidity Vs. Profitability?
- 4) Discuss the significance of various financial decisions.
- 5) What is meant by liquidity decision?
- 6) Explain risk-return trade off.

UNIT – 2

LESSON – I

CAPITAL BUDGETING – A CONCEPTUAL FRAMEWORK

LESSON OUTLINE

- Meaning of Capital Budgeting
- Capital expenditure
- Definition
- Need for capital investment
- Capital budgeting-significance
- Capital Budgeting process
- Factors influencing Investment decisions
- Kinds of Capital Budgeting Decisions

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand the meaning of Capital budgeting
- Know about capital expenditure
- Understand the need for capital investment
- Point out the significance of capital budgeting
- Describe the capital budgeting process
- Spell out the factors influencing investment decisions
- Describe the kinds of capital budgeting decisions

Capital budgeting decisions are of paramount importance in financial decisions, because efficient allocation of capital resources is one of the most crucial decisions of financial management. Capital budgeting is budgeting for capital projects. It is significant because it deals with right kind of evaluation of projects. The exercise involves ascertaining / estimating cash inflows and outflows, matching the cash inflows with the outflows appropriately and evaluation of desirability of the project. It is a managerial technique of meeting capital expenditure with the overall objectives of the firm. Capital budgeting means planning for capital assets. It is a complex process as it involves decisions relating to the investment of current funds for the benefit to be achieved in future. The overall objective of capital budgeting is to maximize the profitability of the firm / the return on investment.

Capital Expenditure

A capital expenditure is an expenditure incurred for acquiring or improving the fixed assets, the benefits of which are expected to be received over a number of years in future. The following are some of the examples of capital expenditure.

- 1) Cost of acquisition of permanent assets such as land & buildings, plant & machinery, goodwill etc.
- 2) Cost of addition, expansion, improvement or alteration in the fixed assets.
- 3) Cost of replacement of permanent assets.
- 4) Research and development project cost etc.

Capital expenditure involves non-flexible long term commitment of funds.

Capital Budgeting – Definition

“Capital budgeting” has been formally defined as follows.

1) “Capital budgeting is long-term planning for making and financing proposed capital outlay”.

- Charles T. Horngreen

2) “The capital budgeting generally refers to acquiring inputs with long-term returns”.

- Richards & Greenlaw

3) “Capital budgeting involves the planning of expenditure for assets, the returns from which will be realized in future time periods”.

- Milton H. Spencer

The long-term activities are those activities that influence firms operation beyond the one year period. The basic features of capital budgeting decisions are:

- There is an investment in long term activities
- Current funds are exchanged for future benefits
- The future benefits will be available to the firm over series of years.

Need For Capital Investment

The factors that give rise to the need for capital investments are:

- Expansion
- Diversification
- Obsolescence
- Wear and tear of old equipment
- Productivity improvement
- Learning – curve effect
- Product improvement

- Replacement and modernization

The firm's value will increase in investments that are profitable. They add to the shareholders' wealth. The investment will add to the shareholders' wealth if it yields benefits, in excess of the minimum benefits as per the opportunity cost of capital.

It is clear from the above discussion what capital investment proposals involve

- a) Longer gestation period
- b) Substantial capital outlay
- c) Technological considerations
- d) Irreversible decisions
- e) Environmental issues

Capital Budgeting – Significance

1. Capital budgeting involves capital rationing. This is the available funds that have to be allocated to competing projects in order of project potential. Normally the individuality of project poses the problem of capital rationing due to the fact that required funds and available funds may not be the same.
2. Capital budget becomes a control device when it is employed to control expenditure. Because planned outlays are limits to actual expenditure, the concern has to investigate the variation in order to keep expenditure under control.
3. A firm contemplating a major capital expenditure programme may need to arrange funds many years in advance to be sure of having the funds when required.

4. Capital budgeting provides useful tool with the help of which the management can reach prudent investment decision.
5. Capital budgeting is significant because it deals with right mind of evaluation of projects. A good project must not be rejected and a bad project must not be selected. Capital projects need to be thoroughly evaluated as to costs and benefits.
6. Capital projects involve investment in physical assets such as land, building plant, machinery etc. for manufacturing a product as against financial investments which involve investment in financial assets like shares, bonds or mutual funds. The benefits from the projects last for few to many years.
7. Capital projects involve huge outlay and last for years.
8. Capital budgeting thus involves the making of decisions to earmark funds for investment in long term assets yielding considerable benefits in future, based on a careful evaluation of the prospective profitability / utility of such proposed new investment.

Capital Budgeting Process

The important steps involved in the capital budgeting process are (1) Project generation, (2) Project evaluation, (3) project selection and (4) project execution.

1. **Project Generation.** Investment proposals of various types may originate at different levels within a firm. Investment proposals may be either proposals to add new product to the product line or proposals to expand capacity in existing product lines. Secondly, proposals designed to reduce costs in the output of existing products without changing the scale of operations. The investment proposals of any type can originate at any level. In a dynamic and progressive firm there is a continuous flow of profitable investment proposals.

2. **Project evaluation.** Project evaluation involves two steps: i) estimation of benefits and costs and ii) selection of an appropriate criterion to judge the desirability of the projects. The evaluation of projects should be done by an impartial group. The criterion selected must be consistent with the firm's objective of maximizing its market value.
3. **Project Selection.** There is no uniform selection procedure for investment proposals. Since capital budgeting decisions are of crucial importance, the final approval of the projects should rest on top management.
4. **Project Execution.** After the final selection of investment proposals, funds are earmarked for capital expenditures. Funds for the purpose of project execution should be spent in accordance with appropriations made in the capital budget.

Factors Influencing Investment Decisions

The main factors which, influence capital investment are :

1. Technological change. In modern times, one often finds fast obsolescence of technology. New technology, which is relatively more efficient, takes the place of old technology; the latter getting downgraded to some less important applications. However, in taking a decision of this type, the management has to consider the cost of new equipment *vis-a-vis* the productive efficiencies of the new as well as the old equipments. However, while evaluating the cost of new equipment, the management should not take into, account its full accounting cost (as the equipment lasts for years) but its incremental cost. Also, the cost of new equipment is often partly offset by the salvage value of the replaced equipment.

2. **Competitors 'strategy.** Many a time an investment is taken to maintain the competitive strength of the firm; If the competitors are installing new equipment to expand output or to improve quality of their products, the firm under consideration will have no alternative but to follow suit, else it will perish. It is, therefore, often found that the competitors' strategy regarding capital investment plays a very significant role in forcing capital decisions on a firm.

3. **Demand forecast.** The long-run forecast of demand is one of the determinants of investment decision. If it is found that there is a market potential for the product in the long run, the dynamic firm will have to take decisions for capital expansion.

4. **Type of management.** Whether capital investment would be encouraged or not depends, to a large extent, on the viewpoint of the management. If the management is modern and progressive in its outlook, the innovations will be encouraged, whereas a conservative management discourages innovation and fresh investments.

5. **Fiscal policy.** Various tax policies of the government (like tax concessions on investment income, rebate on new investment, method of allowing depreciation deduction allowance) also have favourable or unfavourable influence on capital investment.

6. **Cashflows.** Every firm makes a cash flow budget. Its analysis influences capital investment decisions. With its help the firm plans the funds for acquiring the capital asset. The budget also shows the timing of availability of cash flows for alternative investment proposals, thereby helping the management in selecting the desired project.

7. **Return expected from the investment.** In most of the cases, investment decisions are made in anticipation of increased return in future. While evaluating

investment proposals, it is therefore essential for the firm to estimate future returns or benefits accruing from the investment.

Kinds of Capital Budgeting Decisions

The overall objective of capital budgeting is to maximise the profitability of a firm or the return on investment. This objective can be achieved either by increasing the revenues or by reducing costs. Thus, capital budgeting decisions can be broadly classified into two categories:

- (a) those which increase revenue, and
- (b) those which reduce costs

The first category of capital budgeting decisions are expected to increase revenue of the firm through expansion of the production capacity or size of operations by adding a new product line. The second category increases the earnings of the firm by reducing costs and includes decisions relating to replacement of obsolete, outmoded or worn out assets. In such cases, a firm has to decide whether to continue with the same asset or replace it. Such a decision is taken by the firm by evaluating the benefit from replacement of the asset in the form of reduction in operating costs and the cost/cash outlay needed for replacement of the asset. Both categories of above decisions involve investment in fixed assets but the basic difference between the two decisions lies in the fact that increasing revenue investment decisions are subject to more uncertainty as compared to cost reducing investment decisions.

Further, in view of the investment proposals under consideration, capital budgeting decisions may also be classified as.

- (i) Accept / Reject Decisions
- (ii) Mutually Exclusive Project Decisions
- (iii) Capital Rationing Decisions.

(i) Accept / Reject Decisions; Accept / reject decisions relate to independent project which do not compete with one another. Such decisions are generally taken on the basis of minimum return on investment. All those proposals which yield a rate of return higher than the minimum required rate of return or the cost of capital are accepted and the rest are rejected. If the proposal is accepted the firm makes investment in it, and if it is rejected the firm does not invest in the same.

(ii) Mutually Exclusive project Decisions; Such decisions relate to proposals which compete with one another in such a way that acceptance of one automatically excludes the acceptance of the other. Thus, one of the proposals is selected at the cost of the other. For example, a company may have the option of buying a new machine, or a second hand machine, or taking an old machine on hire or selecting a machine out of more than one brands available in the market. In such a case, the company may select one best alternative out of the various options by adopting some suitable technique or method of capital budgeting. Once one alternative is selected the others are automatically rejected.

iii) Capital Rationing Decisions: A firm may have several profitable investment proposals but only limited funds to invest. In such a case, these various investments compete for limited funds and, thus, the firm has to ration them. The firm effects the combination of proposals that will yield the greatest profitability by ranking them in descending order of their profitability.

Summary

Capital budgeting is budgeting for capital projects. It is significant because it deals with right kind of evaluation of projects. The exercise involves ascertaining / estimating cash inflows and outflows, matching the cash inflows

with the outflows appropriately and evaluation of desirability of the project. It is a managerial technique of meeting capital expenditure with the overall objectives of the firm. Capital budgeting means planning for capital assets.

Capital budgeting involves capital rationing. This is the available funds that have to be allocated to competing projects in order of project potential. Normally the individuality of project poses the problem of capital rationing due to the fact that required funds and available funds may not be the same. Capital budget becomes a control device when it is employed to control expenditure. Because planned outlays are limits to actual expenditure, the concern has to investigate the variation in order to keep expenditure under control. Capital budgeting provides useful tool with the help of which the management can reach prudent investment decision. Capital projects involve huge outlay and last for years. The Important factors influencing investment decisions include Technological change, competitors' strategy, demand forecast, type of management, fiscal policy, cash flows and return expected from the investment.

The overall objective of capital budgeting is to maximise the profitability of a firm or the return on investment. This objective can be achieved either by increasing the revenues or by reducing costs. Thus, capital budgeting decisions can be broadly classified into two categories: a) those which increase revenue, and b) those which reduce costs.

Further, in view of the investment proposals under consideration, capital budgeting decisions may also be classified as. i) Accept / Reject Decisions, ii) Mutually Exclusive Project Decisions and iii) Capital Rationing Decisions.

Keywords

Capital budgeting. It is decision-making process concerned with "whether or not (i) the firm should invest funds in an attempt to make profit?" and (ii) how to choose among competing projects.

Risk. Refers to a situation in which there are several possible outcomes, each outcome occurring with a probability that is known to the decision-maker.

Capital Expenditure. A capital expenditure is an expenditure incurred for acquiring or improving the fixed assets, the benefits of which are expected to be received over a number of years in future.

REVIEW QUESTIONS

- 1) What is capital budgeting?
- 2) Explain the significance of budgeting.
- 3) What are capital revisions?
- 4) Explain the nature and features of capital budgeting.
- 5) What are the various kinds of capital budgeting decisions?
- 6) What is meant by capital budgeting process?
- 7) Analyse the importance steps involved in capital budgeting.
- 8) Describe the Factors Influencing Investment Decisions
- 9) Explain need for investment decisions.
- 10) Explain the process involved in capital budgeting.

LESSON – 2

EVALUATION OF CAPITAL PROJECTS

LESSON OUTLINE

- Investment evaluation criteria
- Features required by Investment evaluation criteria
- Techniques of investment Appraisal
- Discounted cash flow (DCF) Criteria
- Non-discounted cash flow Criteria
- Comparison between NPV & IRR
- Similarities of results under NPV and IRR
- Problems & key

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand the Investment evaluation criteria
- To spell out the features required by Investment evaluation criteria
- To analyse Techniques of investment Appraisal Methods
- To make a comparison between NPV and IRR
- To identify the similarities of results under NPV and IRR

Capital budgeting is a managerial technique of planning capital expenditure in consonance with the overall objectives of the firm. Capital budgeting is a double-edged tool that analyses investment opportunities and cost of capital simultaneously while evaluating worth whileness of a project. A wide range of criteria has been suggested to judge the worth whileness of investment projects. Capital projects need to be thoroughly evaluated as to costs and benefits. The costs of capital projects include the initial investment at the inception of the project. Initial investment made in land, building, plant and machinery, equipment, furniture, fixtures etc. generally gives the installed capacity.

Investment Evaluation Criteria

The capital budgeting process begins with assembling of investment proposals of different departments of a firm. The departmental head will have innumerable alternative projects available to meet his requirements. He has to select the best alternative from among the conflicting proposals. This selection is made after estimating return on the projects and comparing the same with the cost of capital. Investment proposal which gives the highest net marginal return will be chosen.

Following are the steps involved in the evaluation of an investment:

- 1) Estimation of cash flows
- 2) Estimation of the required rate of return
- 3) Application of a decision rule for making the choice

Features required by Investment Evaluation Criteria

A sound appraisal technique should be used to measure the economic worth of an investment project. Porterfield, J.T.S. in his book, Investment Decisions and

Capital Costs, has outlined some of the features that must be had by a sound investment evaluation criteria.

- It should consider all cash flows to determine the true profitability of the project.
- It should provide for an objective and unambiguous way of separating good projects from bad projects.
- It should help ranking of projects according to their true profitability.
- It should recognise the fact that bigger cash flows are preferable to smaller ones and early cash flows are preferable to later ones.
- It should help to choose among mutually exclusive projects that project which maximises the shareholders' wealth.
- It should be a criterion which is applicable to any conceivable investment project independent of others.

Techniques of Investment Appraisal

Discounted Cash Flow (DCF) Criteria

- Net present value (NPV)
- Internal rate of return (IRR)
- Profitability index (PI)

Non-discounted Cash Flow Criteria

- Pay-back period
- Discounted payback period
- Accounting rate of return (ARR).

Non-discounted Cash Flow Criteria

Payback period Method : This method is popularly known as pay off, pay-out, recoupment period method also. It gives the number of years in which the total investment in a particular capital expenditure pays back itself. This method is

based on the principle that every capital expenditure pays itself back over a number of years. It means that it generates income -within a certain period. When the total earnings (or net cash-inflow] from investment equals the total outlay, that period is the payback period of the capital investment. An investment project is adopted so long as it pays for itself within a specified period of time — say 5 years or less. This standard of recoupment period is settled by the management taking into account a number of considerations. While *there is a comparison between two or more projects, the lesser the number of payback years, the project will be acceptable.*

The formula for the payback period calculation is simple. First of all, net-cash-inflow is determined. Then we divide the initial cost (or any value we wish to recover) by the annual cash-inflows and the resulting quotient is the payback period. As per formula :

$$\text{Payback period} = \frac{\text{Original Investment}}{\text{Annual Cash-inflows}}$$

If the annual cash-inflows are uneven, then the calculation of payback period takes a cumulative form. We accumulate the annual cash-inflows till the recovery of investment and as soon as this amount is recovered, it is the expected number of payback period years. An asset or capital expenditure outlay that pays back itself early comparatively is to be preferred.

Payback Method – Merits: The payback period method for choosing among alternative projects is very popular among corporate managers and according to Quirin even among Soviet planners who call it as the recoupment period method. In U.S.A and U.K. this method is widely accepted to discuss the profitability of foreign investment. Following are some of the advantages of pay back method:

- (1) It is easy to understand, compute and communicate to others. Its quick computation makes it a favourite among executive who prefer snap answers.
- (2) It gives importance to the speedy recovery of investment in capital assets. So it is useful technique in industries where technical developments are in full swing necessitating the replacements at an early date.
- (3) It is an adequate measure for firms with very profitable internal investment opportunities, whose sources of funds are limited by internal low availability and external high costs.
- (4) It is useful for approximating the value of risky investments whose rate of capital wastage (economic depreciation and obsolescence rate) is hard to predict. Since the payback period method weights only return heavily and ignores distant returns it contains a built-in hedge against the possibility of limited economic life.
- (5) When the payback period is set at a large "number of years and incomes streams are uniform each year, the payback criterion is a good approximation to the reciprocal of the internal rate of discount.

Payback Method – Demerits : This method has its own limitations and disadvantages despite its simplicity and rapidity. Here are a number of demerits and disadvantages claimed by its opponents:-

- (1) It treats each asset individually in isolation with the other assets, while assets in practice can not be treated in isolation.
- (2) The method is delicate and rigid. A slight change in the division of labour and cost of maintenance will affect the earnings and such may also affect the payback period.
- (3) It overplays the importance of liquidity as a goal of the capital expenditure decisions. While no firm can ignore its liquidity requirements but there are more

direct and less costly means of safeguarding liquidity levels. The overlooking of profitability and over stressing the liquidity of funds can in no way be justified.

(4) It ignores capital wastage and economic life by restricting consideration to the projects' gross earnings.

(5) It ignores the earning beyond the payback period while in many cases these earnings are substantial. This is true particularly in respect of research and welfare projects.

(6) It overlooks the cost of capital which is the main basis of sound investment decisions.

In perspective, the universality of the payback criterion as a reliable index of profitability is questionable. It violates the first principle of rational investor behaviour-namely that large returns are preferred to smaller ones. However, it can be applied in assessing the profitability of short and medium term capital expenditure projects.

Accounting Rate of Return Method - It is also an important method. This method is known as Accounting Rate of Return Method / Financial Statement Method/ Unadjusted Rate of Return Method also. According to this method, capital projects are ranked in order of earnings. Projects which yield the highest earnings are selected and others are ruled out. The return on investment method can be expressed in several ways as follows:

(i) Average Rate of Return Method - Under this method we calculate the average annual profit and then we divide it by the total outlay of capital project. Thus, this method establishes the ratio between the average annual profits and total outlay of the projects.

As per formula,

$$\text{Rate of Return} = \frac{\text{Average Annual Profits}}{\text{Outlay of the Project}} \times 100$$

Thus, the average rate of return method considers whole earnings over the entire economic life of an asset. Higher the percentage of return, the project will be acceptable.

(ii) **Earnings per unit of Money Invested** - As per this method, we find out the total net earnings and then divide it by the total investment. This gives us the average rate of return per unit of amount (i.e. per rupee) invested in the project. As per formula:

$$\text{Earnings per unit of investment} = \frac{\text{Total Earnings}}{\text{Total Outlay of the Project}}$$

The higher the earnings per unit, the project deserves to be selected.

(iii) **Return on Average Amount of Investment Method** - Under this method the percentage return on average amount of investment is calculated. To calculate the average investment the outlay of the projects is divided by two. As per formula :

$$\text{Average Investment} = \frac{\text{Unrecovered Capital at the beginning} + \text{Unrecouped capital at the end}}{2}$$

Or

$$= \frac{\text{Initial investment} + \text{scrap value}}{2}$$

$$\text{Or} \quad = \frac{\text{Investment}}{2}$$

$$\text{Rate of Return} = \frac{\text{Average Annual Net Income (Savings)}}{\text{Average Investment}} \times 100$$

Here:

Average Annual Net Income =

Average Annual Cash- inflow - Depreciation

Thus, we see that the rate of return approach can be applied in various ways. But, however, in our opinion the third approach is more reasonable and consistent.

Accounting Rate of Return Method – Merits

This approach has the following merits of its own :

- (1) Like payback method it is also simple and easy to understand.
- (2) It takes into consideration the total earnings from the project during its entire economic life.
- (3) This approach gives due weight to the profitability of the project.
- (4) In investment with extremely long lives, the simple rate of return will be fairly close to the true rate of return. It is often used by financial analysis to measure current performance of a firm.

Accounting Rate of Return Method – Demerits

- (1) One apparent disadvantage of this approach is that its results by different methods are inconsistent.

- (2) It is simply an averaging technique which does not take into account the various impacts of external factors on over-all profits of the firm.
- (3) This method also ignores the time factor which is very crucial in business decision.
- (4) This method does not determine the fair rate of return on investments. It is left to the discretion of the management.

Discounted Cashflows Techniques

Another method of computing expected rates of return is the present value method. The method is popularly known as Discounted Cashflow Method also. This method involves calculating the present value of the cash benefits discounted at a rate equal to the firm's cost of capital. In other words, the "present value of an investment is the maximum amount a firm could pay for the opportunity of making the investment without being financially worse off."

The financial executive compares the present values with the cost of the proposal. If the present value is greater than the net investment, the proposal should be accepted. Conversely, if the present value is smaller than the net investment, the return is less than the cost of financing. Making the investment in this case will cause a financial loss to the firm.

There are four methods to judge the profitability of different proposals on the basis of this technique

(i) **Net Present Value Method** - This method is also known as Excess Present Value or Net Gain Method. To implement this approach, we simply find the present value of the expected net cash inflows of an investment discounted at the cost of capital and subtract from it the initial cost outlay of the project. If the net present value is positive, the project should be accepted : if negative, it should be rejected.

NPV = Total Present value of cash inflows – Net investment

If the two projects are mutually exclusive the one with higher net present value should be chosen. The following example will illustrate the process:

Assumed that the cost of capital after taxes of a firm is 6%. Assume further, that the net cash-inflow (after taxes) on a Rs. 5,000 investment are forecasted as being Rs. 2,800 per annum for 2 years. The present value of this stream of net cash-inflow discounted at 6% comes to Rs. 5,272 (1,813 xRs.2800).

Therefore, the present value of the cash inflow	=	Rs. 5,272
Less present value of net investment	=	Rs. 5,000
Net Present value		Rs. 272

(ii) **Internal Rate of Return Method** - This method is popularly known as time adjusted rate of return method/discounted rate of return method also. The internal rate of return is defined as the interest rate that equate the present value of expected future receipts to the cost of the investment outlay. This internal rate of return is found by trial and error. First we compute the present value of the cash-flows from an investment, using an arbitrarily elected interest rate. Then we compare the present value so obtained with the investment cost. If the present value is higher than the cost figure, we try a higher rate of interest and go through the procedure again. Conversely, if the present value is lower than the cost, lower the interest rate and repeat the process. The interest rate that brings about this equality is defined as the internal rate of return. This rate of return is compared to the cost of capital and the project having higher difference, if they are mutually exclusive, is adopted and other one is rejected. As the determination of internal rate of return involves a number of attempts to make the present value of earnings equal to the investment, this approach is also called the Trial and Error Method,

(iii) **Profitability Index Method** - One major disadvantage of the present value method is that it is not easy to rank projects on the basis of net present value particularly when the cost of projects differ significantly. To compare such projects the present value profitability index is prepared. The index establishes relationship between cash-inflows and the amount of investment as per formula given below:

$$V.\text{Index} = \frac{\text{NPV}}{\text{Investment}} \times 100 \quad \text{or} \quad \frac{\text{GPV}}{\text{Investment}} \times 100$$

For example, the profitability index of the Rs. 5,000 investment discussed in Net Present Value Method above would be :

$$\frac{272}{3000} \times 100 = 5.44 \quad \text{or} \quad \frac{5272}{5000} \times 100 = 105.44$$

The higher profitability index, the more desirable is the investment. Thus, this index provides a ready compatibility of investment having various magnitudes. By computing profitability indices for various projects, the financial manager can rank them in order of their respective rates of profitability.

(iv) **Terminal Value Method** - This approach separates the timing of the cash-inflows and outflows more distinctly. Behind this approach is the assumption that each cash-inflow is re-invested in another assets at the certain rate of return from the moment it is received until the termination of the project. Then the present value of the total compounded sum is calculated and it is compared with the initial cash-outflow. The decision rule is that if the present value of the sum total of the compounded re-invested cash-inflows is greater than the present value of cash-outflows, the proposed project is

accepted otherwise not. The firm would be different if both the values are equal.

This method has a number of advantages. It incorporates the advantage of re-investment of cash-inflows by compounding and then discounting it. Further, it is best suited to cash budgeting requirements. The major practical problem of this method lies in projecting the future rates of interest at which the intermediate cash inflows received will be re-invested.

Discounted Cashflow Techniques – Merits

- (1) This method takes into account the entire economic life of an investment and income therefrom. It gives the rate of return offered by a new project.
- (2) It gives due weight to time factor of financing. In the words of Charles Horngreen "Because the discounted cash-flow method explicitly and routinely weights the time value of money, it is the best method to use for long-range decisions.
- (3) It permits direct comparison of the projected returns on investments with the cost of borrowing money which is not possible in other methods.
- (4) It makes allowance for differences in the time at which investment generate their income.
- (5) This approach by recognising the time factor makes sufficient provision for uncertainty and risk. It offers a good measure of relative profitability of capital expenditure by reducing the earnings to the present values.

Discounted Cashflow Techniques – Demerits

This method is criticised on the following grounds :

- (1) It involves a good amount of calculations. Hence it is difficult and complicated one. But this criticism has no force.

- (2) It is very difficult to forecast the economic life of any investment exactly.
- (3) The selection of cash-inflow is based on sales forecasts which is in itself an indeterminable element.
- (4) The selection of an appropriate rate of interest is also difficult.

COMPARISON BETWEEN NPV AND IRR (NPV Vs. IRR)

The Net Present value method and the Internal Rate of Return Method are similar in the sense that both are modern techniques of capital budgeting and both take into account the time value of money. In fact, both these methods are discounted cash flow techniques. However, there are certain basic differences between these two methods of capital budgeting:

- (i) In the net present value method the present value is determined by discounting the future cash flows of a project at a predetermined or specified rate called the cut off rate based on cost of capital. But under the internal rate of return method, the cash flows are discounted at a suitable rate by hit and trial method which equates the present value so calculated to the amount of the investment. Under IRR method, discount rate is not predetermined.
- (ii) The NPV method recognises the importance of market rate of interest or cost of capital. It arrives at the amount to be invested in a given project so that its anticipated earnings would recover the amount invested in the project at market rate. Contrary to this, the IRR method does not consider the market rate of interest and seeks to determine the maximum rate of interest at which funds invested in any project could be repaid with the earnings generated by the project.

(iii) The basic presumption of NPV method is that intermediate cash inflows are reinvested at the cut off rate, whereas, in the case of IRR method, intermediate cash flows are presumed to be reinvested at the internal rate of return.'

(iv) The results shown by NPV method are similar to that of IRR method under certain situations, whereas, the two give contradictory results under some other circumstances. However, it must be remembered that NPV method using a predetermined cut-off rate is more reliable than the IRR method for ranking two or more capital investment proposals.

(a) Similarities of Results Under NPV and IRR

Both NPV and IRR methods would show similar results in terms of accept or reject decisions in the following cases :

(i) Independent investment proposals which do not compete with one another and which may be either accepted or-rejected on the basis of a minimum required rate of return.

(ii) Conventional investment proposals which involve cash outflows or outlays in the initial period followed by a series of cash inflows.

The reason for similarity of results in the above cases lies on the basis of decision-making in the two methods. Under NPV method, a proposal is accepted if its net present value is positive, whereas, under IRR method it is accepted if the internal rate of return is higher than the cut off rate. The projects which have positive net present value, obviously, also have an internal rate of return higher than the required rate of return.

(b) Conflict Between NPV and IRR Results

In case of mutually exclusive investment proposals, which compete with one another in such a manner that acceptance of one automatically excludes the acceptance of the other, the NPV method and IRR method may give contradictory results. The net present value may suggest acceptance of one proposal whereas, the internal rate of return may favour another proposal. Such conflict in rankings may be caused by any one or more of the following problems:

- (i) Significant difference in the size. (amount) of cash outlays of various proposals under consideration.
- (ii) Problem of difference in the cash flow patterns or timings of the various proposals and
- (iii) difference in service life or unequal expected lives of the projects.

PROBLEMS AND KEY

1) Equipment A has a cost of Rs 75,000 and net cash flow of Rs 20,000 per year for six years. A substitute equipment B would cost Rs 50,000 and generate net cash flow of Rs 14,000 per year for six years. The required rate of return of both equipments is 11 per cent. Calculate the IRR and NPV for the equipments. Which equipment should be accepted and why?

Solution :

Equipment A

$$\begin{aligned} \text{NPV} &= 20,000 \times \text{PVAF}_{6,0.11} - 75,000 \\ &= 20,000 \times 4.231 - 75,000 \\ &= 84,620 - 75,000 = \text{Rs } 9,620 \\ \text{IRR} &= 20,000 \times \text{PVAF}_{6,r} = 75,000 \\ \text{PVAF}_{6,r} &= 75,000 / 20,000 = 3.75 \end{aligned}$$

From the present value of an annuity table, we find:

$$\text{PVAF}_{6,0.15} = 3.784$$

$$\text{PVAF}_{6,0.16} = 3.685$$

Therefore,

$$\begin{aligned} \text{IRR} = r &= 0.15 + 0.01 \frac{3.784 - 3.75}{3.784 - 3.685} \\ &= 0.15 + 0.0034 = 0.1534 \text{ or } 15.34\% \end{aligned}$$

Equipment B:

$$\text{NPV} = 14,000 \times \text{PVAF}_{6,0.11} - 50,000$$

$$= 14,000 \times 4.231 - 50,000$$

$$= 59,234 - 50,000 = \text{Rs } 9,234$$

$$\text{IRR} = 14,000 \times \text{PVAF}_{6,r} = 50,000$$

$$\text{PVAF}_{6,r} = 50,000 / 14,000 = 3.571$$

From the present value of an annuity table, we find:

$$\text{PVAF}_{6,0.17} = 3.589$$

$$\text{PVAF}_{6,0.18} = 3.498$$

Therefore,

$$\begin{aligned} \text{IRR} = r &= 0.17 + 0.01 \frac{3.589 - 3.571}{3.589 - 3.498} \\ &= 0.17 + 0.002 = 0.172 \text{ or } 17.20\% \end{aligned}$$

Equipment A has a higher NPV but lower IRR as compared with equipment B. Therefore equipment A should be preferred since the wealth of the shareholders will be maximised.

5) For each of the following projects compute (i) pay-back period, (ii) post pay-back profitability and (iii) post-back profitability index

a)	Initial outlay	Rs.50,000
	Annual cash inflow (after tax but before depreciation)	Rs.10,000
	Estimated life	8 Years
b)	Initial outlay	Rs.50,000
	Annual cash inflow (after tax but before depreciation)	
	First three years	Rs.15,000
	Next five years	Rs. 5,000
	Estimated life	8 Years
	Salvage	Rs. 8,000

Solution

- a) i) Pay-back period = Investment / Annual Cash Flow
 $= 50,000 / 10,000 = 5 \text{ Years}$
- ii) Post pay back profitability
 $= \text{Annual cash inflow (estimated life - pay back period)}$
 $= 10,000 (8 - 5) = \text{Rs. } 30,000$
- iii) Post back profitability index = $30,000 / 50,000 \times 100 = 60\%$
- b) i) As the case inflows are the equal during the life of the investment pay back period can be calculated as:
- | | | |
|------------------------------------|---|------------------|
| 1 st year's cash inflow | = | Rs.15,000 |
| 2 nd year's cash inflow | = | Rs.15,000 |
| 3 rd year's cash inflow | = | Rs.15,000 |
| 4 th year's cash inflow | = | <u>Rs. 5,000</u> |
| | | <u>Rs.50,000</u> |

Hence, the pay-back period is 4 years.

ii) Post pay back profitability

= Annual cash inflow x remaining life after pay –back period)

$$= 5,000 \times 4 = \text{Rs. } 20,000$$

iii) Post back profitability index = $20,000 / 50,000 \times 100 = 40\%$

6) X Ltd. is considering the purchase of a machine. Two machines are available E and F. the cost of each machine is Rs. 60,000. Each machine has expected life of 5 years. Net profits before tax and after depreciation during expected life of the machines are given below:

Year	Machine E (Rs)	Machine F (Rs.)
1	15,000	5,000
2	20,000	15,000
3	25,000	20,000
4	15,000	30,000
5	10,000	20,000
Total	85,000	90,000

Solution

Statement of Profitability

Year	Machine E		Machine F			
	Profit after tax (Rs.)	Tax at 50% (Rs.)	Profit after tax (Rs.)	Profit before tax (Rs.)	Tax at 50% (Rs.)	Profit after tax (Rs.)
1	15,000	7,500	7,500	5,000	2,500	2,500
2	20,000	10,000	10,000	10,000	5,000	5,000

3	25,000	12,500	12,500	20,000	10,000	10,000
4	15,000	7,500	7,500	30,000	15,000	15,000
5	10,000	5,000	5,000	20,000	10,000	10,000
Total	85,000	42,500	42,500	90,000	45,000	45,000

Machine E

Machine F

Average profit after tax $42,500 \times 1/5 = \text{Rs. } 8500$ $45,000 \times 1/5 = \text{Rs. } 9000$

Average investment $60,000 \times 1/2 = \text{Rs. } 30000$ $60,000 \times 1/2 = \text{Rs. } 30000$

Average return on average $8500/30000 \times 100 = 28.33\%$ $9000/30000 \times 100 = 30\%$

Thus, machine F is more profitable.

7) From the following information calculate the net present value of the two projects and suggest which of the two projects should be accepted assuming a discount rate of 10%.

	Project X	Project Y
Initial investment	Rs.20,000	Rs.30,000
Estimated life	5 Years	5 Years
Scrap value	Rs. 1,000	Rs. 2,000

The profits before depreciation and after taxes (cash flows) are as follows:

	Year 1	Year 2	Year 3	Year 4	Year 5
	Rs.	Rs.	Rs.	Rs.	Rs.
Project X	5000	10000	10000	3000	2000
Project Y	20000	10000	5000	3000	2000

Solution :

Calculations for net present value			
Project X			
Year	Cash flows Rs.	Present value of Re 1 @ 10% (discount factore) using present value tables	Present value of net cash flows Rs.
1	5000	.909	4545
2	10000	.826	8260
3	10000	.751	7510
4	3000	.683	2049
5 (Scrap value)	2000	.621	1242
	1000	.621	621
			24227

Rs.

Present value of all cash inflows 24227

Less present value of initial investment 20000

(because all the investment is to be made in the first
year only, the present value is the same as the cost of
the initial investment)

Net present values = 4227

PROJECT Y

Year	Cash flows Rs.	Present value of Re 1 @ 10% (discount factore) using present value tables	Present value of net cash flows Rs.
1	20000	.909	18180
2	10000	.826	8260
3	5000	.751	3755

4	3000	.683	2049
5 (Scrap value)	2000	.621	1242
	2000	.621	1242
			34728

Rs.

Present value of all cash inflows 34728

Less present value of initial investment 30000

(because all the investment is to be made in the first year only, the present value is the same as the cost of the initial investment)

Net present values = 4728

We find that net present value of Project Y is higher than that the net present value of Project X and hence it is suggested that project Y should be selected.

9) Two mutually exclusive investment proposals are being considered. The following information is available.

	Project X		Project Y	
	Rs.		Rs.	
Cost		Rs.6000		Rs. 6000
Cash inflow				
Year	Rs.	Probability	Rs.	Probability
1	4000	.2	8000	.2
2	8000	.6	9000	.6
3	12000	.2	9000	.2

Assuming cost of capital at 10%, advise the selection of the project.

Solution :

CALCULATION OF NET PRESENT VALUES OF THE TWO PROJECTS										
Year	P.V.Factor @ 10%	Project X				Project Y				
		Cash inflows Rs.	Proba- bility	Monetary value	Present value Rs.	Cash inflows Rs.	Proba- bility	Monetary value	Present value Rs.	
1	.909	4000	.2	800	727	7000	.2	1400	1273	
2	.826	8000	.6	4800	3965	8000	.6	4800	3965	
3	.751	12000	.2	2400	1802	9000	.2	1800	1352	
Total present value					6494					6590
Less: cost of investment					6000					6000
Net present value					494					590

As net present value of project is more than that of project X after taking into consideration the probabilities of cash inflows. Project Y is more profitable.

Summary

Capital budgeting is a double-edged tool that analyses investment opportunities and cost of capital simultaneously while evaluating worth whileness of a project. A wide range of criteria has been suggested to judge the worth whileness of investment projects. Capital projects need to be thoroughly evaluated as to costs and benefits. The capital budgeting process begins with assembling of investment proposals of different departments of a firm. The departmental head will have innumerable alternative projects available to meet his requirements. He has to select the best alternative from among the conflicting proposals. This selection is made after estimating return on the projects and comparing the same with the cost of capital. Investment proposal which gives the highest net marginal return will be chosen. Following are the steps involved in the evaluation of an investment: 1) Estimation of cash flows, 2) Estimation of the required rate of return and 3) Application of a decision rule for making the choice. A sound appraisal technique should be used to measure the economic

worth of an investment project. The various techniques of investment appraisal methods include : *Discounted Cash Flow (DCF) Criteria* i) Net present value (NPV), ii) Internal rate of return (IRR) and iii) Profitability index (PI). *Non-discounted Cash Flow Criteria* i) Pay-back period, ii) Discounted payback period and iii) Accounting rate of return (ARR).

Key words

Payback period. A method of evaluating investment proposal which determines the time a project's cash inflows will take to repay the original investments of the project.

Average rate of return. Also known as the accounting rate of return (*ARR*), return on investment (*ROI*) or return on assets (*ROA*), is obtained by dividing average annual post-tax profit by the average investment.

Discount rate. The rate at which cash flows are discounted. This rate may be taken as the required rate of return on capital, or the cost of capital.

Internal rate of return. The *IRR* is a method of evaluating investment proposals. It is that rate of discount (or interest rate) that equals the present value of outflows to the present value of inflows, thus making $NPV=0$.

Mutually exclusive projects. A situation in which the acceptance of one investment proposal leaves out the acceptance of another proposal.

Net Present Value. A method of evaluation consisting of comparing the present value of all net cash flows (discounted by cost of capital as the interest rate) to the initial investment cost.

REVIEW QUESTIONS

- 1) What is meant by pay back method? State its advantages.
- 2) How do you calculate the accounting rate of return? What are its limitations?
- 3) Under what circumstances do the net present value and internal rate of return methods differ? Which method would you prefer and why?
- 4) What are the mutually exclusive projects? Explain the conditions when conflicting ranking would be given by the internal rate of return and net present value methods to such projects.
- 5) What is profitability index? Which is a superior ranking criterion, profitability index or the net present value?
- 6) Under what conditions would the internal rate of return be a reciprocal of the payback period?
- 7) Explain the investment criteria.
- 8) Discuss the various methods of appraisal of investment proposals.
- 9) Differential between NPV and IRR method
- 10) Write short note on
 - a) Time adjusted rate of return
 - b) Profitability index
- 11) Do the NPV and Profitability index always lead to the same investment decision? Discuss.
- 12) Discuss the techniques of various investment appraisal methods in capital budgeting.
- 13) Mention the features required by investment evaluation criteria.

LESSON – 3
RISK ANALYSIS IN CAPITAL BUDGETING

LESSON OUTLINE

- Capital rationing – meaning
- Measuring of risk and uncertainty
- Types of uncertainties
- Precautions for uncertainties
- Risk and investment proposals
- Risk and uncertainty
Incorporated methods of
Capital project evaluation

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand the meaning of Capital rationing
- Know the meaning of risk and uncertainty
- To describe the types of uncertainties
- To review the precautions for uncertainties
- To identify the risk and investment proposals
- Describe the risk and uncertainty incorporated methods of capital project evaluation.

Capital Rationing – Meaning

Capital rationing refers to a situation where a firm is not in a position to invest in all profitable projects due to the constraints on availability of funds. We know that the resources are always limited and the demand for them far exceeds their availability, It is for this reason that the firm cannot take up ail the projects though profitable, and has to select the combination of proposals that will yield the greatest profitability.

Capital rationing is a situation where a firm has more investment proposals than it can finance. It may be defined as "a situation where a constraint is placed on the total size of capital investment during a particular period". In such an event the firm has to select combination of investment proposals that provide the highest net present value subject to the budget constraint for the period. Selecting of projects for this purpose will require the taking of the following steps;

- (i) Ranking of projects according to profitability index or internal'-rate of return.
- (ii) Selecting projects in descending order of profitability until the budget figures are exhausted keeping in view the objective of maximising the value of the firm.

Meaning Of Risk And Uncertainty

Risk and uncertainty are quite inherent in capital budgeting decisions. Future is uncertain and involve risk. Risk involves situations in which the probabilities of an event occurring are known and these probabilities are objectively determinable. Uncertainty is a subjective phenomenon. In such situation, no

observation can be drawn from frequency distribution. The risk associated with a project may be defined as the variability that is likely to occur in the future returns from the project. A wide range of factors give rise to risk and uncertainty in capital investment, viz. competition, technological development, changes in consumer preferences, economic factors, both general and those peculiar to the investment, political factors etc. Inflation and deflation are bound to affect the investment decision in future period rendering the deeper of uncertainty more severe and enhancing the scope of risk. Technological developments are other factors that enhance the degree of risk and uncertainty by rendering the plants or equipments obsolete and the product out of date. It is worth noting that distinction between risk and uncertainty is of academic interest only. Practically no generally accepted methods could so far be evolved to deal with situation of uncertainty while there are innumerable techniques to deal with risk. In view of this, the terms risk and uncertainty are used exchangeably in the discussion of capital budgeting.

The capital budgeting decision is based upon the benefits derived from the project. These benefits are measured in terms of cash flows. These cash flows are estimates. The estimation of future returns is done on the basis of various assumptions. The actual return in terms of cash inflows depends on a variety of factors such as price, sales volume, effectiveness of the advertising campaign, competition, cost of raw materials, etc. The accuracy of the estimates of future returns and therefore the reliability of the investment decision would largely depend upon the precision with which these factors are forecast. In reality, the actual returns will vary from the estimate. This is referred to risk. The term 'risk' with reference to investment decisions may be defined as the variability in the actual returns emanating from a project in future over its

working life in relation to the estimated return as forecast at the time of the initial capital budgeting decision.

According to Luce R.D and H. Raiffa in their book, 'Games and Decision' (1957), the decision situations with reference to risk analysis in capital budgeting decisions can be broken into three types.

- i) Uncertainty
- ii) Risk and
- iii) Certainty

The risk situation is one in which the probabilities of a particular event occurring are known. The difference between risk and uncertainty lies in the fact that the variability is less in risk than in the uncertainty.

In the words of Osteryang, J.S. 'Capital budgeting' risk refers to the set of unique outcomes for a given event which can be assigned probabilities while uncertainty refers to the outcomes of a given event which are too sure to be assigned probabilities.

Types of Uncertainties

Several types of uncertainties are important to the producer, as he formulates, plans and designs courses of actions for procuring resources at the present time for a product forthcoming at a future date. The types of uncertainties can be classified as (i) Price uncertainty (ii) Production uncertainty (iii) Production technology uncertainty (iv) Political uncertainty (v) Personal uncertainty; and (vi) Peoples' uncertainty.

Precautions for Uncertainties

Precautionary measures to meet uncertainty can take one or all the three following distinct forms: (i) Measures can be adopted to reduce the variability or

dispersion of income; (ii) Measures can be adopted to prevent profit from falling below some minimum level; (iii) Measures can be adopted to increase the firm's ability to withstand unfavourable economic outcomes.

Risk And Investment Proposals

There are two measures of incorporating risk in the decision – making. They are: 1) The expected value and 2) The standard deviation.

1) The Expected Value : In a situation of certainty, any investment gives only one possible cash flow out in a risky situation several cash flows are possible, each with a given probability. By ascertaining the average of all such possible outcomes $(X)_i$ weighed by their respective probabilities (P) we can get a single value for the cash flows. The value is known as expected value $E(X)$, whose generalized expression is

$$E(X) = \sum_{i=1}^n X_i p_i$$

2) The Standard Deviation : The statistical concept of standard deviation is used as a yard stick that reflects the variations of possible outcomes from its mean value. The standard deviation is calculated as:

$$\sigma = \sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 P_i}$$

$\sum_{i=1}^n$

where, σ = standard deviation

—
X, X and P represent the same.

Note: The combination of expected value and standard deviation helps in choosing between projects. However, if the two projects have identical expected values, the project with the minimum dispersion in returns i.e., lower standard deviation is preferred as it is less risky project.

Risk and Uncertainty incorporated methods of Capital Project evaluation

Risk with reference to capital (budgeting) investment decisions may be defined as the variability which is likely to occur in future between estimated return and actual return. Uncertainty is total lack of ability to pinpoint expected return.

Situations of pure risk, refer to contingencies which have to be protected against the normal insurance practice of pooling. For this to be so, risk situations are characterized by a considerable degree of past experience. Uncertainty on the other hand relates to situations in some sense unique and of which there is very little certain knowledge of some or all significant aspects.

The techniques used to handle risk may be classified into the groups as follows:

- (a) **Conservative methods** – These methods include shorter payback period, risk-adjusted discount rate, and conservative forecasts or certainty equivalents etc., and
- (b) **Modern methods** – They include sensitivity analysis, probability analysis, decision-tree analysis etc.

i. Conservative Methods

The conservative methods of risk handling are dealt with now.

1. Shorter Payback Period. According to this method, projects with shorter payback period are normally preferred to those with longer payback period. It would be more effective when it is combined with "cut off period". Cut off period denotes the risk tolerance level of the firms. For example, a firm has three projects. A, B and C for consideration with different economic lives say 15, 16 and 8 years respectively and with payback periods of say 6, 7 and 5 years. Of these three, project C will be preferred, for its payback period is the shortest. Suppose, the cut off period is 4 years, then all the three projects will be rejected.

2. Risk Adjusted Discount Rate (RADR). Risk Adjusted Discount Rate is based on the same logic as the net present value method. Under this method, discount rate is adjusted in accordance with the degree of risk. That is, a risk discount factor (known as risk-premium rate) is determined and added to the discount factor (risk free rate) otherwise used for calculating net present value. For example, the rate of interest (r) employed in the discounting is 10 per cent and the risk discount factor or degrees of risk (d) are 2, 4 and 5 per cent for mildly risky, moderately risky and high risk (or speculative) projects respectively then the total rate of discount (D) would respectively be 12 per cent, 14 per cent and 15 per cent.

That is $RADR = 1 / (1+r+d)$. The idea is the greater the risk the higher the discount rate. That is, for the first year the total discount factor, $D = 1 / (1+r+d)$ for the second year $RADR = 1 / (1+r+d)^2$ and so on.

Normally, risk discount factor would vary from project to project depending upon the quantum of risk. It is estimated on the basis of judgment and intention on the part of management, which in turn are subject to risk attitude of management.

It may be noted that the higher the risk, the higher the risk adjusted discount rate, and the lower the discounted present value. The Risk Adjusted Discount Rate is composite of discount rate which combines both time and risk factors.

Risk Adjusted Discount Rate can be used with both N.P.V: and LRR In the case of N.P.V. future cash flows should be discounted using Risk Adjusted Discount Rate and then N.P.V. may be ascertained. If the N.P.V. were positive, the project would qualify for acceptance. A negative N.P.V. would signify that the project should be rejected. If LRR method were used, the I.R.R. would be computed and compared with the modified discount rate. If it exceeds modified discount rate, the proposal would be accepted, otherwise rejected.

Risk Adjusted Discount Rate Method – Merits :

- i) This technique is simple and easy to handle in practice.
- ii) The discount rates can be adjusted for the varying degrees of risk in different years, simply by increasing or decreasing the risk factor (d) in calculating the risk adjusted discount rate.
- iv) This method of discounting is such that the higher the risk factor in the remote future is, automatically accounted for. The risk adjusted discount rate is a composite rate which combines both the time and discount factors.

Risk Adjusted Discount Rate Method – Demerits :

- i) The value of discount factor must necessarily remain subjective as it is primarily based on investor's attitude towards risk.
- ii) A uniform risk discount factor used for discounting all future returns is unscientific as-it implies the risk level of investment remains same over the years where as in practice is not so.

Certainty-Equivalent Coefficient Approach. This risk element in any decision is often characterized by the two Outcomes: the 'potential gain' at the one end and the 'potential loss' at the other. These are respectively called the focal gain and focal loss. In this connection, Shackle proposes the concept of "potential surprise" which is a unit of measurement indicating the decision-maker's surprise at the occurrence of an event other than what he was expecting. He also introduces "another concept - the "certainty equivalent" of risky investment. For an investment X with a given degree of risk, investor can always find another risk less investment Xi such that he is indifferent between X and Xi. The difference between X and Xi is implicitly the risk discount.

The risk level of the project under this method is taken into account by adjusting the expected cash inflows and the discount rate. Thus the expected cash inflows are reduced to a conservative level by a risk-adjustment factor (also called correction factor). This factor is expressed in terms of Certainty - Equivalent Co-efficient which is the ratio of risk less cash flows to risky cash flows. Thus Certainty — Equivalent Co-efficient;

$$= \frac{\text{Risk less cash flow}}{\text{Risky cash flows}}$$

This co-efficient is calculated for cash flows of each year. The value of the co-efficient may vary-between 0 and 1, there is inverse relationship between the degree of risk, and the value of co-efficient computed.

These adjusted cash inflows are used for calculating N.P.V. and the I.R.R. The discount rate to be used for calculating present values will be risk-free (i.e., the rate reflecting the time value of money). Using this criterion of the N.P.V. the project would be accepted, if the N.P.V were positive, otherwise it would be rejected. The I.R.R. will be compared with risk free discount rate and if it higher the project will be accepted, otherwise rejected.

The Finite-horizon Method. This method is similar to payback method applied under the condition of certainty. In this method, a terminal data is fixed. In the decision making, only the expected returns or gain prior to the terminal data are considered. The gains or benefit expected beyond the terminal data are ignored me gains are simply treated as non-existent. The logic behind this approach is that the developments during the period under Consideration might render the gains beyond terminal date of no consequence. For example, a hydel project might go out of use, when, say, after 50-years,of its installation, the atomic or solar energy becomes available in abundance and at lower cost.

MODERN METHODS

Sensitivity Analysis

This provides information about case flows under three assumptions: i) pessimistic, ii) most likely and iii) optimistic outcomes associated with the project. It is superior to one figure forecast as it gives a more precise idea about the variability of the return. This explains how sensitive the cash flows or under

the above mentioned different situations. The larger is the difference between the pessimistic and optimistic cash flows, the more risky is the project.

Decision Tree Analysis

Decision tree analysis is another technique which is helpful in tackling risky capital investment proposals. Decision tree is a graphic display of relationship between a present decision and possible future events, future decisions and their consequence. The sequence of event is mapped out over time in a format resembling branches of a tree. In other words, it is pictorial representation in tree form which indicates the magnitude probability and inter-relationship of all possible outcomes.

Elements Of Decision Theory

Managerial Economics focuses attention on the development of tools for finding out an optimal or best solution for the specified objectives in business. Any decision has the following elements:

1. The Decision Maker.
2. Objectives or goals sought to be achieved by the decision maker; for example, maximisation of profit or sales revenue may be the objective of the business.
3. A set of choice alternatives. For example, in Capital budgeting, the available projects.
4. A set of outcomes or pay-offs with each alternatives; that is net benefits from the projects. Outcomes may be certain or uncertain. In case of former, the selection of any alternative leads uniquely to a specific pay-off. In case of latter, any one of a number of outcomes may be associated with any specific decision.

5. A number of states of the environment whose occurrence determines the possible outcomes. For example, inflation and depression would be two alternative states, in the absence of risk and uncertainty, the outcome of a project is known. Therefore only one state of the environment is possible. The study of Managerial Economics begins with developing awareness of the environment within which managerial decisions are made.

6. Criteria derived from the general objectives which enable the decision taker to rank the various alternatives in terms of how far their pay-offs lead to the achievement of the decision maker's goals. This is known as the decision process.

7. Constraints on the alternatives when the decision maker may select. For example, the government policy on monopoly control; top management directions regarding business undertakings, diversification of business or diversifying an existing product line or to refrain from certain types of business, etc.

Risk Analysis in the case of Single Project

Project risk refers to fluctuation in its payback period, ARR, IRR, NPV or so. Higher the fluctuation, higher is the risk and vice versa. Let us take NPV based risk.

If NPV from year to year fluctuate, there is risk. This can be measured through standard deviation of the NPV figures. Suppose the expected NPV of a project is Rs. 18 lakhs, and std.-deviation of Rs. 6 lakhs. The coefficient of variation C V is given by std. deviation divided by NPV.

$$C, V = \text{Rs. } 6,00,000 / \text{Rs. } 18,00,000 = 0.33$$

Risk Return Analysis for Multi Projects

When multiple projects are considered together, what is the overall risk of all projects put together? Is it the aggregate average of std. deviation of NPV of all projects? No, it is not. Then What? Now another variable has to be brought to the scene. That is the correlation coefficient between NPVs of pairs of projects. When two projects are considered together, the variation in the combined NPV is influenced by the extent of correlation between NPVs of the projects in question. A high correlation results in high risk and vice versa. So, the risk of all projects put together in the form 'of combined std. deviation is given by the formula:

$$\sigma_p = [\sum P_{ij} \sigma_i \sigma_j]^{1/2}$$

where,

σ_p – combined portfolio std. deviation

P_{ij} – correlation between NPVs of pairs of projects.

$\sigma_i \sigma_j$ – std. deviation of i^{th} and j^{th} projects, i.e., any pair time.

Summary

Capital rationing refers to a situation where a firm is not in a position to invest in all profitable projects due to the constraints on availability of funds. We know that the resources are always limited and the demand for them far exceeds their availability, It is for this reason that the firm cannot take up ail the projects though profitable, and has to select the combination of proposals that will yield the greatest profitability.

Risk and uncertainty are quite inherent in capital budgeting decisions. Future is uncertain and involve risk. Risk involves situations in which the probabilities of an event occurring are known and these probabilities are objectively determinable. Uncertainty is a subjective phenomenon. In such

situation, no observation can be drawn from frequency distribution. The risk associated with a project may be defined as the variability that is likely to occur in the future returns from the project. A wide range of factors give rise to risk and uncertainty in capital investment, viz. competition, technological development, changes in consumer preferences, economic factors, both general and those peculiar to the investment, political factors etc. The types of uncertainties can be classified as (i) Price uncertainty (ii) Production uncertainty (iii) Production technology uncertainty (iv) Political uncertainty (v) Personal uncertainty; and (vi) Peoples' uncertainty.

The techniques used to handle risk may be classified into the groups as follows: (a) Conservative methods – These methods include shorter payback period, risk-adjusted discount rate, and conservative forecasts or certainty equivalents etc., and (b) Modern methods – They include sensitivity analysis, probability analysis, decision-tree analysis etc. in the case of capital rationing, profitability index is the best method of evaluation.

Key words

Capital rationing. When availability of capital to a firm is limited,-the firm is constrained in its choice of projects. Capital rationing is restricting capital expenditure to certain amount, even when projects with positive *NPV* need be rejected (which would be accepted in unlimited funds case).

Expected value (or expected monetary value). A weighted average of all possible outcomes, their respective probabilities taken as weights.

Pay-off. The monetary gain or loss from each of the outcomes.

Probability. A ratio representing the chance that a particular event will occur.

Probability distribution. A distribution indicating the chances of all possible occurrences.

Risk. Refers to a situation in which there are several possible outcomes, each outcome occurring with a probability that is known to the decision-maker.

Risk-adjusted discount rate (RADR). Sum of risk-free interest rate and a risk premium. The former is often taken as the interest rate on government securities. The risk premium is what the decision-maker subjectively considers as the additional return necessary to compensate for additional risk.

Standard deviation. The degree of dispersion of possible outcomes around the expected value. It is the square root of the weighted average of the squared deviations of all possible outcomes from the expected value.

Certainty equivalent. A ratio of certain cashflow and the expected value of a risky cashflow between which the decision-maker is indifferent.

Coefficient of variation. A measure of risk is used for comparing standard deviations of projects with unequal expected values.

Uncertainty. Refers to situations in which there are several possible outcomes of an action whose probabilities are either not known or are not meaningful.

Decision Tree. A graphic device that shows a sequence of strategic decisions and expected consequences under each possible situation.

Maximax. Maximum profit is found for each act and the strategy in which the maximum profit is largest is chosen.

Maximin. When maximum of the minimums are selected. This criterion is used by decision-makers with pessimistic and conservative outlook.

Minimax. When minimum of the maximums are selected. This criterion is used for minimising cost (unlike maximin, where pay-off and profit are maximised).

Minimax Regret. Finding maximax regret value for each act, and then choosing the act having minimum of these maximum regret values.

Opportunity Loss (or Regret). The difference between actual profit from a decision and the profit from the best decision for the event.

Simulation Analysis. A method that assigns a probability distribution to each of the key variables and uses random numbers to simulate a set of possible outcomes to arrive at an expected value and dispersion.

Sensitivity Analysis. Defined as the examination of a decision to find the degree of inaccuracy in the underlying assumptions that can be tolerated without causing the decision to be inappropriate.

REVIEW QUESTIONS

- 1) Write a note on capital rationing.
- 2) What is risk? Differentiate it from uncertainty.
- 3) What is risk analysis in capital budgeting?
- 4) Explain the method through which risks can be minimized?
- 5) Enumerate the types of uncertainties.
- 6) What are the elements of decision theory?
- 7) “Risk analysis of capital investments is one of the most complex, controversial and slippery areas in finance” Discuss.
- 8) What is meant by decision tree analysis?
- 9) Analyse risk in the case of single project and multi project?
- 10) What are the measures of incorporating risk in the decision – making?

LESSON – IV

COST OF CAPITAL

LESSON OUTLINE

- introduction
- definition of cost of capital
- Significance
- Determination of cost of Capital – problems involved
- Measurement of cost of Capital
 - Cost of preference share Capital
 - Cost of equity capital
 - Cost of retained earnings
 - Weighted average cost of Capital

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand the meaning of Cost of capital
- Know the significance of cost of capital
- Identify the problems in determination of cost of capital
- Understand the various methods of measuring the cost of capital.

INTRODUCTION

Cost of capital plays an important role in the capital budgeting decisions. It determines the acceptability of all investment opportunities regardless of the techniques employed to judge the financial viability of a project. Cost of capital serves as capitalization rate used to determine capitalisation of a new concern. With the help of this very rate realworth of various investments of the firm can be evaluated. Cost of capital provides useful guidelines in determining optimal capital structure of a firm. It refers to the minimum rate of return of a firm which must earn on its investment so that the market value of the company's equity share may not fall. In the words of Hampton, John J, cost of capital is the rate of return the firm requires firm investment in order to increase the value of the firm in the market place. The concept of cost is perceived in different dimensions, that are briefed below:

- a) A firm's cost of capital is really the rate of return that it requires on the projects available.
- b) A firm's cost of capital represents the minimum rate of return that will result in atleast maintaining the value of its equity shares.

Defintions

Cost of capital is one rate of return the capital funds used should produce to justify their use within the firm.

- i) According to Solomon Ezra, the cost of capital is the minimum required rate of earnings of the cut off rate for capital expenditure.
- ii) In the words of Haley and Schall, in a general sense, cost of capital is any discount rate used to value cash streams.

- iii) According to James C. Vanhorne, the cost of capital represents a cut off rate for the allocation of capital investment of projects. It is the rate of return on a project that will have unchanged the market price of the stock.

Cost of Capital – Significance

The determination of the firm's cost of capital is important from the point of view of both capital budgeting as well as capital structure planning decisions.

- (i) ***Capital budgeting decisions.*** In capital budgeting decisions, the cost of capital is often used as a discount rate on the basis of which the firm's future cash flows are discounted to find out their present values. Thus, the cost of capital is the very basis for financial appraisal of new capital expenditure proposals. The decision of the finance manager will be irrational and wrong in case the cost of capital is not correctly determined. This is because the business must earn least at a rate which equals to its cost capital in order to make at least a break-even.
- (ii) ***Capital structure decisions.*** The cost of capital is also an important consideration in capital structure decisions. The finance manager must raise capital from different sources in a way that it optimises the risk and cost factors. The sources of funds which have less cost involve high risk. Raising of loans may, therefore, be cheaper on account of income tax benefits, but it involves heavy risk because a slight fall in the earning capacity of the company may bring the firm near to cash insolvency. It is, therefore, absolutely necessary that cost

of each source of funds is carefully considered and compared with the risk involved with it.

In order to compute the overall cost of capital, the manager of funds has to take the following steps:

- 1) To determine the type of funds to be raised and their share in the total capitalization of the firm.
- 2) To ascertain the cost of each type of funds.
- 3) To calculate the combined cost of capital if the firm by assigning weight to each type of funds in terms of quantum of funds so raised.

Determination Of Cost Of Capital – Problems Involved

It is not an easy task to determine the cost of capital of a firm. While determining the cost of capital of a firm, the funds manager is confronted with a large number of problems both conceptual and practical.

i) Computation of cost of equity : The cost of equity capital is the minimum rate of return that a company must earn on that portion of its capital employed, which is financed by equity capital so that the market price of the shares of the company remains unchanged. This implies that to find out the cost of equity capital one has to quantify the expectations of the shareholders from the particular equity shares. As it is a difficult task, a precise measure of cost of equity capital is also an arduous task.

ii) Computation of cost of retained earnings and depreciation funds : The cost of capital raised through these sources will depend on the approach adopted for computing the cost of capital. As there are different views, the funds

manager has to face a difficult task in subscribing and selecting an appropriate approach.

iii) Marginal Vs average cost of capital : For decision – making purposes, it is the future cost of capital and not historical cost of capital which is relevant. It therefore creates another problem whether to consider marginal cost of capital, i.e., cost of additional funds or the average cost of capital.

iv) Problem of weights: The assignment of weights of each type of funds is a complex issue. If a financial executive wants to ascertain the average cost of capital then the problem of weights also arises. The finance manager has to make a choice between the book value of each source of funds and the market value of each source of funds. Both have their own merits as well as weaknesses.

Measurement of The Cost Of Capital

The cost of the different sources of financing represents the components of continued cost. Each firm has ideal capital mix of various sources of funds; external sources (debt, preferred stock and equity stock) and internal sources (reserves and surplus). Determining of cost of capital involves relating the expected outcome of the specific source of capital to the market or book value of that source. Expected income in this context comprises interest, discount on debt, dividends, EPS or similar other variables most suitable to the particular case. The computation of the cost of capital involves two steps. i) The computation of the different elements of the cost in terms of the cost of the different source of finance, and ii) the calculation of the overall cost by combining the specific cost into a composite cost.

Cost of Preference Share Capital

A security sold in a market place promising a fixed rupee return per period is known as a *preference share or preferred stock*. Dividends on preferred stock are cumulative in the sense that if the firm is unable to pay when promised by it, then these keep on getting accumulated until paid, and these must be paid before dividends are paid to ordinary shareholders. The rate of dividend is specified in case of preference shares. Preference shares are of two kinds: the redeemable and irredeemable preference shares. In case of redeemable preference shares the period of repayment is specified, while for irredeemable ones this is not done.

The important difference in the true cost of debentures and preference shares must be noted. Interest on debentures is considered as an expense by tax authorities and is, therefore, deducted from company's income for tax purposes. That is why the true cost of debentures is the *after tax cost*. On the other hand, the dividends are paid to preference shareholders after the company has paid tax on its income (including that portion of income which is to be paid to preference shareholders). Therefore, the true cost of preference capital is the *before tax cost* which may be found as :

$$C_p \text{ (before tax)} = \text{Rate of dividend} [1 / (1 - \text{corporate tax rate})] \times 100$$

For example, if dividend rate is 10% and a corporate tax 65%, the cost of preference capital is:

$$C_p = 0.10 [1 / (1 - 0.65)] \times 100 = 28.6\%.$$

Cost Of Equity Capital

Cost of this source of capital is very difficult to measure. Many methods have been suggested, but no method is clearly the best. Here, three

popular approaches for estimating cost of equity capital are presented. Like preference capital, cost of equity capital is also calculated before-cost, as tax does not affect this cost.

Method I. The Risk-Free Rate Plus Risk Premium.

Since the equity holders are paid only after the debt servicing is done, it is generally found that investment in equity is riskier than investment in bonds. Therefore, an investor will demand a return on equity (r_e) which will consist of:

- (i) a risk free return usually associated with return on government bonds, plus
- (ii) a premium for additional risk. There are two sources of risk which affect the risk premium :

- (1) the additional risk undertaken by investing in private securities rather than government securities.
- (2) The risk of buying equity stock rather than bond of a private firm.

The first type of risk is calculated by taking a difference between the interest on firm's bonds and on government bonds. For the second type of risk, a rule of thumb is used. Based on their judgement, the financial analysts have come to believe that the return on firm's equity is about 3 to 5 per cent more than that on the debt. We may take its mid-point (*i.e.*, 4 per cent) as an estimate of premium for second type of risk. Now, suppose risk free rate is 10 per cent and firm's bond yield 15 per cent, the total risk premium (p) can be calculated as:

$$p = (0.15 - 0.10) + 0.04 = 0.09$$

The firm's cost of equity capital (C_g) (which is the sum of risk-free return plus premium for additional risk) would, therefore, be

$$C_e = 0.10 + 0.09 = 0.19, \text{ or } 19 \text{ per cent.}$$

Method II. Dividend Valuation Method. This is also known as Dividend Growth Model. The underlying logic of this method is the same as the internal rate of return method of evaluating investments. According to this method, the cost of equity capital is that discount rate which equates the current market price of the equity (P) with the sum of present value of expected dividends. That is,

$$P = \frac{D_1}{(1+C_e)} + \frac{D_2}{(1+C_e)^2} + \dots + \frac{D_n}{(1+C_e)^n} + \dots$$

where D_1, D_2, \dots are dividends expected during each time period (1,2,...) and C_e is the cost of equity or the discount rate.

The basic problem here is that all the shareholders would have different expectations. This method of calculating the cost of equity would, therefore, need an assumption that all investors have exactly similar dividend expectations. Another problem relates to the determination of future stream of expected dividends. In order to overcome this problem, it has been suggested that we should assume a *constant growth rate* in dividend. Let D_0 be the current dividend, D_n be the dividend in year n , and g be the constant growth rate of dividend. Then,

$$D_n = D_0 (1+g)^n$$

Therefore

$$P = \frac{D_0(1+g)}{(1+C_e)} + \frac{D_0 (1+g)^2}{(1+C_e)^2} + \dots + \frac{D_0(1+g)^n}{(1+C_e)^n} + \dots$$

This being a geometric series we can write it as

$$P = \frac{D_0(1+g)}{(1+C_e)} + \frac{1}{(1+C_e)} \frac{(1+g)}{(1+g)(C_e - g)} = D_0 \frac{(1+g)}{1 - \frac{(1+g)}{(1+C_e)}}$$

$$C_e = \frac{D_0(1+g)}{P} + g = \frac{D_1}{P} + g$$

Though this method is scientific, one is not sure how to determine the growth rate of dividend (g).

Method III: Capital Asset Pricing Model (CAPM). This approach is based on the principle that risk and return of an investment are positively correlated—more risky the investment, higher are the desired returns. This model emphasizes not only the risk differential between equity (or common stock) and government bond but also risk differential among various common stocks.

The P coefficient is used as a risk-index. It measures relative risk among stocks. The beta coefficient may be defined as "the ratio of variability in return on a given stock to variability in return for all stocks," The P is calculated by regression analysis, using regression equation $k_i^a = \alpha + \beta k_i^m$, where k_i^a is the return on equity of firm a in the i^{th} period and k_i^m is the return on all equity in the market in the i^{th} period. The estimated value of β is known as the beta

coefficient. A beta coefficient of value 1.0 means the stock's return is as volatile or risky as the market's, $\beta > 1$ and $\beta < 1$ means the stock's return are more volatile and less volatile respectively compared to the return on total stock market portfolio.

In this model the cost of equity capital (r_e) is:

$$r_e = R_f + \beta (r_m - R_f)$$

where, R_f refers to risk free rate and r^{\wedge} to return on market portfolio. Here cost of equity capital is composed of two components : (1) the risk-free rate (R_f), and (2) the weighted risk component where $(r_m - R_f)$ refers to the overall risk premium, while the risk associated with the firm in question (β) is used as weights.

Cost of Retained Earnings

The part of income which a firm is left with after paying interest on debt capital and dividend to its shareholders is called retained earnings. These also involve cost in the sense that by withholding the distribution of part of income to shareholders the firm is denying them the opportunity to invest these funds elsewhere and earn income. In this sense the cost of retained earnings is the opportunity cost.

It must be noted that retaining the earnings is equal to forcing the shareholders to increase their equity position in the firm by that amount. But retained earnings are cheaper when it is realised that shareholders would have to pay personal tax on the additional dividends, if distributed. Retained earnings avoid the payment of personal income tax on dividends and the brokerage fee connected with any reinvestment. However, the amount to be paid as personal

income tax differs from shareholder to shareholder, depending upon the tax bracket to which he belongs. Thus, before-tax cost of retained earnings (C_{re}) and before-tax cost of equity capital (C_e) are equal; but once the impact of tax is also included then the cost of retained earnings is less than the cost of equity capital, the difference being the personal income tax. For example, assume that the company has Rs. 100 of retained earnings and that there is a uniform personal income tax rate of 30 per cent. This means that if to shareholders are distributed Rs. 100 of retained earnings, their income would in fact increase by Rs. 70 (= Rs. 100 - Rs. 30). In other words, the after-tax opportunity cost of retained earnings is Rs. 70. Or, the cost of retained earnings is about 70% of the cost of equity capital.

Though the cost of retained earnings is always lower than cost of equity capital, a company can depend upon this source of finance only to the extent of availability of funds and willingness of shareholders. The cost of retained earnings can be stated with the help of the following formula :

$$C_{re} = \frac{E (1 - T_p)}{MP} \times 100$$

where, C_{re} is the cost of retained earnings; E is the earnings per equity; T_p is the personal income tax; and MP is the market price of the share.

Weighted Average Cost of Capital

Cost of capital does not refer to the cost of some specific source in the financial decision-making. It should be the over- all cost of all sources and we

should consider the weighted cost of capital. Weights are given in proportion to each source of funds in the capital structure ; then weighted average cost of capital is calculated.

For calculating the weighted average cost of capital, we should know the capital structure of the company. Let us assume that the proposed *capital structure* of a company after new financing would be as follows :

Equity capital	...	25 per cent	
Debt capital	...	50	“
Preference capital	...	10	”
Retained earnings	...	15	”
			100%

Secondly, we should calculate the cost of different types of capital stated above, before-tax in the manner in which we studied so far.

Suppose the firm has calculated the *cost of each source* of capital before-tax as follows :

<i>Item</i>		<i>Cost</i>	
Equity capital	...	24 per cent	
Debt capital	...	8	”
Preference capital	...	23	”
Retained earnings	...	19	”

with these figures, the weighted average cost of capital is calculated for the company as shown in the following Table.

TABLE

Type of Capital	Proportion in the new capital structure (W)	Before-tax cost of capital (X)	(2) x (3) (WX)
(1)	(2)	(3)	(4)
Equity capital	25	24	600
Debt. Capital	50	8	400
Preference capital	10	23	230
Retained earnings	15	19	285
	$\Sigma W = 100$		$\Sigma WX = 1515$

The formula for the weighted cost of capital before-tax is :

$$\begin{aligned} WX / W &= 1515 / 100 \\ &= 15.15\% \end{aligned}$$

The weighted average cost of capital in the above imaginary illustration is 15.12 per cent, before-tax.

After-tax cost of capital = Before-tax cost (1 — tax-rate).

Assuming the tax-rate as 55% after-tax cost of capital comes to :

$$\begin{aligned} &= 15.15 (1 - 0.55) \\ &= 15.15 \times 0.45\% \\ &= 6.817\% \text{ (or) } 6.82\% \end{aligned}$$

This average cost of capital provides us a measure of the minimum rate of return which the proposed investment must earn to become acceptable.

All business decisions relating to capital budgeting and assessment of cost of capital are made under conditions of uncertainty. The management cannot ignore the risks and uncertainties associated with capital budgeting. Capital budgeting is influenced by many factors like the industrial policy of the government, location pattern, government's policy on investments, benefits of tax incentives and the availability of inputs.

PROBLEMS AND KEY

2) A firm finances all its investments by 40 per cent debt and 60 per cent equity. The estimated required rate of return on equity is 20 per cent after-taxes and that of the debt is 8 per cent after-taxes. The firm is considering an investment proposal costing Rs 40,000 with an expected return that will last forever. What amount (in rupees) must the proposal yield per year so that the market price of the share does not change? Show calculations to prove your point.

Solution: The minimum overall required rate of return is:

Debt	0.40x0.08	=	0.032
Equity	0.60x0.20	=	<u>0.120</u>
Weighted average			0.152

Thus, the investment proposal earn 0.152 X Rs 40,000 = Rs 6,080 per year.

Annual return before taxes	Rs	6,080
Less: interest 0.08 x 0.40 x Rs 40,000		<u>1,280</u>
Return on equity	Rs	4,800

After-tax rate of return on equity:

$$Rs\ 4,800 - (0.60 \times Rs\ 40,000)$$

$$Us\ 4,800 \div Rs\ 24,000 = 0.20$$

3) A Ltd intends to issue new equity shares. It's present equity shares are being sold in the market at Rs 125 a share. The company's past record regarding payment of dividends is as follows:

1984:10.70%; 1985:11.45%; 1986:12.25%; 1987:13.11%; 1988:14.03%.

The floatation costs are estimated at 3% of the current selling price of the shares.

You are required to calculate:

- (a) Growth rate in dividends.
- (b) Cost of funds raised by issue of equity shares assuming that the growth rate as calculated under (a) above will continue for ever.
- (c) Cost of new equity shares.

Solution:

- (i) Growth rate in dividends:

The amount of dividends has increased from 10.70 at the end of 1984 to 14.03 at the end of 1988 giving a compound factor of 1.3112, (i.e., 14.03/10.70).

By looking to the "compound sum of one rupee table" in the line of 4 years, one can find that the compound rate is that of 7%. Hence the growth rate in dividends is 7%.

- (ii) Cost of equity:

$$K_e = D / MP + g$$

Since the dividend has been growing at the rate of 7% every year, the dividend expected by the investors immediately after the end of 1988 is likely to be 15.01% (i.e., 14.03% + 7% of 14.03%). The cost of equity capital can now be determined as follows:

$$\begin{aligned} K_e &= 15.01/125 \times 100 + 7\% \\ &= 12.01\% + 7\% = 19.01\%. \end{aligned}$$

- (iii) Cost of new equity shares:

$$K_e = D / NP + g$$

$$\begin{aligned}
&= 15.01/(125 - 3.75) \times 100 + 7\% \\
&= 15.01/121.25 \times 100 + 7\% \\
&= 12.38\% + 7\% = 19.38\%.
\end{aligned}$$

4) The following is an extract from the financial statement of XY Ltd.

	(Rs. lakhs)
Operating Profit	105
Less; Interest on debentures	<u>33</u>
	72
Less : Income Tax (50%)	<u>36</u>
Net profit	36
Equity share capital (shares of Rs.10 each)	200
Reserves and surplus	100
15% non-convertible debentures (of Rs.100 each)	<u>220</u>
	<u>520</u>

The market price per equity share is Rs. 12 and per debenture Rs. 93.75.

- (i) What is the earning per share ?
- (ii) What is the percentage cost of capital to the company for the debenture funds and the equity ?

Solution:

i) Calculation of Earnings Per Share

$$\begin{aligned}
&\text{Profit after tax} \\
\text{Earnings per share (EPS)} &= \frac{\text{-----}}{\text{No. of equity shares}} \\
&\qquad\qquad\qquad 36,00,000 \\
\text{or EPS} &= \text{-----} = \text{Rs.1.80}
\end{aligned}$$

20,00,000

(ii) Computation of Percentage Cost of Capital

(a) Cost of Equity Capital :

Cost of Equity (K_e) = D / MP

where, D = Expected earnings per share

and MP = Market price per share

Or K_e (%) = $1.80/12 \times 100 = 15\%$

(b) Cost of Debenture Funds;

	At Book Value (Rs. lakhs)	At Market Price (Rs. lakhs)
Value of 15% Debentures	<u>220.00</u>	<u>206.25</u>
Interest Cost for the year	33.00	33.00
Less: Tax at 50%	<u>16.50</u>	<u>16.50</u>
Interest cost after tax	<u>16.50</u>	<u>16.50</u>
Cost of Debenture Fund (%)	$16.50/220 \times 100$ = 7.5%	$16.50/206.25 \times 100$ = 8%

8) A firm whose cost of capital is 10% is considering two mutually exclusive projects A and B, the cash flows of which are as below:

Year	Project A Rs.	Project B Rs.
0	-50000	-80000
1	62500	96170

Suggest which project should be taken up using (i) net present value method and (ii) the internal rate of return method.

Solution

i) CALCUALTION OF NET PRESENT VALUE (NPV)					
Year	P.V. Factor	Project A		Project B	
		Cash flow (Rs.)	Present value (Rs.)	Cash flow (Rs.)	Present value (Rs.)
0	1	-50000	-50000	-80000	-80000
1	.909	62500	56812	96170	87418
Net present value (NPV)			6812		7418

ii) CALCUALTION OF INTERNAL RATE OF RETURN (IRR)		
	Project A	Project B
P.V. Factor=initial outlay /annual cash flow	$50000/62500=.8$ 25%	$80000/96170=.83$ 20%
IRR (using P.V. tables)		

Suggestions. According to the net present value method, investment in project B is better because of its higher positive NPV; but according to the IRR method project A is a better investment because of higher internal rate of return. Thus, there is a conflict in ranking of the two mutually exclusive proposals according to the two methods. Under these circumstances, we would suggest to take up project B which gives a higher net present value because in doing so the firm will be liable to maximize the wealth of the shareholders.

Summary

Cost of capital plays an important role in the capital budgeting decisions. It determines the acceptability of all investment opportunities regardless of the techniques employed to judge the financial viability of a project. Cost of capital serves as capitalization rate used to determine capitalisation of a new concern. With the help of this very rate realworth of various investments of the firm can be evaluated. Cost of capital provides useful guidelines in determining optimal capital structure of a firm. It refers to the minimum rate of return of a firm which must earn on its investment so that the market value of the company's equity share may not fall. The determination of the firm's cost of capital is important from the point of view of both capital budgeting as well as capital structure planning decisions.

In order to compute the overall cost of capital, the manager of funds has to take the following steps: i) To determine the type of funds to be raised and their share in the total capitalization of the firm, ii) To ascertain the cost of each type of funds, and iii) To calculate the combined cost of capital if the firm by assigning weight to each type of funds in terms of quantum of funds so raised.

The cost of the different sources of financing represents the components of continued cost. Each firm has ideal capital mix of various sources of funds; external sources (debt, preferred stock and equity stock) and internal sources (reserves and surplus). Determining of cost of capital involves relating the expected outcome of the specific source of capital to the market or book value of that source. Expected income in thin context comprises interest, discount on debt, dividends, EPS or similar other variables most suitable to the particular case. The computation of the cost of capital involves two steps. i) The computation of the different elements of the cost in terms of the cost of the

different source of finance, and ii) the calculation of the overall cost by combining the specific cost into a composite cost. Weights are given in proportion to each source of funds in the capital structure; then weighted average cost of capital is calculated.

Key words

Cost of capital. It is the rate of return the firm must earn on its assets to justify the using and acquiring of investible resources.

Capital asset pricing model (CAPM). This model is based on the premise that degree of risk and returns are related. Relative risks among stocks is measured using the beta coefficient. β coefficient > 1 means the variation in returns on that stock is greater than that of the average stock. β coefficient is a necessary element in determining a stock's required rate of return.

Dividend valuation method. According to this method, the return required by the investor is equal to the current dividend yield on the common stock plus an expected growth rate for dividend payments. It is also known as dividend growth model.

Weighted average cost of capital. Weights are given in proportion to each source of funds in the capital structure; then weighted average cost of capital is calculated.

REVIEW QUESTIONS

- 1) What is cost of capital?
- 2) How is cost of capital determined?
- 3) How do you calculate cost of debt?
- 4) What are the various concepts of cost of capital? Why should they be distinguished in financial management?
- 5) How is the cost of debt computed? How does it differ from the cost of preference capital?
- 6) 'The equity capital is cost free.' Do you agree? Give reasons.
- 7) 'Debt is the cheapest source of funds.' Explain.
- 8) What is weighted average cost of capital?
- 9) How is the weighted average cost of capital calculated?
- 10) Examine the importance of cost of capital.
- 11) What are the problems involved in determination of cost of capital?
- 12) How will you calculate cost of preference share capital?
- 13) How will calculate cost of retained earnings?

UNIT III

CAPITAL STRUCTURE THEORIES

LESSON OUTLINE

Introduction

Financial leverage

Measures of financial leverage

Operating leverage

Measures of operating leverage

Combined effect of operating and financial leverage

Capital structure theories

Analysing alternate financial plans

Capital structure planning

Composition of capital structure

Capital structure frame work

FRICT analysis

Capital structure and value of a firm

Net income approach

Weighted average cost of capital

Net operating income approach

Traditional approach

Modigliani and Miller's proposition

Taxes and capital structure

Capital structure determinants in practice

Some frequently asked questions

LEARNING OBJECTIVES

After reading this lesson you should be able to

- explain what is financial and operating leverages and their concepts
- discuss alternate measures of leverages
- understand and appreciate the risk and return implications of leverages
- analyse the combined effects of financial and operating leverages
- understand capital structure and value of a company and their relationship
- understand and appreciate MM proposition
- explain the interest tax shield advantage of debt as well as its disadvantages in terms of cost of financial distress
- study the capital structure determinants in detail and in practice

Introduction

Any business or a company or firm requires capital to acquire assets. These assets could also be obtained with loans from financial institutions. The company operates those assets to earn economic returns by fulfilling customer needs.

The capital structure decision centres on the allocation between debt and equity in financing the business needs. An efficient mixture of capital reduces the price of capital. Lowering the cost of capital increases net economic returns which ultimately increase business value.

An unleveled business uses only equity capital. A levered business uses a mix of equity and various forms of other liabilities.

Apart from deciding on a target capital structure, a business must manage its capital structure. Imperfections or opportunities in capital markets, taxes and other practical factors influence the managing of capital structure. Imperfections may suggest a capital structure less than the theoretical optimal.

Operation of assets and the business's financing of those assets jointly dictate its (business) value. Understanding why the current proportion of debt in the capital structure lowers the cost of capital and increases stock price holds attention.

Basic characteristics of an unlevered company (total equity and no debt financing). In such a company there are no external creditors. Only the shareholders as a group have a claim on the expected net income and they bear the risk associated with the expected net income.

Therefore the total risk faced by such a company is business risk and the risk associated with the tax environment.

In a levered company, the creditors are very carefully organized and they have specified claims against a company's cash flows during normal operations as well as during bankruptcy. Equity holders are always last in line, behind all creditors.

The position of each claimant in the line affects the riskiness of their cash flows. Those first in the line claim the most certain cash flows – and their removal of the most certain cash flows increases the risk of the cash flows that remain for those behind them

Creditors and equity holders are clever. Claimants further back in the line demand higher returns to compensate themselves for the additional risk they bear. Thus, shareholders require higher returns for the added financial risk of creditors.

However, shareholders know another very important facet about debt; they can make money from its use. In fact, the focal point of capital structure theory hinges on shareholders recognizing that debt use can add to their returns. The use of appropriate amount of debt adds value if the company enjoys a tax deduction for interest payments.

Thus moving away from entire equity (unlevered) to part equity and part debt (levered) financing will result in the following fruitful journey for the shareholders.

- Corporate debt increases – financial risk increase
- Total risk increase since financial risk is increasing
- Equity decreases – the number of shares of stock decreases – the company does not need as much equity financing because debt is replacing equity in the capital structure

- Expected earnings per share increase since fewer shares exist and the expected tax benefits of using debt contribute to the EPS

Hence making crucial decision on the capital structure – either entire equity or part equity and part debt financing – is very vital for the development and growth of any business organisation.

We shall now make an attempt various issues connected with the leveraging, theories developed on leveraging and also look at determining the ideal capital structure in practice.

Should a business increase or reduce the number of units it is producing? Should it rely more or less heavily on borrowed money? The answer depends upon how a change would affect risk and return.

Operating leverage is the name given to the impact on operating income of a change in the level of output. Financial leverage is the name given to the impact on returns of a change in the extent to which the firm's assets are financed with borrowed money.

Despite the fact that both operating leverage and financial leverage are concepts that have been discussed and analyzed for decades, there is substantial disparity in how they are defined and measured by academics and practitioners.

Financial leverage

The use of fixed charges (or interest) bearing sources of funds, such as debt and preference capital along with the owners' equity in the capital structure of a company is described as financial leverage or gearing or trading on equity.

The use of term trading on equity is derived from the fact that the debt is raised on the basis of the owner's equity - the equity is traded upon. Since the debt provider has limited participation in the company's profits he will insist on to protect his earnings and protect values represented by ownership equity.

Financial leverage is the name given to the impact on returns of a change in the extent to which the firm's assets are financed with borrowed money.

The financial leverage is employed by a company only when it is confident of earning more return on fixed charge funds than their costs.

In case the company earns more then the derived surplus will increase the return on the owner's equity

In case the company earns less on the fixed charge funds when compared to their costs, the resultant deficit will decrease the return on owner's equity

The rate of return on the owner's equity is thus levered above or below the rate of return on total assets

Thus a simple logic can be arrived at as under. If all other things remain same, lower the amount borrowed, lower the interest, lower will be the profit and greater the amount borrowed, lower the interest, greater will be the profit

Financial leverage reflects the amount of debt used in the capital structure of the firm. Because debt carries a fixed obligation of interest payments, we have the opportunity to greatly magnify our results at various levels of operations.

The degree of financial leverage is computed as the percentage change in earnings available to common stockholders associated with a given percentage change in earnings before interest and taxes.

Thus financial leverage is a commitment to fixed debt charges payment obligation undertaken by a company.

Measures of financial leverage

Debt ratio is the ratio of debt to the total available funds of the company, i.e. sum of owner's equity and outside debt. The owner's equity can be measured in terms of either book value or the market value. In some countries it is also named as leverage ratio. It is defined down traditional lines as the ratio of external debt to total equity

Debt equity ratio is the ratio of debt to the total equity. Here too, the equity can be measured in terms of either book value or the market value

The market value of equity in debt ratio and debt equity ratio is more appropriate, because market values normally reflect the current attitude of the investors, in normal markets.

If the shares of the company are not traded in the stock exchanges (or markets) or are not actively traded in the stock exchanges then it would be difficult to get correct information on market values.

The debt ratio and debt equity ratio are also known as capital gearing ratios.

Interest coverage is the ratio of earnings before interest and taxes (EBIT) to the interest liability. This is known as coverage ratio i.e. debt coverage ratio or debt service coverage ratio.

The reciprocal of interest coverage that is interest divided by EBIT is known as income gearing.

Degree of financial leverage

The degree of financial leverage (DFL) is defined as the percentage change in earnings per share [EPS] that results from a given percentage change in earnings before interest and taxes (EBIT), and it is calculated as follows

DFL = Percentage change in EPS divided by Percentage change in EBIT

This calculation produces an index number which if, for example, it is 1.43, this means that a 100 percent increase in EBIT would result in a 143 percent increase in earnings per share. (It makes no difference mathematically if return is calculated on a per share basis or on total equity, as in the solution of the equation EPS cancels out.)

When the economic conditions are good and the company's Earnings before interest and tax is increasing, its EPS increases faster with debt in the capital structure.

The degree of financial leverage is expressed as the percentage change in EPS due to a given percentage change in EBIT

$$\text{DFL} = \% \text{ change in EPS} / \% \text{ change in EBIT}$$

An alternate formula to calculate the degree of financial leverage is as follows:

$$\text{DFL} = \text{EBIT} / (\text{EBIT} - \text{Int}) = \text{EBIT}/\text{PBT} = 1 + \text{INT}/\text{PBT}$$

Financial leverage on the one hand increases shareholders' return and on the other, it also increases their risk. For a given level of EBIT, EPS varies more with more debt.

Thus financial leverage is a double edged weapon. It may assure you a higher return but with a higher risk. Normally, a trade off between the return and risk will be arrived at to determine the appropriate amount of debt.

Let us examine this with an example

A company's expected EBIT is Rs.150 with a standard deviation of Rs.50. This implies that the earnings could vary between Rs.100 and Rs.200 on an average.

Suppose that the company has some debt on which it incurs Rs.50 as interest.

Now the shareholders' expected earnings will be Rs.150 less Rs.50 = Rs.100 (taxes are ignored). Standard deviation will remain unchanged at Rs.50

Now the shareholders earnings will on an average vary within a range of Rs.50 and Rs.150.

If EBIT is Rs.50, then the shareholders may not earn anything. If it is less than Rs.50, their earnings may be negative.

In extreme situations if the company is unable to pay interest and principal on the debt borrowed, its very existence may be threatened by the insolvency proceedings that may be initiated by the creditors.

Operating leverage

High fixed costs and low variable costs provide the greater percentage change in profits both upward and downward. If a high percentage of a firm's costs are fixed, and hence do not decline when demand decreases, this increases the company's business risk. This factor is called operating leverage.

If a high percentage of a firm's total costs are fixed, the firm is said to have a high degree of operating leverage. The degree of operating leverage (DOL) is defined as the percentage change in operating income (or EBIT) that results from a given percentage change in sales....In effect, the DOL is an index number which measures the effect of a change in sales on operating income, or EBIT

When fixed costs are very large and variable costs consume only a small percentage of each dollar of revenue, even a slight change in revenue will have a large effect on reported profits.

Operating leverage, then, refers to the magnified effect on operating earnings (EBIT) of any given change in sales...And the more important, proportionally, are fixed costs in the total cost structure, the more marked is the effect on EBIT.

One of the most dramatic examples of operating leverage is in the airline industry, where a large portion of total costs are fixed

The higher the proportion of fixed costs to total costs the higher the operating leverage of the firm

Since a fixed expense is being compared to an amount which is a function of a fluctuating base (sales), profit-and-loss results will not bear a proportionate relationship to that base. These results in fact will be subject to magnification, the degree of which depends on the relative size of fixed costs vis-a-vis the potential range of sales volume. This entire subject is referred to as operating leverage.

Thus, in general terms, operating leverage refers to the use of fixed costs in the operation of a firm.

Operating leverage is defined as the percentage change in the earnings before interest and taxes relative to a given percentage change in sales.

The degree of operating leverage is also defined as the change in a company's earnings before interest and tax due to change in sales. Since variable costs change in direct proportion of sales and fixed costs remain constant, the variability in EBIT when sales change is caused by fixed costs.

Operating leverage refers to the use of fixed costs in the operation of a firm. A firm will not have operating leverage if its ratio of fixed costs to total

costs is nil. For such a firm, a given change in sales would produce same percentage change in the operating profit or earnings before interest and taxes.

Higher the fixed cost, higher the variability in EBIT for a given change in sales. Other things remaining the same, companies with higher operating leverage (because of higher fixed costs) are most risky.

Thus operating leverage increases with fixed costs. Operating profit of a highly leveraged (operating) firm would increase at a faster rate for any given increase in sales.

Operating leverage intensifies the effect of cyclicity on a company's earnings. Operating leverage is the name given to the impact on operating income of a change in the level of output.

Operating leverage affects a firm's operating profit (EBIT) while financial leverage affects profit after tax or the earnings per share.

Thus operating leverage is a commitment to fixed production charges payment obligation undertaken by a company.

Measures of operating leverage

Operating leverage measures the effect of fixed costs on the firm, and that the degree of operating leverage (DOL) equals:

$$\text{DOL} = \frac{q(p - v)}{q(p - v) - f}$$

where: q = quantity, p = price per unit, v = variable cost per unit, f = total fixed costs

that is:

Degree of operating leverage = Sales revenue less total variable cost divided by sales revenue less total cost

Operating leverage can also be defined as the impact of a change in revenue on profit or cash flow. It arises, whenever a firm can increase its revenues without a proportionate increase in operating expenses. Cash allocated to increasing revenue, such as marketing and business development expenditures, are quickly consumed by high fixed expenses.

Positive operating leverage occurs at the point at which revenue exceeds the total amount of fixed costs.

Thus, the degree of operating leverage (DOL) is defined as the percentage change in the earnings before interest and taxes relative to a given percentage change in sales.

Thus, $DOL = (\% \text{ change in EBIT}) / (\% \text{ change in sales})$

$DOL = (\text{changes in EBIT} / \text{EBIT}) / (\text{changes in sales} / \text{sales})$

An alternate formula for calculating DOL is as follows

$DOL = \text{Contribution} / \text{EBIT} = 1 + \text{Fixed Cost} / \text{EBIT}$

Combined effect of operating and financial leverage

The combined effect of two leverages can be quite significant for the earnings available to ordinary shareholders. They cause wide fluctuation in earnings per share for a given change in sales.

If a company were to employ a high level of operating and financial leverage, even a very small change in the level of sales will cause significant effect on the earning per share.

Thus the degrees of operating and financial leverages can be combined to ensure the effect of total leverage on earning per share due to a very small change in sales.

The degree of combined leverage is expressed in the following manner

$$\text{DCL} = (\% \text{ change in EBIT} / \% \text{ change in sales}) \times (\% \text{ change in EPS} / \% \text{ change in EBIT})$$
$$\text{DCL} = \% \text{ change in EPS} / \% \text{ change in sales}$$

Another way of expression of DCL is

$$\text{DCL} = \text{Contribution} / (\text{EBIT} - \text{INT})$$
$$= \text{Contribution} / \text{PBT} = 1 + (\text{Int} + \text{Fixed cost}) / \text{PBT}$$
$$\text{DCL} = (\text{EBIT} + \text{Fixed costs}) / \text{PBT}$$

Clarity in regard to operating and financial leverage is important because these concepts are important to businesses. Small and medium-sized businesses often have difficulty using the highly sophisticated quantitative methods large companies use.

Fortunately, the simple break-even graph is simple and easy to interpret; yet it can provide a significant amount of information. The algebra necessary to compute operating and financial leverage, too, is not very complex. Unfortunately, it comes in a several guises; not all equally easy to understand or equally useful.

Capital structure theories

A company can raise the required finance through two principal sources, namely equity and debt.

Therefore, a question should arise - what should be the proportion of debt and equity in the capital structure of the company? This can be put in a different manner – what should be the financial leverage of the company?

The company should decide as to how to divide its cash flows into two broad components – a fixed component earmarked to meet the debt obligation and the balance portion that genuinely belongs to the equity shareholders.

Any financial management should ensure maximization of the shareholders' wealth. Therefore an important question that should be raised and answered is what is the relationship between capital structure and value of the firm? Or what is the relationship between capital structure and cost of capital?

As cost of capital and firm value are inversely related, this assumes greater importance. If the cost of capital is very low, then the value of the company is maximized and if the cost of capital is very high, then the value of the company is minimized.

Some question this relationship; according to them there is no relationship whatsoever between capital structure and value of the company. Others agree that the financial leverage has a positive impact and effect on the value of the firm up to a point and it would be negative thereafter. However some strongly hold the view that greater the financial leverage, greater the value of the firm, when other things remain equal.

Analysing alternate financial plans

Normally capital budgeting decisions are made for replacement of worn out or obsolete machineries. In case the machineries have not worn out but they have not contributing optimum production quantities, such replacement decisions may also be made.

Sometimes capital budgeting decisions are made for modernization of the plant and machinery. They are also made for replacing manually operated

machineries with totally automated machineries. Most of the times, the plant and machinery may need latest technological up gradation.

If they are not technologically up graded, the companies may lose out to those companies which have gone for latest generation technologies as it is always observed latest technology normally result in cost of production going down and naturally the companies which opt for latest technology would be able to better quality products at comparatively lower cost.

Many times companies will need to made capital budgeting decisions to take care of their expansion programmes to meet growing existing market requirements. They are also made to penetrate into newer markets – regionally and globally.

Having achieved name and fame in the market with their quality products, companies may take up diversification programmes to enlarge their business operations. Capital budgeting decisions are made for them also.

The funds needed to meet these capital budgeting decisions can be met through either internal funds generated (by retaining earnings in the previous years) or through debts and financing by banks and financial institutions. Sometimes they are also met through raising fresh external equity

These capital structure decisions will also require reviewing and analysing

- existing capital structure
- desired debt-equity mix
- pay out policy

Moving over to desired debt – equity mix of any capital structure decisions, a company will need looking into its effect on future returns and effect on risk, both of which will impact the cost of the capital.

The cost of capital decides the optimum capital structure and this will facilitate evaluating the value of the firm.

Capital structure planning

Companies which do not plan their capital structure may prosper in the short run as they develop as a result of financial decisions taken by the manager without any proper policy and planning. In these companies, the financing decisions are reactive and they evolve in response to the operating decisions.

But ultimately they face considerable difficulties in raising funds to finance their activities. With an unplanned capital structure, they will fail to economise use of funds. And this will impact the company's earning capacity considerably.

Our finance manager should be in a position to plan a suitable or optimum capital structure for a company. As we have seen, an optimum structure is one that can maximize the value of the firm in the market.

In practice the establishment of an optimum capital structure of a company is indeed a difficult one. It is different and varying among industries and among companies in the same industry. A number of elements and factors influence such a capital structure of a company.

These elements and factors are highly psychological, complex and qualitative and they do not always follow same pattern and theory. That is why, given the same company, different decision makers will decide differently on capital structure, as they will have different judgmental background.

Composition of capital structure

The following are some important components of a company's capital structure and they will therefore need proper analysis, consideration, evaluation and scrutiny

Capital mix

It consists of the equity and debt capital. The debt capital which can be raised from a variety of sources like banks and financial institutions, friends and relatives, etc forms an important item of the capital mix.

The percentage of debt capital to the total capital mix will depend on the extent of dependence of debt affordable by the company. And this dependence will in turn depend on the risks undertaken by the company. The lenders will on their part consider these risks before lending their resources to the company.

Issues like reasonableness of the debt terms, its mechanism and level and the policies, systems and procedures of the company will also be looked into. Ratios like debt ratio, debt service coverage ratio, etc will be handy and helpful in framing up the action plan on capital mix. Cash flow and funds flow statements will also help one in analyzing the capital mix for decision making.

Terms and conditions

A debt can be acquired with many choices on hand. The interest thereon can be either on fixed or floating rate basis. In the case of equity, the investors would prefer regular return by way of dividends.

The company will have to decide its preference either for payment of interest or payment of dividends. In case debt capital can be raised at a lower rate of interest than the return on such borrowed capital, then it would be advisable to prefer debt capital to ensure maximum return for the owners.

Again, the company's expectation of future interest rates will be yet another consideration. If the future interest rates are to remain neutral and if the company's earnings are at a growing pace, then it may be ideal to go in for debt capital.

Therefore, the company's choice will depend on the management's assessment of future interest rates and its earnings potential. Of course, the

management will take into account hedging instruments available at its disposal for managing such interest rate exposures.

There are certain covenants in the loan documentation like what the company can do and cannot do. And these may inhibit the freedom of the management of the company. They normally cover payment of dividends, disposal of fixed assets, raising of fresh debt capital, etc. How these covenants prohibit and limit the company's future strategies including competitive positioning.

Selection of currency of the debt

The currency of the debt capital is yet another factor to reckon with. Now a days, a well run company can easily have access to international debt markets through external commercial borrowings.

Such recourse to international markets enables the company to globalize its operations. However, the most important consideration in the selection of the appropriate currency in which such international loans are granted and accepted is the exchange risk factor. Of course, the management can have access to foreign exchange hedging instruments like forward contracts, options, swaps, etc.

Profile and priority

The profile of the instruments used in the capital mix may differ from each other. Equity is the permanent capital. Under debt, there are short term instruments like commercial papers and long term instruments like term loans.

In the same manner the priorities of the instruments also differ. Repayment of equity will have the least priority when the company is winding up – either on its own or by legal force.

Instruments such as hire purchase or leasing are quite safe from the provider's (lender's) point of view. The assets backing such instruments provide the protection or safety net to the lenders.

Therefore secured debts are relatively safe and have priority over unsecured debt in the event of company closure.

Normally the profile of the assets and liabilities of the company do not match. The company is deemed to have obtained risk neutral position by matching the maturities (profile) of the various assets and liabilities. That is why it is always advised that short term liabilities should be used to acquire current assets and long term liabilities for fixed assets.

However in practice, the companies do not exactly match the profile of sources and uses of funds.

Various financial instruments

Simple instruments or innovative instruments can be availed to raise funds required.

Financial innovative instruments are used to attract investors and they are normally associated with reduction in capital cost. A company to reduce its immediate funding cost can consider issue of convertible debentures at a lower interest rate. This way the investors can take up equity holding in the company which is not otherwise available directly at a comparatively cheaper cost. For the company too funds are available initially till the conversion date at a lesser interest rate.

A company can also issue non convertible debentures at a higher interest rate when compared with convertible debentures, which may carry a lower interest rate as above.

Similarly a company can attempt raising required funds at a lesser cost through cross currency swaps in the international markets. In this, the company

which may be having competitive advantage in one currency and in one market can exchange the principal with another currency of its choice and in another market and with another corporate which has an exactly matching and opposite requirement. Such swaps are gaining popularity in the market place

Therefore the company and its management have to continuously innovate instruments and securities to reduce the final cost. An innovation once introduced may not attract new investors. There is also a possibility and the other companies may further fine tune the instruments and securities and make them more innovative and attractive.

Therefore financial innovation is a continuous process.

Various target groups in financial market

The different target groups in any financial market could be individual investor, institutional investors, private companies and corporates, public (government held or widely held) companies and corporates etc.

A company can raise its required capital from any of these or all of these segments.

A company can issue short term paper like commercial paper or certificate of deposits. It has also the option of raising the funds through public deposits.

How these various target groups can be accessed? What are their expectations and requirements? What are the target groups the company is proposing to approach for its requirements and why?

These are some of the immediate important questions a company may have to consider while deciding on the target group

Capital structure frame work

A financial capital structure frame work can be structured and evaluated from various perspectives.

From the company's point of view, the following may merit consideration

- Return from investment
- Risk associated with the investment
- Value of the investment at different points of time in its life cycle

From the investor's point of view, the following may pose serious questions

- control of investment
- flexibility offered by the company
- feasibility of the investment

Therefore by balancing all these considerations, a sound capital structure can be worked out.

One such analysis is the **FRICT analysis**. It is used to help answer a firm's financing choices. The focus would be on the questions that we are trying to answer and these questions and answers will provide the best choice for the company. The FRICT analysis does not cover other choices such as postponement or cancellation of the project.

The four questions that are normally raised in FRICT analysis are

- How much do we need
- When will we need it
- Why – what will it be used for
- What sources are available

The FRICT frame work consists of Flexibility, Risk, Income, Control and Timing

Flexibility

First of all, the company should find out its debt capacity and the capital structure so determined should be within this debt capacity. And this capacity should not be exceeded at any cost and at any time. As we know, the debt capacity depends on the company's ability to generate future cash flows. Only such cash flows can facilitate prompt repayment – principal and periodic interest payment – to the creditors. This cash flow also should leave some surplus to meet evolving emergent situations. Thus the capital structure should be flexible enough to facilitate it to change its structure with minimum cost and delay due to emerging situations.

Risk

The variability in the company's operations throw open many risks. They may arise due to the macroeconomic factors – industry and company specific – which may be beyond or within the company's scope. Any large dependence on debt will therefore magnify the possible variance in the company owners' earnings and at times may threaten the very existence or solvency of the company

Income

Any debt acquired by the company to build up appropriate capital structure should result in the value addition to the company owners and it should be advantageous by generating maximum returns to the company owners with minimum additional cost (by way of payment of interest and other charges)

Control

The preferred capital structure should not disturb the management control of the company. Therefore, beyond a certain level, the debt providers may insist for management control and this will be risky for the owners of the company. Hence closely held companies are particularly vulnerable and therefore concerned with the dilution of control

Timing

The chosen capital structure should provide the following comforts

- Feasibility
- Freedom to implement current and future options

Therefore the progression of financing decision is very important in any capital structure framework as any current decision may influence or impact future funding options

Therefore our FRICT analysis provides a general framework for managing and evaluating a company's capital structure. However within this FRICT framework companies can provide comfort to the creditors depending on the particular individual characteristics of the company like affording flexibility, control, etc. This is to provide a general adaptable framework for any company.

Capital structure and value of a firm

We know there two main sources of finance available for a company (or a firm) are debt and equity. However it is difficult to arrive at the exact or at least optimum proportion of debt and equity in the capital structure of a company. Therefore, ascertaining the level of financial leverage is the primary task to be performed.

The main objective of financial management is to maximize the owners' (share holders') wealth and value. The key issues there fore are the relationship between capital structure and cost of capital.

We know given a certain level of earnings, the value of the company is maximized when the cost of capital is minimized. In the same vein the value of the company is minimized when the cost of capital is maximized. Therefore the value of the company and the cost of capital are inversely related.

There are many different arguments and view points as to how the capital structure influences the value of the company. Some argue that financial

leverage (use of debt capital) has a positive effect on the company value up to a point and negative thereafter. On the other extreme, few contend that there is no relation between capital structure and value of the company. Many strongly believe that other things being equal, greater the leverage, greater will be the value of the company

The capital structure of a company will be planned and implemented when the company is formed and incorporated. The initial capital structure would therefore be designed very carefully.

The management of a company would set a target capital structure and the subsequent financing decisions would be made with a view to achieve the target capital structure. The management has also to deal with an existing capital structure. The company will need to fund or finance its activities continuously. Every time a need arises for funds, the management will have to weigh the pros and cons of the various sources of finance and then select the advantageous source keeping in view the target capital structure.

Thus capital structure decisions are a continuous one and they have to be made whenever the company needs additional finance.

Now let us explore the relationship between the financial leverage and cost of capital which is a contested issue in financial management.

Assumptions

The relationship between a capital structure and cost of capital of a company can be better established and appreciated by considering the following assumptions

- There is no incidence of corporate / income / personal taxes
- The company distributes all its earnings in a year by way of dividends to its shareholders

- The investors have uniform subjective probability distribution of operating income (EBIT) for each company
- The operating income is expected to remain same – no growth or no decline – over a period of time
- Capital structure can be changed by a company without incurring transaction costs with ease and comfort and instantaneously

The idea behind the above assumptions is to keep aside the influence of tax, dividend policy, risk perception, growth and market imperfections so that the influence of financial leverage on cost of capital can be studied and sustained with greater clarity and focus

Taking into the above assumptions, cost of debt, R_d can be arrived at as under

$$R_d = i / d$$

= Annual interest charges divided by Market value of debt

If we assume the debt is perpetual, then R_d would become the cost of capital

When the company pays out 100% of its earnings and when the earnings also remain constant for ever, then R_e , the cost of equity would be

$$R_e = P / E$$

= Equity earnings divided by Market value of equity

When the market value of the company V is equal to Debt plus Equity, then R_a combined capitalization rate of the company would be

$$R_a = O / V$$

= Operating income divided by Market value of the firm

Net income approach

Any company is said to have leveraged if it finances its assets through debt capital and equity capital. On the other hand, a company which finances its assets entirely through equity capital is called an unlevered company.

The value of equity of any company can be found out by discounting its net income

$$V (\text{value of equity}) = E (\text{net income}) / K (\text{cost of equity})$$

Similarly the value of a company's debt can be found out by discounting the value of interest on debt.

$$V (\text{value of debt}) = I (\text{interest on debt}) / K (\text{cost of debt})$$

The value of the company will be the sum value of value of equity and value of debt.

The company's overall cost of capital is called the weighted average cost of capital (detailed coverage is given below) And this can be found as under

We know,

$$\text{Value of the firm} = \text{value of its equity} + \text{value of its debt}$$

$$\text{Company's cost of capital} = \text{Net operating income} / \text{value of the firm}$$

There is another way to calculate weighted average cost of capital.

$$\text{WACC} = \text{Cost of equity} \times \text{equity weight} + \text{cost of debt} \times \text{debt weight}$$

Net income approach reveals that the cost of debt R_d , the cost of equity R_e remain unchanged when Debt / Equity varies. The constancy of cost of debt and cost of equity with regard to D/E means that R_a , the average cost of capital is measured as under

$$R_a = R_d [D / (D+E)] + R_e [E / (D+E)]$$

The average cost of capital R_a will decrease as D/E increases.

Weighted average cost of capital

The weighted average cost of capital (WACC) is used in finance to measure a firm's cost of capital. It had been used by many firms in the past as a discount rate for financed projects, since using the cost of the financing seems like a logical price tag to put on it

Companies raise money from two main sources: equity and debt. Thus the capital structure of a firm comprises three main components: preferred equity, common equity and debt (typically bonds and notes). The WACC takes into account the relative weights of each component of the capital structure and presents the expected cost of new capital for a firm

The formula

The weighted average cost of capital is defined by

$$C = (E/K) y + (D/K) b (1 - X_c)$$

Where,

$$K = D + E$$

The following table defines each symbol

Symbol	Meaning	Units
C	weighted average cost of capital	%
Y	required or expected rate of return on equity, or cost of equity	%
B	required or expected rate of return on borrowings, or cost of debt	%
X_c	corporate tax rate	%
D	total debt and leases	currency
E	total equity and equity equivalents	currency
K	total capital invested in the going concern	currency

This equation describes only the situation with homogeneous equity and debt. If part of the capital consists, for example, of preferred stock (with

different cost of equity y), then the formula would include an additional term for each additional source of capital

How it works

Since we are measuring expected cost of new capital, we should use the market values of the components, rather than their book values (which can be significantly different). In addition, other, more "exotic" sources of financing, such as convertible/callable bonds, convertible preferred stock, etc., would normally be included in the formula if they exist in any significant amounts - since the cost of those financing methods is usually different from the plain vanilla bonds and equity due to their extra features

Sources of information

How do we find out the values of the components in the formula for WACC? First let us note that the "weight" of a source of financing is simply the market value of that piece divided by the sum of the values of all the pieces. For example, the weight of common equity in the above formula would be determined as follows

Market value of common equity / (Market value of common equity + Market value of debt + Market value of preferred equity)

So, let us proceed in finding the market values of each source of financing (namely the debt, preferred stock, and common stock)

The market value for equity for a publicly traded company is simply the price per share multiplied by the number of shares outstanding, and tends to be the easiest component to find

The market value of the debt is easily found if the company has publicly traded bonds. Frequently, companies also have a significant amount of bank loans, whose market value is not easily found. However, since the market value of debt tends to be pretty close to the book value (for companies that have not

experienced significant changes in credit rating, at least), the book value of debt is usually used in the WACC formula

The market value of preferred stock is again usually easily found on the market, and determined by multiplying the cost per share by number of shares outstanding

Now, let us take care of the costs

Preferred equity is equivalent to perpetuity, where the holder is entitled to fixed payments forever. Thus the cost is determined by dividing the periodic payment by the price of the preferred stock, in percentage terms

The cost of common equity is usually determined using the capital asset pricing model

The cost of debt is the yield to maturity on the publicly traded bonds of the company. Failing availability of that, the rates of interest charged by the banks on recent loans to the company would also serve as a good cost of debt. Since a corporation normally can write off taxes on the interest it pays on the debt, however, the cost of debt is further reduced by the tax rate that the corporation is subject to. Thus, the cost of debt for a company becomes (YTM on bonds or interest on loans) \times (1 – tax rate). In fact, the tax deduction is usually kept in the formula for WACC, rather than being rolled up into cost of debt, as such

WACC = weight of preferred equity \times cost of preferred equity
+ weight of common equity \times cost of common equity
+ weight of debt \times cost of debt \times (1 – tax rate)

Net operating income approach

Net Operating Income or NOI is equal to yearly gross income less operating expenses. Gross income includes all income earned by the company. Operating expenses are costs incurred during the operation and maintenance of the

company. Net operating income or NOI is used in two very important ratios. It is an essential ingredient in the Capitalization Rate (Cap Rate) calculation. We would estimate the value of company like this

$$\text{Estimated Value} = \text{Net Operating Income} / \text{Capitalization Rate}$$

Another important ratio that is used is the Debt Coverage Ratio or DCR. The NOI is a key ingredient in this important ratio also. Lenders and investors use the debt coverage ratio to measure a company's ability to pay its operating expenses. A debt coverage ratio of 1 is breakeven. From a bank's perspective and an investor's perspective, the larger the debt coverage ratio the better. Debt coverage ratio is calculated like this

$$\text{Debt Coverage Ratio} = \text{Net Operating Income} / \text{Debt Service}$$

Debt service is the total of all interest and principal paid in a given year. The Net Operating Income is an important ingredient in several ratios which include the Capitalization Rate, Net Income Multiplier and the Debt Service Coverage Ratio

According to net operating income approach in the capital structure, the overall capitalization rate and the cost of debt remain constant for all degrees of financial leverage.

As we have seen under net income approach the average cost of capital is measured as under

$$R_a = R_d [D / (D+E)] + R_e [E / (D+E)]$$

R_a and R_d are constant for all degrees of leverage. Given this, the cost of equity can be ascertained as under:

$$R_e [E / (D+E)] = R_a - R_d [D / (D+E)]$$

$$R_e[E / (D+E)][(D+E) / E]=R_a [(D+E) / E]-R_d[D / (D+E)] [(D+E)/ E]$$

$$R_e = R_a + (D/E) (R_a - R_d)$$

The critical assumption of this approach is that the market capitalises the company as a whole at a discount rate which is independent of the company's debt-equity ratio. As a result, the division between debt and equity is considered irrelevant. Any increase in the use of debt capital which is cheaper is offset by an increase in the equity capitalization rate. This is obvious because the equity investors seek higher return as they are exposed to greater risk which in turn arises from the increase in the financial leverage.

This net operating income approach has been propounded by David Durand. He concluded that the market value of a company depends on its net operating income and business risk.

The changes in the degree of leverage employed by a company cannot change these underlying factors. They merely change the distribution of income and risk between debt capital and equity capital without affecting the total income and risk which influence the market value of the company.

Traditional approach

The traditional view has emerged as a compromise to the extreme positions taken by the net income approach.

According to this approach a judicious mix of debt capital and equity capital can increase the value of the firm by reducing the weighted average cost of capital up to a certain level of debt

Thus, the traditional approach proposes that

- the cost of debt capita remains more or less constant up to a certain level of leverage but thereafter rises very sharply at an increasing rate

- The cost of equity capital remains more or less constant or rises only gradually up to a certain degree of leverage and rises very sharply thereafter
- The average cost of capital, as a result of the above behaviour of cost of debt and cost of equity decreases up to a certain point, remains more or less unchanged for moderate increases in leverage thereafter and rises beyond a certain point

This traditional approach is not very clearly or sharply defined as the net income or net operating income approaches.

The main proposition of the traditional approach is that the cost of capital is dependent on the capital structure and there is an optimal capital structure which minimizes the cost of capital. At this optimal capital structure point the real marginal cost of debt and cost of equity will be the same. Before this optimal point, the real marginal cost of debt is less than the real marginal cost of equity and beyond the optimal point the real marginal cost of debt is more than the real marginal cost of equity

The traditional approach implies that investors value leveraged companies more than the un levered companies. This implies that they are prepared to pay a premium for the shares of such levered companies.

The contention of the traditional approach that any addition of debt in sound companies does not really increase the riskiness of the business and the shares of the company is not defensible.

Therefore there is no sufficient justification for the assumption that the investors' perception about risk of leverage will vary at different levels of leverage.

However the existence of an optimum capital structure can be justified and supported on two counts: tax deductibility of interest payments on debt capital and other market imperfections

Modigliani and Miller's proposition

Modigliani-Miller theorem (of Franco Modigliani, Merton Miller) forms the basis for modern thinking on capital structure. The basic theorem states that, in the absence of taxes, bankruptcy costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is. The theorem is made up of two propositions which can also be extended to a situation with taxes

Propositions Modigliani-Miller theorem (1958) (without taxes)

Consider two firms which are identical except for their financial structures. The first (Firm U) is unleveraged: that is, it is financed by equity only. The other (Firm L) is leveraged: it is financed partly by equity, and partly by debt. The Modigliani-Miller theorem states that the value the two firms is the same

Proposition I

$$V_U = V_L$$

where V_U is the value of an unlevered firm = price of buying all the firm's equity, and V_L is the value of a levered firm = price of buying all the firm's equity, plus all its debt

To see why this should be true, suppose a capitalist is considering buying one of the two firms U or L. Instead of purchasing the shares of the leveraged firm L, he could purchase the shares of firm U and borrow the same amount of money B that firm L does. The eventual returns to either of these investments

would be the same. Therefore the price of L must be the same as the price of U minus the money borrowed B, which is the value of L's debt

This discussion also clarifies the role of some of the theorem's assumptions. We have implicitly assumed that the capitalist's cost of borrowing money is the same as that of the firm, which need not be true under asymmetric information or in the absence of efficient markets

Proposition II

$$r_S = r_0 + \frac{B}{S} (r_0 - r_B)$$

r_S is the cost of equity

r_0 is the cost of capital for an all equity firm

r_B is the cost of debt

B / S is the debt-to-equity ratio

This proposition states that the cost of equity is a linear function of the firm's debt to equity ratio. A higher debt-to-equity ratio leads to a higher required return on equity, because of the higher risk involved for equity-holders in a companies with debt. The formula is derived from the theory of weighted average cost of capital

These propositions are true assuming

-no taxes exist

-no transaction costs exist

-individuals and corporations borrow at the same rates

These results might seem irrelevant (after all, none of the conditions are met in the real world), but the theorem is still taught and studied because it tells us something very important. That is, if capital structure matters, it is precisely because one or more of the assumptions is violated. It tells us where to look for determinants of optimal capital structure and how those factors might affect optimal capital structure

Propositions Modigliani-Miller theorem (1963) (with taxes)

Proposition I:

$$V_L = V_U + T_C B$$

V_L is the value of a levered firm

V_U is the value of an unlevered firm

$T_C B$ is the tax rate (T_C) x the value of debt (B)

This means that there are advantages for firms to be levered, since corporations can deduct interest payments. Therefore leverage lowers tax payments. Dividend payments are non-deductible

Proposition II:

$$r_S = r_0 + \frac{B}{S} (r_0 - r_B) (1 - T_C)$$

r_S is the cost of equity

r_0 is the cost of capital for an all equity firm

r_B is the cost of debt

B / S is the debt-to-equity ratio

T_c is the tax rate

The same relationship as earlier described stating that the cost of equity rises with leverage, because the risk to equity rises, still holds. The formula however has implications for the difference with the WACC

Assumptions made in the propositions with taxes are

- Corporations are taxed at the rate T_C , on earnings after interest
- No transaction cost exist
- Individuals and corporations borrow at the same rate

Miller and Modigliani published a number of follow-up papers discussing some of these issues. The theorem first appeared in: F. Modigliani and M. Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment," American Economic Review (June 1958)

Assumptions of Modigliani and Miller's proposition

Perfect capital market

Information is freely available and there is no problem of asymmetric information; transactions are costless; there are no bankruptcy costs; securities are infinitely divisible

Rational investors and managers

Investors rationally choose a combination of risk and return that is most advantageous to them. Managers act in the interest of the shareholders

Homogenous expectations

Investors hold uniform or identical expectations about future operating earnings

Equivalent risk classes

Companies can be easily classified and grouped into equivalent risk classes on the basis of their business risk

Absence of tax

It is assumed there is no tax levied by the respective governments on the companies and also in future there wont be any such tax levies on the companies

Criticisms of Modigliani and Miller's proposition

The financial leverage irrelevance proposition of Modigliani and Miller is valid only if perfect market assumptions underlying their analysis are fulfilled and satisfied. In the real world, however, such assumptions are not present and the markets are characterized by various imperfections

- Companies are liable to pay taxes on their income. (corporate taxes)
- In some countries investors who receive returns from their investments in companies (by way of dividend income) are subject to taxes at a personal level (personal income tax) (In India, such dividends were earlier taxed in the hands of the investors but now removed from the scope of personal income tax. However, the companies which declare dividends are required to pay dividend tax on such dividend distribution in addition to corporate tax)
- Agency costs exist because of the conflict of interest between managers and shareholders and between shareholders and creditors
- Managers seem to have a preference for certain sequence of financing
- Informational asymmetry exists because managers are better informed than the investors at all times
- Personal leverage and corporate leverage are not in the same platform and there fore they are not perfect substitutes

Taxes and capital structure

The tax provisions provide for deduction of interest paid on debt and therefore the debt capital can increase the company's after tax free cash flows. Therefore this interest shield increases the value of the company.

This tax advantage of debt implies that companies will employ more debt to reduce tax liabilities and increase value. In practice this is not always true as is evidenced from many empirical studies.

Companies also have non debt tax shields like depreciation, carry forward losses, etc. This implies that companies that have larger non debt tax shields would employ low debt as they may not have sufficient taxable profit to have the benefit of interest deductibility.

However, there is a link between non debt tax shields and the debt tax shields because companies with higher depreciation would tend to have higher fixed assets, which serve as collateral against debt.

Let us examine this with an example

Let us consider two companies each having operating income of Rs.100,000 and which are similar in all respects. However the degree of leverage employed by them differs. Company A employs no debt capital whereas Company B has Rs.400,000 in debt capital on which it pays 12 per cent interest.

The corporate tax rate applicable to both the companies is 30%. The income to the share holders of these two companies is shown in the table below

	Company A	Company B
Operating income	Rs.100,000	Rs.100,000
Interest on debt	--	Rs.48,000
Profit before tax	Rs.100,000	Rs.52,000
Taxes	Rs.30,000	Rs.15,600

Profit after tax (income available to shareholders)	Rs.70,000	Rs.36,400
Combined income of debt holders and shareholders	Rs.70,000	Rs.84,400

Thus it is clear that combined income of debt holders and shareholders of the leveraged firm is higher than that of the un levered firm

This can be explained by the tax shield available to the levered firm – it is equal to the interest on debt capital multiplied by the applicable tax rate. In this case, it is $\text{Rs.}48,000 \times 30\% = \text{Rs.}14,400$. Only this tax shield amount is the reason for the difference in the combined income of debt holders and shareholders of the companies A and B

Hence one may arrive at

- Interest is tax deductible and, therefore, creates an interest tax subsidy.
- The greater the firm's marginal tax rate the greater the value of the interest tax shield.
- The value of the interest tax subsidy depends on the firm's ability to generate taxable income.
- The more a firm borrows the less the expected realized value of the interest tax shield.
- Given that there are other ways to shield income from taxes, the greater these alternative tax reducing opportunities the lower the value of the interest tax shield.
- Equity investors have a tax advantage relative to debt investors, which offset the tax advantage of debt at the corporate level.

- Hence there is a moderate tax advantage to debt if you can use the tax shields.

However, taxes cannot be the only factor because we do not see companies with 100% debt.

Capital structure determinants in practice

The capital structure determinants in practice may involve considerations in addition to the concerns about earning per share, value of the company and cash and funds flow.

A company may have enough debt servicing ability but it may not have assets to offer as collateral.

Management of companies may not willing to lose their grip over the control and hence they not be taking up debt capital even if they are in their best interest.

Some of the very important considerations are briefly covered below

Growth potential

Companies with growth opportunities may probably find debt financing very expensive in terms of interest to be paid and this may arise due to non availability of adequate unencumbered collateral securities. This may result in losing the investment opportunities.

High growth companies may prefer to take debts with lower maturities to keep interest rates down and to retain the financial flexibility since their performance can change unexpectedly at any point of time. They would also prefer unsecured debt to have flexibility.

Strong and mature companies have tangible assets and stable profits. Thus they may have low costs of financial distress. These companies would therefore raise debts with longer maturities as the interest rates will not be high for them and they have a lesser need of financial flexibility since their

performance is not expected to be altered suddenly. They would also be availing the interest tax shields which in turn will enhance the value of the companies.

Assets

The assets and the form of assets held by the companies are very important determinants of their capital structure.

Tangible unencumbered fixed assets serve as a collateral security to debt. In the event of any unforeseen financial distress, the creditors can have recourse to these assets and they may be able to recover their debt by foreclosing such assets.

Companies with large tangible assets will have very less financial distress and costs and they will be preferred by the creditors.

Companies with intangible assets will not have any such advantages

Non debt and debt tax shields

The tax provisions provide for deduction of interest paid on debt and therefore the debt capital can increase the company's after tax free cash flows. Therefore this interest shield increases the value of the company.

This tax advantage of debt implies that companies will employ more debt to reduce tax liabilities and increase value. In practice this is not always true as is evidenced from many empirical studies.

Companies also have non debt tax shields like depreciation, carry forward losses, etc. This implies that companies that have larger non debt tax shields would employ low debt as they may not have sufficient taxable profit to have the benefit of interest deductibility.

However, there is a link between non debt tax shields and the debt tax shields because companies with higher depreciation would tend to have higher fixed assets, which serve as collateral against debt

Financial flexibility

Companies will normally have a low level of threat or insolvency perception even though their cash and funds flows are comfortable. Despite this, the companies may exercise conservative approach in their financial leverages since the future is very much uncertain and it may be difficult to consider all possible scenarios of adversity. It is therefore prudent for the companies to maintain financial flexibility as this will enable the companies to adjust to any change in the future events.

Loan agreements

The creditors providing the debt capital would insist for restrictive covenants in the long term loan agreements to protect their interest. Such covenants may include distribution of dividends, new additional external finances (other than equity issue) for existing or new projects, maintain working capital requirements at a particular level. These covenants may therefore restrict the companies' investment, financing and dividend policies. Violation of these covenants can lead to serious adverse consequences. To overcome these restrictive covenants, the companies may ask for and provide for early repayment provisions even with prepayment penalty provisions in the loan agreements.

Control

In designing a suitable capital structure, the management of the companies may decide and desire to continue control over the companies and this is true particularly in the case of first generation entrepreneurs. The existing management team not only wants control and ownership but also to manage the company without any outside interference. Widely held and closely held companies may opt to pursue appropriate strategies to hold back their existing management controls.

Issue costs

Issue or floatation costs are incurred when a company decides to raise debt capital in the market. These debt issue costs are normally expected to be lower than equity issue costs. This alone will encourage the companies to pursue debt capital. Retained earnings do not involve issue costs. The source of debt also influences the issue costs. Regulations like stamp duty on commercial paper or certificate of deposits may also jack up the issue cost for the companies.

Thus companies will prefer to go after debt capital for the following reasons

- tax deductibility of interest (availability of tax shield)
- higher return to shareholders due to gearing
- complicated, time consuming procedure for raising equity capital
- no dilution of ownership and control
- equity results in permanent commitment than debt

Some frequently asked questions

1. How do firms raise capital for their investments?

Sources of Capital:

Internal – retained earnings

External - Debt (short-term vs. long-term), Equity and Hybrids (preferred stock, convertible bonds, etc.)

2. Which source of capital (internal or external) is used more? Why?

External – if the company can leverage well. This will work out well if the current interest rate on external debt is less than the current dividend pay out percentage and if there is continued opportunity available to the company to make more money with this external debt

Internal – if the company can convince the shareholders to retain the earnings instead of distributing as dividends and if there is plenty of opportunity available for using such internal funds for profitable deployment. Virtually these retained earnings would be available to the company at nil cost.

3. Which source of external capital (debt or equity) is used more? Why?

Almost all the companies use both the forms of external capital – debt and equity. The equity is available at nil cost. If the company can leverage well, it can raise debt capital as well and if such debt carries lower interest rate when compared with the percentage earnings.

4. Are there any trends in corporate financing?

Capital structure in practice – debt capital and equity capital – is an evolving subject. Many of the successful companies have one form of financing pattern – either wholly using internal funds, or external equity. In case debt capital is sought for, the creditors would insist on adequate margin from the company itself by way of shareholder funds. Thus, depending upon the evolving situation, the modern companies meet their financing requirements either through retained earnings, or equity capital and if debt capital is sought for, with required equity capital arrangements.

5. If a firm issues new debt, what will happen to the firm's stock price? And if a firm issues new equity, what will happen to the firm's stock price?

Depends on what the firm will do with the money! Brealey & Myers' Fourth Law "You can make a lot more money by smart investment decisions than smart financing decisions." Brous' Sixth Law "Good investments are good and bad investments are bad, no matter how they are financed".

When attempting to understand how capital structure changes affect firm value, it is useful to examine pure capital structure changes. For example, Debt for Equity swaps (leverage increasing) or Equity for Debt swaps (leverage decreasing).

6. If a firm issues debt to repurchase equity, what will happen to the firm's stock price?

If such debt is available at a comparatively lower cost and below the current level of percentage earnings, then such use of debt capital to repurchase issued equity in the market place, the share price should go up. Of course, the investors should continue to have the outlook that the company's future earning potential is not affected by such repurchase equity options.

This can also be approached through traditional performance measures by answering the following questions -

- What will happen to the company's Profitability?
- EPS and ROE?
- Profit Margin or ROA?
- Operating Margin or OROA?
- What will happen to the firm's ability to manage assets?
- What will happen to the firm's ability to manage liabilities or shareholders' exposure to risk?

Value based measures of performance are also used to ascertain what will happen to the share prices

- What will happen to the firm's EVA?
- What will happen to the firm's WACC?
- What will happen to the firm's free cash flow?
- What will happen to the firm's value based on the DCF model?

7. Does debt policy matter?

The valuation effect of changes in leverage is not obvious

We can't say that increases in debt will lead to increases in value, anymore than we can say that decreases in debt lead to decreases in value.

Since we observe firms having varying capital structures across industries but consistent capital structures within industries, then it appears debt does matter.

Debt exaggerates performance, good performance looks better but bad performance could become deadly.

To sum up.....

- The capital structure of a company reflects the debt capital – equity capital mix of the company
- All capital structure decisions of a company are very important from the point of view of shareholders' return and risk and hence the market value of the company
- Financial leverage in broader terms represents the use of external debt capital along with equity capital in the capital structure of a company
- Increasing the shareholders' return is the main reason for using financial leverage in capital structure of a company
- A company determines the financial advantages of financial leverage by calculating its impact on EPS or ROE
- If the company's overall profitability is more than current market interest rates, then EPS will increase with debt.
- With increasing EBIT, EPS increases faster with more debt
- The degree of financial leverage is the percentage change in EPS occurring due to a given percentage change in EBIT

- The degree of operational leverage is the percentage change in EBIT occurring due to a given percentage change in sales
- Financial leverage is a double edged weapon – it increases shareholders' return and on the other, it also increases the shareholders' risk
- Net income approach, net operating income approach, traditional approach and Modigliani – Miller approach are different approaches to the relationship between capital structure and company value
- According to the net income approach, the cost of debt capital and the cost of equity capital remain unchanged when the leverage ratio varies. As a result, the average cost of capital declines as the leverage ratio increases. This happens because when the leverage ratio increases, the cost of debt, which is lower than the cost of equity, receives a higher weightage in the average cost of capital calculation
- According to net operating income approach, the overall capitalization rate remains constant for all levels of financial leverage, the cost of debt remains constant for all levels of financial leverage and the cost of equity increases linearly with financial leverage
- The main propositions of traditional approach are – the cost of debt remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate – the cost of equity capital remains more or less constant or rises only gradually upto a certain degree of leverage and rises sharply thereafter – the average cost of capital, as a consequence of above behaviour of the cost of debt and cost of equity decreases upto a certain point, remains more or less unchanged for

moderate increases in leverage thereafter and rises beyond that at an increasing rate

- According Modigliani – Miller, a company’s market value is not affected by its capital structure

Key words

Capital gearing

Capital structure

Combined leverage

Cost of debt

Cost of equity

Coverage ratio

Financial leverage

Financial risk

Information asymmetry

Interest tax shield

Net income approach

Net operating income approach

Operating leverage

Optimum cash structure

Risk return trade off

Weighted average cost of capital

Terminal questions

1. What do you understand by business risk and financial risk? What factors influence business risk?
2. A company should finance proactively and not reactively. Do you agree?

3. The more debt the firm issues, the higher the interest rate it must pay. That is one important reason why companies should operate at conservative debt levels. Critically evaluate this statement
4. It has been suggested that one disadvantage of common stock financing is that share prices tend to decline in recessions and bear market conditions, thereby increasing the cost of capital and deterring investment. Discuss this view. Is it an argument for greater use of debt financing?
5. Compute the value of interest tax shields generated by these three debt issues. Consider corporate taxes only. The marginal tax rate is 30%
- a. Rs.100,000 one year loan at 10 per cent per annum
 - b. A five year loan of Rs.500,000 at 12 per cent per annum. It is assumed that the entire loan amount is repaid only at maturity
6. To study the relationship between capital structure and company value, what are the assumptions normally made
7. What is the relationship between leverage and cost of capital as per the net income approach?
8. Discuss the relationship between leverage and cost of capital as per the net operating income approach
9. What are the important propositions of the traditional approach?
10. Define and discuss Modigliani – Miller proposition I and proposition II
11. Comment on capital structure policies in practice
12. Elucidate the control implications of alternative financing plans

UNIT IV - DIVIDENT POLICIES

LESSON OUTLINE

What is dividend?
How do we define dividends?
Factors which influence dividend decisions
What is the form in which dividends are paid?
Dividend policies
Issues in dividend policy
Some important dates in dividend payments
Some Frequently Asked Questions
The Residual Theory of Dividends
Dividend Irrelevance
Signaling Hypothesis
Dividend Relevance:
Walter's Model
Gordon's model
Implications for Corporate Policy

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Enlighten the objectives of dividend policy and understand, appreciate and highlight the relevance of the various issues in the dividend policy
- Recognise and understand the factors that influence the dividend policy
- Critically, significantly and decisively evaluate and get convinced as to why dividend policy matters
- Discuss the various background and conditions for paying current dividends
- Elucidate and explain the logic of irrelevance of dividends
- Identify and make out the market imperfections that make dividend policy relevant
- Focus and discuss the importance of stability of dividend policy, significance and repercussion of bonus shares, stock splits and share buybacks
- Explain the corporate behaviour of dividends

INTRODUCTION

Dividend policy and decision are critical and crucial areas of management. Dividends are earnings which are distributed to the shareholders. The percentage of earnings paid or dividends declared is called payout ratio.

A high pay out means more dividends and this will lead to less funds internally generated and available for expansion and growth. A low pay out therefore should result in higher growth as retained earnings are significant internal sources of financing the growth of the firm.

Such dividend policies affect the market value of the firm. Whether such dividend will result in increased value or not will be directly dependent on the profitable investment opportunities available and exploited by the firm.

On the other hand, there is a predominant view that dividends are bad as they lead to the payment of higher taxes and they reduce the shareholders' wealth. Dividends when declared are taxed by the governments. Despite this there is a strong investor expectation that dividends are a form of rewards to them.

Given these different perceptions, what is the ideal position in the dividend declarations? How do companies construct their dividend policies? What are the factors reckoned in constructing such policies?

The following detailed discussion will aim at providing valuable inputs in arriving at the right answer.

Dividend

I. What is dividend?

A dividend is a bonus, an extra, a payment, a share or a surplus or periodical return on any original investments. Suppose we have invested in a company

Rs.100,000 as a share holder and the company declares a return of say Rs.10,000 on this investment in a particular year, then the return is called the dividend on the investment made and the dividend pay out is 10%.

II. How do we define dividends?

Thus dividend is the distribution of value to shareholders, normally out of the profits made by the firm in a particular year. Of course, unlike interest payable on a deposit or a loan which is compulsory payment, dividend is not a compulsory yearly payment. Only if the company makes a profit decides to distribute such profits, declare dividends, the share holders will get a return.

III. Factors which influence dividend decisions

1. Legal constraints:

Normally all countries prohibit companies from paying out as cash dividends any portion of the firm's legal capital, which is measured by the par value of equity shares (common stock) Other countries define legal capital to include not only the par value of the equity shares (common stock), but also premium paid if any (any-paid in – capital in excess of par).

These capital impairment restrictions are generally established to provide a sufficient equity base to protect creditor's claims.

We shall examine an example to clarify the differing definitions of capital:

Company XYZ Limited's financial highlights as revealed from its latest balance sheet are as follows:

Equity share at par 1,00,000

Premium paid over par value (Paid-in capital in excess of par) 2,00,000

Retained earnings 1,40,000

Total shareholders equity 4,40,000

In states where the firm's legal capital is defined as the par value of the equity share, the firm could pay out Rs 3,40,000 (2,00,000+1,40,000) in cash dividends with out impairing its capital. In other states where the firm's legal capital includes premium paid if any (all paid-in capital), the firm could pay out only 1,40,000 in cash dividends.

An earnings requirement limiting the amount of dividends to the sum of the firm's present and past earnings is sometimes imposed. In other words the firm cannot pay more in cash dividends than the sum of its most recent and past-retained earnings. However, the firm is not prohibited from paying more in dividends than its current earnings.

Thus dividends can be paid only out of the profits earned during a financial year after providing for depreciation and after transferring to reserves such percentage of profits as prescribed by law.

Due to inadequacy or absence of profits in any year, dividend may be paid out of the accumulated profits of the previous years.

Dividends cannot be declared for past years for which the accounts have been closed.

2. Contractual constraints:

Often, the firm's ability to pay cash dividends is constrained by restrictive provisions in a loan agreement. Generally, these constraints prohibit the payment of cash dividends until a certain level of earnings have been achieved, or they may limit dividends to a certain amount or a percentage of earnings. Constraints on dividends help to protect creditors from losses due to the firm's

insolvency. The violation of a contractual constraint is generally grounds for a demand of immediate payment by the funds supplier.

3. Internal constraints:

The firm's ability to pay cash dividends is generally constrained by the amount of excess cash available rather than the level of retained earnings against which to charge them. Although it is possible for a firm to borrow funds to pay dividends, lenders are generally reluctant to make such loans because they produce no tangible or operating benefits that will help the firm repay the loan. Although the firm may have high earnings, its ability to pay dividends may be constrained by a low level of liquid assets. (Cash and marketable securities)

We will take the previous example to explain this point. In our example, the firm can pay Rs.1,40,000 in dividends. Suppose that the firm has total liquid assets of Rs.50,000 (Rs.20,000 cash +marketable securities worth Rs.30,000) and Rs.35,000 of this is needed for operations, the maximum cash dividend the firm can pay is 15,000 (Rs.50,000 – Rs.35,000)

4. Growth prospects:

The firm's financial requirements are directly related to the anticipated degree of asset expansion. If the firm is in a growth stage, it may need all its funds to finance capital expenditures. Firms exhibiting little or no growth may never need replace or renew assets. A growth firm is likely to have to depend heavily on internal financing through retained earnings instead of distributing current income as dividends

5. Owner considerations:

In establishing a dividend policy, the firm's primary concern normally would be to maximise shareholder's wealth. One such consideration is then tax status of a firm's owners. Suppose that if a firm has a large percentage of wealthy shareholders who are in a high tax bracket, it may decide to pay out a lower percentage of its earnings to allow the owners to delay the payments of taxes until they sell the stock.

Of course, when the equity share is sold, the proceeds are in excess of the original purchase price, the capital gain will be taxed, possible at a more favorable rate than the one applied to ordinary income. Lower-income shareholders, however who need dividend income will prefer a higher payout of earnings.

As of now, the dividend income is not taxed in the hands of the share holders in India. Instead, for paying out such dividends to its share holders, the company bears the dividend distribution tax.

6. Market Considerations:

The risk-return concept also applies to the firm's dividend policy. A firm where the dividends fluctuate from period to period will be viewed as risky, and investors will require a high rate of return, which will increase the firm's cost of capital. So, the firm's dividend policy also depends on the market's probable response to certain types of policies. Shareholders are believed to value a fixed or increasing level of dividends as opposed to a fluctuating pattern of dividends.

In other words, the market consideration is a kind of information content of the dividends. It's a kind of signal for the firm to decide its final policy. A stable and continuous dividend is a positive signal that conveys to the owners

that the firm is in good in health. On the other side, if the firm skips in paying dividend due to any reason, the shareholders are likely to interpret this as a negative signal.

7. Taxation

The firm's earnings are taxable in many countries. This taxation is applied differently in different countries. One can group these different taxation practices as under:

Single taxation

The firm's earnings are taxed only once at the corporate level. Share holders whether they are individuals or other firms do not pay taxes on the dividend income. They are exempt from tax. However the shareholders both individuals and other firms are liable for capital gains tax. India currently follows this single taxation. Under this, the firms in India pay 35% tax on their earnings and they will have to pay additional tax at 12.5% on the after tax profits distributed as dividends to the shareholders. The experience shows that after the implementation of this single taxation, Indian firms have started sharing a sizeable portion of their earnings with their shareholders as dividends

Double taxation

Under this, the shareholders' earnings are taxed two times: first the firms' profit earnings are taxed as corporate tax and then the shareholders' dividend earnings out of the after tax profits are taxed as dividend tax.

Split rate taxation

Under this, the firm's profits are divided into retained earnings and dividends for the purpose of taxation. A higher tax rate is applied to retained earnings and a lower one to earnings distributed as dividends. As share holders pay tax on dividends and tax on capital gains, this lower tax rate can be justified. But for a lower tax rate on the dividend income, the system works on the same lines as that of double taxation.

Imputation taxation

The advantage of this system is that the shareholders are not subjected to double taxation. A firm pays corporate tax on its earnings. Shareholders pay personal taxes on their dividends but they will get full or partial tax credit for the tax paid by the firm on its original earnings. In countries like Australia, the shareholders will get full tax relief or tax credit while in Canada, only partial relief is provided.

IV. What is the form in which dividends are paid?

1.Cash dividend:

1. Regular cash dividend – cash payments made directly to shareholders, usually every year. If more than one dividend payment is made during a year, it will be normally referred to as interim dividends. The total dividend therefore would be the sum of such interim dividends and final dividend if any.

2. Extra cash dividend – indication that the “extra” amount may not be repeated in the future. For example, the firm may earn a bumper profit in a particular year

and the firm may decide to declare extra cash dividend over and above the normal dividends.

3. Special cash dividend – similar to extra dividend, but definitely won't be repeated. Some companies have declared such special dividends on the occasion of their silver or golden jubilee.

4. Liquidating dividend – some or all of the business has been sold. This will be a payout in lieu of the original investment made by the shareholders in case the firm is voluntarily decides to close its operation or if it is compelled by stakeholders other than equity shareholders. Such liquidating dividend may be paid in one lump sum or in stages, depending on the recovery of the free assets of the firm in stages.

2.Share Dividends:

Instead of declaring cash dividends, the firm may decide to issue additional shares of stock free of payment to the shareholders. In this, the firm's number of outstanding shares would be increasing. In the case of cash dividends, the firm may not be able to recycle such earnings in its business. However, in the case of these stock dividends, such earnings are retained in the business. By this, the shareholders can expect to get increased earnings in the future years. This stock dividend is popularly known as bonus issue of shares in India. If such bonus issues are in the range or ratio up to 1:5 (a maximum of 20%), i.e. one share for every five shares held, it is treated as small stock dividend. In case the stock dividend exceeds 20%, then it is called large stock dividend.

Let us examine this with an example

If a firm declares 1:10 (10%) bonus, i.e. one share for every ten shares held,

If the initial balance sheet was

Common stock (100,000 shares) 1000,000
Retained Earnings 800,000
Total Equity 1,800,000

After the bonus issue, the new balance sheet would be

Common stock (110,000 shares) 1100,000
Retained Earnings 700,000
Total Equity 1,800,000

Advantages of share dividends

For the shareholders	For the firms
Tax benefit	Conservation of cash
Possibility for higher future earnings	Means to pay dividends in times of financial and contractual restrictions
Increase in future dividends	More attractive market price
Psychological impact	Investor friendly management image

Following are some of the facts in the share dividends (bonus shares or issues)

- shareholders' funds remain unaffected (prior to the bonus issue, the earnings were in the reserves and surplus account and after the bonus issue, the face value of the bonus shares issued is transferred from the reserves and surplus account to share issued account – virtually no change in the shareholders funds)
- it is costly (the firm has to make certain statutory payments like stamp duty, exchange fees, etc on the bonus share issued and naturally they will have to be paid out of the earnings of the firm only)

3. Stock split

From shareholders' perspective, a stock split has the same effect as a stock dividend. From the firm's perspective, the change in the balance sheet will be

different. A three-for-two stock split, for example, corresponds to a 50% stock dividend. A 10% stock dividend is then equivalent to a eleven-for-ten stock split.

If the initial balance sheet was

Common stock (100,000 shares) 1000,000
 Retained Earnings 800,000
 Total Equity 1,800,000

With an 11-for-10 stock split, the new balance sheet would be

Common stock (110,000 shares) 1000,000
 Retained Earnings 800,000
 Total Equity 1,800,000

Share dividend Vs Share split

Share dividend	Share split
The balance in paid up capital and share premium accounts go up.	The balance in paid up capital and share premium accounts does not change
The balance in reserves and surplus account decreases due to transfer to the paid up capital and share premium account	The balance in reserves and surplus account does not under go any change.
The par value per share remains unaffected	The par value per share changes – it goes down.

However, in both cases – share dividend and share split – the total value of the shareholders’ funds remains unaffected.

4. Share repurchase

Share repurchase is also otherwise known as repurchase of its own shares by a firm. Only recently the share repurchase by firms in India was permitted under

Section 77 of the Indian Companies Act. The following conditions are to be adhered by Indian firms in case they decide to pursue share repurchase option

- a firm buying back its own shares will not issue fresh capital, except bonus issue, for the next one year
- the firm will state the amount to be used for the buyback of shares and seek prior approval of the shareholders
- the buyback of the shares can be effected only by utilizing the free reserves, i.e. reserves not specifically earmarked for some other purpose or provision
- the firm will not borrow funds to buyback shares
- the shares bought under the buyback schemes will have to be extinguished and they cannot be reissued

Rationale

There are several justifications for share repurchase.

Efficient allocation of resources

A repurchase often represents a worth while investment proposition for the company. When companies purchase their own stock, they often find it easy to acquire more value than the value invested for the purchase. Stock repurchase can check extravagant managerial tendencies. Companies having surplus cash may expand or diversity uneconomically. Prudent managements recognize and check their tendencies to waste cash. Stock markets appreciate these repurchase decisions with an increase in the share prices. Through such repurchases, the management can demonstrate its commitment to enhance shareholder value.

Price stability

Share prices tend to fluctuate a great deal in response to changing market conditions and periodic boom and bust conditions. If a company were to repurchase its shares when the market price looks depressed to the management, the repurchase action of the management tends to have a buoying effect in the bearish market.

Tax advantage

Such repurchases result in capital gains for the investors and these capital gains are taxed at a lower rate when compared with dividend distribution

Management control

The share repurchases can be used as an instrument to increase the insider control in the companies. Normally insiders do not tender their shares when a company decides to share repurchase. They end up holding a larger proportion of the reduced equity of the company and thereby have greater control

Advantages:

Repurchase announcements are viewed as positive signals by investors. Stockholders have a choice when a firm repurchases stocks: They can sell or not sell. Dividends are sticky in the short-run because reducing them may negatively affect the stock price. Extra cash may then be distributed through stock repurchases.

Disadvantages:

Stockholders may not be indifferent between dividends and capital gains. The selling stockholders may not be fully aware of all the implications of a repurchase. The corporation may pay too much for the repurchased stocks.

5. Dividend Reinvestment Plans (DRIPs)

Some companies offer DRIPs, whereby shareholders can use the dividend received to purchase additional shares (even fractional) of the company without brokerage cost. These companies that offer DRIPs also offer share repurchase plans (SRP), which allow shareholders to make optional cash contributions that are eventually used to purchase shares. Though this practice is not in vogue in India, in developed countries this is very common. However, we can find another variant to this 'dividend reinvestment plans' in the mutual funds sector. Some of the mutual funds offer growth plans through such 'dividend reinvestment plans'

V. Issues in dividend policy

Normally, a firm would be using its dividend policy to pursue its objective of maximizing its shareholders' return so that the value of their investment is maximized. Shareholders return consists of dividends and capital gains. Dividend policy directly influences these two components of return.

Even if dividends are not declared but retained in the firm, the shareholders' wealth or return would go up.

We shall examine various ratios which impact our firm's dividend policy

1. Pay out ratio

It is defined as dividend as a percentage of earnings. It is an important concept in the dividend policy. A firm may decide to distribute almost its entire earnings. Another firm may decide to distribute only a portion of its earnings. Initially it may appear, the former firm declares maximum dividends. However in the long run, the latter firm which declares only a portion of its earnings may overtake our former high pay out firm.

Let us now look at this with an example.

Firms X and Y have equity capital of Rs.100. Let us assume both the firms generate 25% earnings every year. Let us assume that Firm X declares 50% dividend every year and firm Y declares only 25% dividend every year.

Firm / Year	Equity	25% earnings	Dividend	Retained Earnings
Firm X				
1	100	25	12.50	12.50
2	112.50	28.12	14.06	14.06
3	126.56	31.64	15.82	15.82
4	142.38	35.59	17.79	17.79
5	160.17	40.04	20.02	20.02
6	180.19	45.04	22.52	22.52
7	202.71	50.67	25.33	25.33
8	228.04	57.01	28.50	28.50
9	256.54	64.13	32.06	32.06
10	288.60	72.15	36.07	36.07
11	324.67	81.16	40.58	40.58
12	365.25	91.31	45.65	45.65
13	410.90	102.72	51.36	51.36
14	462.26	115.56	57.78	57.78

15	520.04	130.01	65.00	65.00
Total dividend income received by the investor			485.04	
Firm Y				
1	100	25	6.25	18.75
2	118.75	29.68	7.42	22.26
3	141.01	35.25	8.81	26.43
4	167.44	41.86	10.46	31.39
5	198.83	49.70	12.42	37.28
6	236.11	59.02	14.75	44.27
7	280.38	70.09	17.52	52.57
8	332.95	83.23	20.80	62.43
9	395.38	98.84	24.71	74.13
10	469.51	117.37	29.34	88.03
11	557.54	139.38	34.84	104.54
12	662.08	165.52	41.38	124.14
13	786.22	196.55	49.13	147.42
14	933.64	233.41	58.35	175.06
15	1108.7	277.17	69.29	207.88
Total dividend income received by the investor			405.47	

If you look at the returns* to the investors of firms X and Y at the end of 15 years, the following position will emerge on Rs.100 invested in each firm

	Firm X	Firm Y
Total dividend income	Rs.485.04	Rs.405.47
Total capital gain (over the original investment amount of Rs.100)	Rs.420.04	Rs.1,008.70
Total income	Rs.905.08	1414.17

*overlooking the interest on the dividend received by way of cash.

In the case of low dividend pay out company, in fact from the year 14 onwards, the quantum of dividend paid has actually overtaken the high dividend pay out company.

If you look at the market value, a low pay out firm will result in a higher share price in the market because it increases earnings growth.

Uncertainty surrounding future company profitability leads certain investors to prefer the certainty of current dividends. Investors prefer “large” dividends. Investors do not like to manufacture “homemade” dividends, but prefer the company to distribute them directly.

Capital gains taxes are deferred until the actual sale of stock. This creates a timing option. Capital gains are preferred to dividends, everything else equal. Thus, high dividend yielding stocks should sell at a discount to generate a higher before-tax rate of return. Certain institutional investors pay no tax.

Dividends are taxed more heavily than capital gains, so before-tax returns should be higher for high dividend - paying firms. Empirical results are mixed -- recently the evidence is largely consistent with dividend neutrality.

2. Retention ratio

If x is pay out ratio, then the retention ratio is $100 - x$. That is retention ratio is just the reverse of the pay out ratio. As we have seen above, a low pay out (and hence a high retention) policy will produce a possible higher dividend announcement (and thereby higher share price in the secondary market leading to huge capital gains) because it increases earnings growth.

3. Capital gains

Investors of growth companies will realize their return mostly in the form of capital gains. Normally such growth companies will have increasing earnings

year after year but their pay out ratio may not be very high. Their retention ratio will therefore be higher. Investors in such companies will reap capital gains in the later years. However, the impact of dividend policy (high or low pay out with low or high retention ratio) is not very simple. Such capital gains will result in the distant future and hence many investors may consider them as uncertain.

4. Dividend yield

The dividend yield is the dividends per share divided by the market value per share. The dividend yield furnishes the shareholders' return in relation to the market value of the share.

VI. Some important dates in dividend payments

1. Declaration Date

Every year or half year or quarterly or on chosen special occasions, the Board of Directors of the firm will first meet and recommend on the quantum of dividend and it becomes a liability of the company. Therefore declaration date is the date at which the company announces it will pay a dividend.

2. Date of Record

This record date is the declared by the firm while announcing the dividend payment and only those shareholders who are on the record of the firm on this date will receive the dividend payment. It is therefore the date at which the list of shareholders who will receive the dividend is made.

3. Ex-dividend Date

This occurs two business days before date of record. If one were to buy stock or share on or after this date, he or she will not be eligible to receive the dividend. Hence naturally the stock or share price generally drops by about the amount of the dividend on or after this date. Therefore the convention is that the right to the dividend remains with the stock until two business days before the holder-of-record date. Whoever buys the stock on or after the ex-dividend date does not receive the dividend.

4. Date of Payment

This is the date on which the dividend payment cheques are made out and mailed. Since many firms follow the electronic clearing system for crediting the dividends to the shareholders' accounts, the date of payment is the date on which such ECS instructions are issued to the banks. In this ECS method of payment, there is no paper work involved – cheques need not be made out mailed and mailed – enormous savings in expenditure in the cheque book costs and also in the dispatch.

Let us examine these different dates with an example:

Suppose our firm XYZ Limited announces on 10th June 2005 that it would pay a dividend of 20% to all their shareholders on record at close of business on June 30th 2004.

The declaration date is 10th June 2005

The record date is 30th June 2005

Ex dividend date is 28th June 2005

(while reckoning the ex dividend date all Saturdays, Sundays and other holidays – the days the stock exchange does not work – should be excluded)

Check your progress

1.ABC Limited, a Public Sector Undertaking, has paid 75% interim dividend during the fourth quarter of the financial year 2005-06. Match the following sets of dates

1.27 th February 2006	A.Record date
2.6 th March 2006	B.Payment date
3.7 th March 2006	C.Ex-dividend date
4.9 th March 2006	D.Last with-dividend date
5.3 rd April 2006	E.Declaration date

Some Frequently Asked Questions(FAQs)

Let us assume that we hold share in a firm and it is worth Rs 10.

Are we eligible for the dividend?

Yes. If we hold the share prior to the ex-dividend date we will receive the dividend.

What will be the price of our share after we receive the dividend?

The stock price will generally fall by the amount of the dividend on the ex-date. If we get dividend of Re 1 per share and the stock price is Rs 10 prior to the this ex-date, the price of our share on ex-date will be Rs 9 per share (10-1)

What are then the important components of shareholders return?

- Cash dividends (Payout).
- Share dividends (bonus issues)
- Share splits
- Share repurchase

What if the firm does not pay dividend?

In case the firm does not declare or pay any dividend, then the earnings would be accumulated under reserves and surpluses. And they would be invested in the business again. And we know that the retained earnings are comparatively cheaper and cumbersome. Only these retained earnings generate capital gains for the shareholders.

Thus, either decision – to pay dividends or retain earnings - will affect the value of the firm.

What are therefore the most crucial issues for a firm in paying dividends?

1. High or low payout?
2. How frequent?
3. Do we announce the policy?
4. Amount in near future & long term
5. Stable or irregular dividends?

The most important aspect of dividend policy is to determine the amount of earnings to be distributed to shareholders and the amount to be retained in the firm with an objective to maximise shareholder's return.

We can say that a higher payout policy means more current dividends & less retained earnings, which may consequently result in slower growth and perhaps lower market price/ share. On the other hand, low payout policy means less current dividends, more retained earnings & higher capital gains and perhaps higher market price per share.

Capital gains are future earnings while dividends are current earnings.

Thus we firmly establish the distinction between low payout and high payout companies, capital gains and dividends. Another important point that deserves attention is that dividends in most countries attract higher taxes. Therefore it is quite plausible that some investor's would prefer high-payout companies while others may prefer low-payout companies.

How do we define dividend policy?

It's the decision for the firm to pay out earnings versus retaining and reinvesting them

Now that we know that there exists a relationship between dividend policy and value of the firm. Being an investor, what we should prefer high payouts or low payouts?

If we prefer a high payout, we don't trust future and we want to enjoy all the benefits today. So we don't want to take the risk.

In the case we prefer low payout, we want the firm to grow with new investment opportunities using our money since we know that retained earnings are comparatively cheaper.

See, it is very difficult to specify. We have different theories bases on differing opinions of the analysts; some consider dividend decision to be irrelevant and some believe dividend decision to be an active variable influencing the value of the firm.

Let us study these theories one by one.

Traditional theory

According to the traditional theory put forward by Graham and Dodd, the capital market attaches considerable importance on dividends rather than on retained

earnings. According to them “the capital markets are overwhelmingly in favour of liberal dividends as against conservative or too low dividends’

The following valuation model worked out by them clearly confirms the above view

$$P = M (d + e / 3)$$

Where, P = market price per share, D = dividend per share, E = earnings per share, M = a multiplier

According to this, in the valuation of share the weight attached to dividends is equal to four times the weight attached to retained earnings. This is made clear in the following modified model – in this E is replaced by D+R

$$P = M [d + (d + r / 3)]$$

R = retained earnings

The weights provided by Graham and Dodd are based on their estimation and this is not derived objectively through empirical analysis. Not with standing this observation, the major thrust of the traditional theory is that liberal pay out policy has a favourable impact on stock price

The Residual Theory of Dividends

One of the schools of thought, the residual theory, suggests that the dividend paid by a firm is viewed as a residual, i.e. the amount remaining or leftover after all acceptable investment opportunities have been considered and undertaken.

In this approach, the dividend decision is done in stages as under:

1. First the optimal level of capital expenditures is determined;
2. Then the total amount of equity financing needed to support the expenditures is estimated
3. Reinvested profits is utilised to meet the equity requirement.
4. After this, if there is a surplus available in reinvested profits after meeting this equity need, then the surplus, the residual, is distributed to shareholders as dividends.

Thus, under this theory,

Dividend = Net income – Additional equity needed.

Let us examine this with an example

Suppose our XYZ Limited plans to invest Rs.100 million in a new project and it has finalized the target equity ratio at 60% and decided to meet this fresh equity through internal accruals. Suppose in that particular year, our firm earns Rs.90 million as profits. The amount that can be distributed as dividend by XYZ Limited would be

Requirement of new project	Rs.100 million
At target equity ratio of 60, XYZ Limited will need to invest	Rs.60 million
Profit earned by XYZ Limited in that year	Rs. 90 million
Balance available after meeting this fresh equity need	Rs. 30 million

Thus Rs.30 million can be distributed as dividend by XYZ Limited

Thus, under the residual dividend model, the better the firm's investment opportunities, the lower the dividend paid. Following the residual dividend policy rigidly would lead to fluctuating dividends, something investors don't like

To satisfy shareholders' taste for stable dividends, firms should

1. Estimate earnings and investment opportunities, on average over the next five to ten years;
2. Use this information to find out the average residual payout ratio;
3. Set a target payout ratio.

Dividend Irrelevance

A firm operating in a perfect or ideal capital market conditions, may many times face the following dilemmas with regard to payment of dividends

- The firm has sufficient cash to pay dividends but such payments may erode its cash balance
- The firm does not have enough cash to pay dividends and to meet its dividend payment needs, the firm may have to issue to new shares
- The firm does not pay dividends, but shareholders expect and need cash

In the first case, when the firm pays dividends, shareholders get cash in their hands but the firm's cash balance gets reduced. Though the shareholders gain in the form of such dividends, they lose in the form of their claims on the cash assets of the firm. This can be viewed as a transfer of wealth of the shareholder from one portfolio to another. Thus there is no net gain or loss. In a perfect market condition, this will not affect the value of the firm.

In the second one, the issue of new shares to finance dividend payments results in two transactions – existing share holders gets cash in the form of dividends and the new shareholders part with their cash to the company in exchange for new shares. The existing shareholders suffer an equal amount of capital loss since the value of their claim on firm's assets gets reduced. The new

shareholders gain 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 on the firm to the new shareholders in exchange for cash. Thus there is no gain or loss. Since these two transactions are fair, the value of the firm will remain unaffected.

In the third scenario, if the firm does not pay dividend, the shareholder can still create cash to meet his needs by selling a part or whole of his shares at the market price in the stock exchange. The shareholder will have lesser number of shares as he has exchanged a part of his claim on the firm to the new shareholder in exchange for cash. The net effect is the same once again. The transaction is a fair one as there is no gain or loss. The value of the firm will remain unaffected.

This dividend irrelevance theory goes by the name Miller – Modigliani (MM) Hypothesis as they have propounded the same.

Miller and Modigliani have put forward the view that the value of a firm depends solely on its earnings power and is not influenced by the manner in which its earnings are split between dividends and retained earnings. This view is expressed as the MM – Dividend Irrelevance theory and is put forward in their acclaimed 1961 research work – *Dividend policy, growth and the valuation of shares* – in the Journal of Business Vol 34 (Oct 1961)

In this work, Miller and Modigliani worked out their argument on the following presumptions:

- capital markets are perfect and investors are rational: information is freely available, transactions are spontaneous, instantaneous, costless; securities are divisible and no one particular investor can influence market prices

- flotation costs are nil and negligible
- there are no taxes
- investment opportunities and future profits of firms are known and can be found out with certainty – subsequently Miller and Modigliani have dropped this presumption
- investment and dividend decisions are independent

Thus, the MM hypothesis reveals that under a perfect market conditions, the dividend policies of a firm are irrelevant, as they do not affect the value and worth of the firm. It further unfolds that the value of the firm depends on its earnings and they result from its investment policy. Therefore, the dividend decision of the firm – whether to declare dividend or not, whether to distribute the earnings towards dividends or retained earnings – does not affect the investment decision.

M&M contend that the effect of dividend payments on shareholder wealth is exactly offset by other means of financing. The dividend plus the “new” stock price after dilution exactly equals the stock price prior to the dividend distribution.

M&M and the total-value principle ensures that the sum of market value plus current dividends of two firms identical in all respects other than dividend-payout ratios will be the same. Investors can “create” any dividend policy they desire by selling shares when the dividend payout is too low or buying shares when the dividend payout is excessive

Drawbacks of MM hypothesis

Though the critics of Miller Modigliani hypothesis agree with the view that the dividends are irrelevant, they dispute the validity of the findings by questioning the assumptions used by Miller and Modigliani.

According to them, dividends to matter mainly on account of the uncertain future, the capital market imperfections and incidence of tax.

Uncertain future

In a word of uncertain future, the dividends declared by a company based as they are on the judgements of the management on the future, convey the prediction about the prospects of the company. A higher dividend payout may suggest that the future of the company, as judged by the management is very promising. A lower dividend payout thus may suggest that the future of the company as considered by the management may is very uncertain.

An associated argument is that dividends reduce uncertainty perceived by the shareholder investors. Hence they prefer dividends to capital gains. So shares with higher current dividend yields, other things being equal, attract a very high price in the market. However Miller and Modigliani maintain that dividends merely serve as a substitute for the expected future earnings which really determine the value. They further argue dividend policy is irrelevant.

Uncertainty and fluctuations

Due to uncertainty share prices tend to fluctuate, sometimes very widely. When the prices vary, conditions for conversion of current income into capital value and vice versa may not be regarded as satisfactory by the investors. Some investors may be reluctant to sell a portion of their investment in a fluctuating if

they wish to enjoy more current income. Such investors would naturally prefer and value more a higher dividend pay out. Some investors may be hesitant to buy shares in a fluctuating market if they wish to get a less current income and therefore they may value more a lower dividend pay out.

Additional equity at a lower price

Miller and Modigliani assume that a company can sell additional equity at the current market price. However, companies following the advice and suggestions of investment bankers or merchant bankers offer additional equity at a price lower than the current market price. This under pricing practice mostly stems out of market compulsions.

Issue costs

Miller and Modigliani assumption is based on the basis that retained earnings or dividend payouts can be replaced by external financing. This is possible when there is no issue cost. In the real world where issue costs are very high, the amount of external financing has to be greater than the amount of dividend retained or paid. Due to this, when other things are equal, it is advantageous to retain earnings rather than pay dividends and resort to external finance.

Transaction costs

In the absence of transaction costs, dividends and capital gains are equal. In such a situation if a shareholder desires higher current income than the dividends received, he can sell a portion of his capital equal in value to the additional current income required. Likewise, if he wishes to enjoy lesser current income than the dividends paid, he can buy additional shares equal in value to the difference between dividends received and the current income desired.

In a real world, transaction costs are incurred. Due to this, capital value cannot be converted into an equal current income and vice versa.

Tax considerations

Miller and Modigliani assume that the investors exhibit indifference between dividends and capital appreciation. This may be true when the rate of taxation is the same for dividends received and capital appreciation enjoyed. In real life, the taxes are different on dividends and capital appreciation. Tax on capital appreciation is lower than tax rate on dividends received. Due to this the investors may go in for capital appreciation

Signaling Hypothesis

The M&M dividend irrelevance theory assumes that all investors have the same information regarding the firm's future earnings. In reality, however, different investors have different beliefs and some individuals have more information than others. More specifically, the firm managers have better information about future earnings than outside investors.

It has been observed that dividend increases are often accompanied by an increase in the stock price and dividend decreases are often accompanied by stock price declines. These facts can be interpreted in two different ways: Investors prefer dividends to capital gains; *unexpected* dividend increases can be seen as signals of the quality of future earnings (signaling theory).

Dividend Relevance:

Bird-in-the-Hand Argument

Myron Gordon and John Lintner have argued that shareholders are generally risk averse and prefers a dividend today to the promise of the greater dividend in the future. Hence shareholder's required return is affected by a change in the dividend policy: Reducing today's dividend to invest in the firm at the initial required rate of return destroys value if shareholders' required rate of return increases due to this decision.

Walter's Model

Prof. James E. Walter argues that the choice of dividend policies almost always affect the value of the firm. His model is based on the following assumptions:

1. **Internal financing:** The firm finances all investment through retained earnings; i.e. debt or new equity is not issued.
2. **Constant return and cost of capital:** the firm's rate of return, r , and its cost of capital, k , are constant.
3. **100% payout or retention:** All earnings are either distributed as dividends or reinvested internally immediately.
4. **Infinite time:** the firm has infinite life

Valuation Formula: Based on the above assumptions, Walter put forward the following formula:

$$P = \text{DIV}/k + [(\text{EPS}-\text{DIV}) r/k]/k, \text{ where}$$

P = market price per share

DIV = dividend per share

EPS = earnings per share

$\text{DIV}-\text{EPS}$ = retained earnings per share

r = firm's average rate of return

k = firm's cost of capital or capitalisation rate

The above equation reveals that the market price per share is the sum of two components:

a. The first component (DIV/k) is the present value of an infinite stream of dividends

And

b. The second component $[(EPS - DIV) / k] / k$ is the present value of the infinite stream of capital appreciation. This is the capital gain when the firm retains the earnings within the firm.

Could we note something peculiar here?

- When the rate of return is greater than the cost of capital ($r > k$), the price per share increases as the dividend payout ratio decreases.

Such firms are recognized as growth firms. For them the internal rate is more than the cost of capital ($r > k$). They expand rapidly because of available investment opportunities resulting in returns higher than the cost of capital employed.

These firms will be able to reinvest earnings at a higher rate (r) than the shareholders' expected rate of return (k). They will maximize the market value per share as they follow a policy of retaining earnings for reinvestment or internal investment. This is also revealed by the Firm Y in our earlier table of calculations.

- When the rate of return is equal to the cost of capital ($r=k$), the price per share does not vary with changes in dividend payout ratio.

Such firms are treated as normal firms in the market place. They do not have unlimited surplus generating investment opportunities, yielding higher returns

than the cost of the capital. Once they exhaust all portfolios of super profitable opportunities, they earn just a return equal to the cost of capital on their investments. Here the dividend policy has no impact on the market value per share.

- When the rate of return is lesser than the cost of capital ($r < k$), the price per share increases as the dividend payout ratio increases.

Such firms are viewed as declining firms in the market place. They do not have any profitable portfolio of investment opportunities to invest their earnings. These firms would only earn on their investments a rate of return less than the minimum rate required by the investors and that can be obtained elsewhere in the normal circumstances.

Investors in such declining firms would require earnings distributed to them so that they can either spend it or invest elsewhere to get a higher rate of return. The market value of such declining firms will be high only when it does not retain any earnings at all.

Thus in a nut shell,

- The optimum payout ratio for a growth firm ($r > k$) is nil.
- The optimum payout ratio for a normal firm ($r = k$) is irrelevant
- The optimum payout ratio for a declining firm ($r < k$) is 100%

The dividend policy of a firm depends on the availability of investment opportunities and the relationship between the firm's internal rate of return and its cost of capital.

Despite its popularity does the Walter's model suffer from any limitation?

As we have seen that this model can be useful to show the effects of dividend policy on all equity firms under different assumptions about the rate of return. However the simplified nature of the model can lead to conclusions, which are not true in general, though true for the model. Now we will analyse the model critically on the following points:

1. No External Financing

Walter's model of share valuation mixes dividend policy with investment policy of the firm. The model assumes that retained earnings finance the investment opportunities of the firm only and no external financing-debt or equity-is used for the purpose. When such a situation exists, either the firm's investment or its dividend policy or both will be suboptimum.

2. Constant rate of return

Walter's model is based on the assumption that r is constant. In fact, r decreases as more and more investment is made. This reflects the assumption that the most profitable investments are made and then the poorer investments are made. The firm should stop at a point where $r = k$.

3. Constant opportunity Cost of Capital, k

A firm's cost of capital or discount rate, k , does not remain constant; it changes directly with the risk. Thus, the present value of the firm's income moves inversely with the cost of capital. By assuming that the discount rate, k , is constant, Walter's model abstracts from the effect of risk on the value of the firm.

Let us now try some problems to make the concept clearer.

Example

The following information is available for ABC Ltd. Earnings per share : Rs. 4
Rate of return on investments : 18 percent Rate of return required by
shareholders : 15 percent What will be the price per share as per the Walter
model if the payout ratio is 40 percent? 50 percent? 60 percent?

Solution.

According to the Walter model, $P = [D + (E - D) r/k] / k$

Given $E = Rs4$, $r = 0$, and $k = 0.15$, the value of P for the three different payout ratios is as follow:

Payout ratio P

$$40 \text{ percent} = [1.6 + (2.40) 0.18/0.15] / 0.15 = Rs.29.87$$

$$50 \text{ percent} = [2.00 + (2.00) 0.18/0.15] / 0.15 = Rs29.33$$

$$60 \text{ percent} = [2.40 + (1.60) 0.18/0.15] / 0.15 = Rs28.80$$

Gordon's model and its relevance

Gordon, Myron, J's model explicitly relates the market value of the firm to its dividend policy. It is based on the following hypotheses

An all equity firm

A firm is an all equity firm and it has no debt.

No external financing

A firm has no external finance available for it. Therefore retained earnings would be used to fund or finance any expansion. Gordon's model also supports dividend and investment policies.

Constant return

The firm's internal rate of return, r , is constant.

Constant cost of capital

The discount rate, k , is constant as in Walter's model. Gordon's model also overlooks and ignores the effect of a change in the firm's risk-class and its effect on the discount rate, k .

Permanent earnings

It is assumed the firm and its stream of earnings are perpetual

No taxes

It is also assumed that the firm does not pay tax on the premise that corporate taxes do not exist

Constant retention

The retention ratio (b) once decided is taken as constant. Thus, the growth rate is constant forever as the internal rate of return is also assumed to be constant

Cost of capital greater than growth rate

The discount rate, k , is greater than the above growth rate ($g = br$).

Valuation Formula: Based on the above assumptions, Gordon has put forward the following formula:

$$P_0 = \text{EPS}_1 (1 - b) / (k - b)$$

P_0 = market price per share

EPS_1 = expected earnings per share

b = retention ratio

r = firm's internal profitability

k = firm's cost of capital or capitalisation rate

Example

The following information is available for ABC Company. Earnings per share : Rs.5.00 Rate of return required by shareholders : 16 percent. Assuming that the Gordon valuation model holds, what rate of return should be earned on investments to ensure that the market price is Rs.50 when the dividend payout is 40 percent?

Solution

According to the Gordon model $P_0 = \text{EPS}_1 (1 - b) / (k - b)$

Substituting in this equation, the various values given, we get

$$50 = 5.0(1 - 0.06) / (0.16 - 0.6r)$$

Solving this for r , we get

$$R = 0.20 = 20 \text{ percent}$$

Hence, ABC Company must earn a rate of return of 20 percent on its investments.

Implications for Corporate Policy

Establish a policy that will maximize shareholder wealth.

Distribute excess funds to shareholders and stabilize the absolute amount of dividends if necessary (passive).

Payouts greater than excess funds should occur only in an environment that has a net preference for dividends.

There is a positive value associated with a modest dividend. Could be due to institutional restrictions or signaling effects.

Dividends in excess of the passive policy does not appear to lead to share price improvement because of taxes and flotation costs.

Funding Needs of the Firm

- Liquidity
- Ability to Borrow
- Restrictions in Debt Contracts
- Control Other Issues to Consider

Other Issues to Consider

Dividend Stability

- Stability - maintaining the position of the firm's dividend payments in relation to a trend line.
- Earnings per share Dividends per share

Information content -- management may be able to affect the expectations of investors through the informational content of dividends. A stable dividend suggests that the company expects stable or growing dividends in the future.

Current income desires -- some investors who desire a specific periodic income will prefer a company with stable dividends to one with unstable dividends.

Institutional considerations -- a stable dividend may permit certain institutional investors to buy the common stock as they meet the requirements to be placed on the organizations "approved list."

Taxes Preference Theory

Dividends have greater tax consequences than capital gains. Investors in high tax brackets may prefer capital gains, and thus a low payout ratio, to dividends.

Also, taxes on capital gains are paid only when the stock is sold, which means that they can be deferred indefinitely.

Clientele Effect

Different groups (clienteles) of stockholders prefer different dividend policies. This may be due to the tax treatment of dividends or because some investors are seeking cash income while others want growth. Changing the dividend policy may force some stockholders to sell their shares.

Market practice

The market practices with regard to dividend declaration or policy are:

- They maintain their dividend rate as it is preferred by the shareholders and the government
- When earnings permit, they declare good dividends. They don't have a policy to accumulate surplus and declare bonus share.
- The main stake holder does not insist on any preferred dividend rate. It is entirely decided the company and its management
- Dividend declaration is governed by commercial considerations and at times companies tend to exhibit conservative approach
- Companies reward shareholders generously – both in dividends and bonus shares. They practice very high pay out
- Sometimes companies skip dividend when performance is poor or liquidity is poor to maintain financial strength
- Companies maintain a fixed rate of dividend and issue bonus shares when it is possible. The purpose is to ensure that the shareholders retain shares to enjoy capital gains
- Some companies decide on the fair return to investors and maintain their dividend at these levels
- Companies declare as high a dividend as they can. This will result in share price increase. The companies will then be in a position to raise more funds in the capital markets either by going in for fresh capital issue
- Companies declare a consistent and reasonable return to the shareholders; this will enable them to plough back profits to take care of contingencies and to improve their capital base

- Since the shareholder is the king, companies reward them through dividends, bonus and rights issue to get further investment / funds in future for their growth plans.

How do companies decide on dividend payments?

Mr John Lintner conducted a series of interaction with corporate leaders in the 1950s to find out their dividend policies. And he observed that the following four facts do impact the dividend payments

- firms have long run target dividend pay out ratio. Mature companies with stable earnings generally pay out a high proportion of earnings. Growth companies have low payouts, if they pay any dividends at all
- corporate leaders focus on dividend changes rather than absolute levels. For them paying 20% dividend is an important decision if they paid 10% dividend last year. And it is not a big issue if the dividend pay out last year was also 20%
- dividend changes follow shifts in long run, sustainable earnings. Leaders smoothen out dividend payments. Temporary changes in earnings level is unlikely to affect dividend pay outs
- leaders are reluctant to make dividend changes that may have to be reversed in the future years. They would be concerned if they are to lower dividend pay out ratio.

Thus Lintner's findings suggest that the dividend depends in part on the company's current earnings and in part on the dividend for the previous year, which in turn depended on that year's earnings and the dividend in the year before.

Check your progress

2. The following are several observations about typical corporate dividend policies. Which are true and which are false?

- i. companies decide each year's dividend by looking at their capital expenditure requirements and then distributing whatever cash is left over
- ii. most companies have some idea of a target dividend distribution percentage
- iii. they set each year's dividend equal to the target pay out ratio times that year's earnings
- iv. managers and investors seem more concerned when earnings are unexpectedly high for a year or two
- v. companies undertake substantial share repurchases usually finance them with an offsetting reduction in cash dividends

3. Answer the following question twice, once assuming current tax law and once assuming the same rate of tax on dividends and capital gains.

Suppose all investments offered the same expected return before tax. Consider two equally risk shares ABC Ltd and XYZ Ltd. ABC Ltd pay a generous dividend and offer low expected capital gains. XYZ Ltd pay low dividends and offer high expected capital gains. Which of the following investors would prefer the XYZ Ltd? What would prefer ABC Ltd? Which should not care? (Assume that any stock purchased will be sold after one year)

- i. pension fund
- ii. an individual
- iii. a corporation
- iv. a charitable endowment
- v. a security dealer

To sum up.....

- Dividends are earnings distributed to its share holders by a company
- The (distribution) dividends expressed in percentage terms is called pay out ratio
- Retention ratio is there fore $1 - \text{pay out ratio}$

- A high pay out or a low retention ratio represents more dividends and therefore less funds for growth and expansion
- A low pay out or a high retention ratio represents less dividends and therefore more funds for growth and expansion
- Dividend policies affect the market value of the firm in the short run. However, whether such dividend increase value or not will depend on the profitable investment avenues available to the company
- Walter considers that it depends on the profitability of the investment avenues available to company and the cost of capital. If the company has profitable avenues, its value will be very high and maximum when entire earnings are retained
- Another view is that due to uncertainty of capital gains, investors will prefer dividends and more dividends. This implies that the value of shares in the market of a very high pay out and low retention company will command premium
- Miller and Modigliani do not subscribe to the view that dividends affect the market value of the shares.
- According to them, a trade off takes place between cash dividends and issue of ordinary shares, if the investment policy of the company is firm and given
- They opine, the share price in the market will be adjusted by the amount of earnings distributed (or dividends distributed); and therefore the existing share holder is in the same platform when compared with the new investor – neither better off nor worse off.
- Miller and Modigliani assume perfect capital markets, no transaction costs and no taxes
- However, in practical markets, transaction costs exist and taxes are levied. In such a scenario investors will prefer cash dividends.
- Only tax exempt investors prefer high pay out companies. Investors in high tax brackets prefer high retention so that the share values could so

high to assure them capital gains. Normally capital gains are taxed lower when compared with cash dividends

- In countries like India, the investors are not taxed for the dividends received by them. However capital gains are taxed for them. Hence there is a possibility that the Indian investor may prefer dividend distribution
- This reveals no clear picture or any consensus – whether dividend matters or not.
- Therefore a number of factors will have to taken into account before deciding about the dividend policy
- Dividend can be distributed in cash or share form. Share form dividend is called bonus share.
- Bonus share has a psychological appeal. They do not increase the value of the share. Stock splits have the same effect as the bonus shares
- Companies prefer to distribute cash dividends.
- They prefer to finance their expansion and growth through issue of new shares and / or borrowing.
- This is based on the assumption that shareholders are entitled to and they prefer period return on their investment
- Many companies move over to long term pay out ratios systematically planning and working for it.
- While working out the dividends they consider past distribution and also current and future earnings. Thus dividends have information contents
- Companies would like to reward their shareholders through a stable dividend policy for reasons of certainty
- Stable dividend policy does not mean and result in constant pay out ratio. In this regard stable policy means predictable policy

- The company's dividend policy would depend on its funds requirement for future growth, shareholder's desire and cash or liquidity availability
- Shareholders expect that the company in the future will improve its performance and it will reckon the dividend rate to the increased capital.
- In this hope, the share price may increase.
- If the actual performance is poor and no increase in dividend distribution, the share price will decline.

Key words - Bonus (Stock dividend), Buy back shares, Dividend, Dividend yield, Pay out ratio, Retention Ratio, Share price **and** Share split

Key to Check your progress

1.

(1-E, 2-D, 3-C, 4-A, 5-B)

2.

- i. False – the dividends depend on past dividends and current and future earnings
- ii. True – The target does reflect growth opportunities and capital expenditure requirements
- iii. False – Dividend is usually adjusted gradually to a target. The target is based on current or future earnings multiplied by the target dividend distribution percentage
- iv. True – Dividends change convey information to investors
- v. False – Dividend is smoothed. Managers rarely increase regular dividends temporarily. They may pay a special dividend, however
- vi. False – Dividend is rarely cut when repurchase is being made

3.

Current tax law: i – should not care, ii – prefers XYZ Ltd, iii – prefers ABC Ltd, iv – should not care and v – should not care

Same rate of tax: An individual now should not care. Otherwise preferences do not change

Terminal questions

1. What are the implications of Gordon's basic model?
2. State Walter's model. How is it derived?
3. What are the implications of Walter model?
4. Briefly derive Millar and Modigliani's dividend irrelevance theorem
5. What are the critics view of Miller and Modigliani hypothesis?
6. A low dividend paying company keeps the shareholders' long term interest in mind. This is mainly because the tax application on dividend income is unfavourable when compared with tax application on capital gains. Do you agree with this view? Briefly discuss the issues involved
7. Investors have a strong preference for dividends. Do you agree?
8. What are the factors relevant for determining the pay out ratio? Briefly discuss each of them
9. Discuss the important provisions of company laws in India pertaining to dividends
10. What are the motives for declaring
 - bonus shares
 - share splits
 - share repurchases
11. Which types of companies would you expect to distribute a relatively high or low proportion of current earnings?
 - high risk companies
 - companies that have experienced an unexpected decline in profits
 - companies that expect to experience a decline in profits
 - growth companies with valuable future investment opportunities

12. An increasing number of companies are finding that the best investment they can make these days is in themselves. Discuss this view. How is the desirability of repurchase affected by company prospects and the price of its stock.

13. It is well documented that share prices tend to go up when the companies announce increases in their dividend payouts. How, then, can it be said that dividend policy is irrelevant?

14. It is good saying that I can sell shares to cover my cash needs, but that may mean selling at the bottom of the market. If the company pays a regular dividend, investors avoid that risk. Please respond to this statement.

UNIT - V

WORKING CAPITAL MANAGEMENT

Meaning, concepts, types and Significance of working capital

LESSON OUTLINE

- Working capital management
- Current assets and Current liabilities
- Fixed assets vs. current assets
- Gross concepts and Net concepts of Working Capital
- Permanent Working Capital and Temporary Working Capital
- Determinants of Working Capital
- Working capital under inflation
- Negative working capital

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand different concepts used in the Working Capital Management and suit the best for the creditors.
- Identify different components used for calculation of Current assets and Current Liabilities.
- Know preliminary steps to be considered for determining working capital requirements.

Introduction:

Effective financial management is concerned with the efficient use of important economic resources, namely, capital funds. The capital funds can be used to invest in two forms like, 1.**Fixed assets:** A major portion of the capital funds used for investing in purchase of fixed assets for permanent or long-term purposes, for the purpose of diversification, expansion of business, renovation or modernization of plant and machinery and research and development and 2.**Current assets:** Rest of the portion of funds needed for short-term purposes like investing into assets for current operations of business is called working capital. For example, one who is managing a trading business has to arrange funds regularly for, purchase of finished stock and keeping it in storeroom, and also find suitable customer to go for sales. On the other hand if it is a manufacturing firm he has to arrange for funds continuously for, buying raw materials, keeping it for some time in store, then taking it for the process of converting into finished goods, and ultimately selling it to consumers.

Fixed asset investments Vs current asset investments: Out of the two types of investments, investing in the current operations of the business is more difficult and is a continuous process with more components of assets rather than the first case where the investment is one time or long-term in the business process. Further, purchase of fixed assets can only be by long-term sources of funds. But both long-term as well as short-term sources of funds is used to finance current assets. If so, what is the ratio of both long-term and short-term sources? Even if we decide the ratio, is it a fixed one? The answer is no. It is flexible on the basis of season like operational cycle, production policy, credit term, growth and expansion, price level changes, etc. Improper working capital management can lead to business failure. Many profitable companies fail because their

management team fails to manage the working capital properly. They may be profitable, but they are not able to pay the bills. Therefore management of working capital is not very easy and the financial manager takes very important role in it. Hence, the following guidelines regarding concepts, components, types and determinants will be very useful to a financial manager.

Concepts of Working Capital:

There are two concepts of working capital namely gross concepts and net concepts:

Gross Working Capital:

According to this concept, whatever funds are invested are only in the current assets. This concept expresses that working capital is an aggregate of current assets. The amount of current liabilities is not deducted from the total current assets. This concept is also referred to as “Current Capital” or “Circulating Capital”.

Net Working Capital:

What is net working capital? The term net working capital can be defined in two ways: (1) The most common definition of net working capital is the capital required for running day-to-day operations of a business. It may be expressed as excess of current assets over current liabilities. 2) Net working capital can alternatively be defined as a part of the current assets, which are financed with long-term funds. For example, if the current assets is Rs. 100 and current liabilities is Rs. 75, then it implies Rs. 25 worth of current assets is financed by long-term funds such as capital, reserves and surplus, term loans, debentures, etc. On the other hand, if the current liability is Rs. 100 and current assets is Rs. 75, then it implies Rs. 25 worth of short-terms funds is used for investing in the fixed assets. This is known as negative working capital situation. This is not a

favourable financial position. When the current assets are equal to current liabilities, it implies that there is no net working capital. This means no current asset is being financed by long-term funds.

Net Working Capital = Current assets – Current liabilities.

Table 1.1 Difference between gross and net working capital

Gross concept of working capital	Net concept of working capital
<p>1. Meaning Gross concept of working capital refers to the sum of the current assets employed in the business for day-to-day operations and for utilizing the fixed assets at the optimum level. In this concept the total of the current liabilities is not deducted from the total of current assets.</p>	<p>Net concept of working capital refers to the difference between current assets and current liabilities. Excess of current assets over current liabilities is net working capital. Current assets – Current liabilities = Net Working Capital.</p>
<p>2. Components Components of current assets</p> <ol style="list-style-type: none"> 1. Cash and bank balances, 2. Sundry debtors and Bills receivables, 3. Raw materials, 4. Work-in-progress, 5. Finished Goods, 6. Consumables stores, 7. Prepaid expenses, 8. Advances given to suppliers of raw materials. 	<p>Total current assets said in the opposite side minus</p> <ol style="list-style-type: none"> 1. Creditors for raw materials and consumable stores, 2. Bills payable, 3. Advance payment – received from customers, 4. Deferred installments payable within a year, 5. Indirect and other charges payable, 6. Deposits payable within a year, 7. Term loan and debenture payable within a year, 8. Salary, wages, sales tax, Excise duty, PPF, ESI outstanding, 9. Dividend and tax payable.
<p>3. Financing Generally, current assets are financed</p>	<p>Net working capital is financed only by long-term sources.</p>

<p>by both long-term sources and short-term sources of funds.</p> <p>Long-term funds → Short-term funds →</p> <p style="text-align: right;">Current Assets</p> <p>E.g. Long-term sources: Share capital, Debentures Term loans. Short-term sources: Bank O.D., Cash Credit, Sundry creditors etc.,</p>	<p>E.g. Share capital, Debtors, term loans.</p>
<p>4. Sign Convention</p> <p>Gross concept of working capital is always a positive figure. It never comes as a negative figure. In other words, without current assets a company cannot run. Hence, gross concept is nothing but the sum of all current assets.</p>	<p>Net working capital maybe positive or negative. Positive figure gives the company's positive attitude. Negative figure gives the company's poor financial position.</p> <p>Positive: Current Assets > Current Liabilities</p> <p>Negative: Current Liabilities > Current Assets</p>
<p>5. Nature of Information</p> <p>It emphasizes only on quantitative nature. It never discloses the liquidity positions. Gross working capital concept results in mismanagement of current assets.</p>	<p>The net working capital concept emphasizes on both the quantitative as well as qualitative nature, which are more relevant for managerial decision-making.</p> <p>Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$</p> <p>Liquidity ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$</p>

What are Current Assets?

Assets, which can normally be converted into cash with in a year or within the operating cycle, are grouped as current assets. In other words, current assets are resources that are in cash or will soon be converted into cash in 'the ordinary course of business'. The current asset components are assets like cash, temporary investments, raw materials, work in progress, accounts receivables (sundry debtors/ trade receivables/ bills receivables) and prepaid expenses.

What are Current Liabilities?

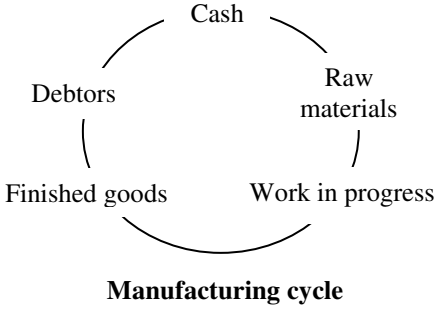
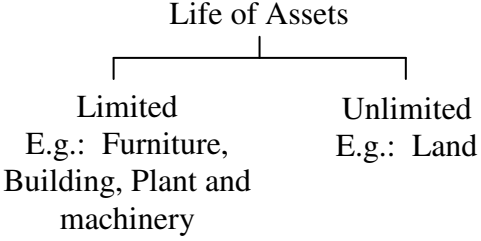
Liabilities, which are due for payment in the short-run, are classified as current liabilities. In other words, these liabilities are due within the accounting period or the operating cycle of the business. Most of such liabilities are incurred in the acquisition of materials or services forming part of the current assets. Current liabilities are commitments, which will soon require cash settlement in 'the ordinary course of business'. The current liability components are liabilities like accounts payable (sundry creditors/ bills payables/ trade payables), accrued liabilities (wages, salary, rents), estimated liabilities (income tax payable and dividend payable).

Table: 1.2 Components of current assets and current liabilities.

CURRENT ASSETS	CURRENT LIABILITIES
<ol style="list-style-type: none">1. Cash and bank balances.2. Investment held in the form of money market instrument like, Treasury bills, commercial bill, commercial paper and gilt edged securities.3. Short-term fixed deposits maturing within a year.4. Sundry Debtors.5. Raw materials in godowns and in transit.6. Stock of Work-in-progress.7. Finished goods in godown and in transit.8. Consumable stores.9. Prepaid expenses such as salary, wages, tax etc.	<ol style="list-style-type: none">1. Creditors for raw materials consumables etc.,2. Advance received from customers.3. Deferred installments payable within a year for repayment of term loans and debentures.4. Interest, tax, dividend, salary and wages payable.5. Public deposits payable within a year.6. Unsecured loans payable within a year.8. Statutory liabilities like ESI, PPF, Co-op dues, sales tax, Excise duty etc.

In order to study in detail about current assets, let us compare it with fixed assets.

Table: 1.3 Difference between fixed assets and current assets

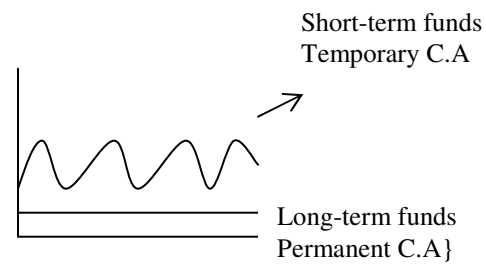
FIXED ASSETS	CURRENT ASSETS
<p>1. Significance: Any resources that can be used to generate revenue are called fixed assets. They are acquired for the purpose of increasing the revenues and not for resale.</p> <p>Eg. Land, building, plant and machinery, furniture, fixtures, etc.</p>	<p>Any asset that is convertible or realizable into cash within a year or one manufacturing cycle, whichever is high, is called current assets.</p> 
<p>2. Nature: These assets are permanent in nature. Life of these assets is usually more than one year.</p> 	<p>In contrast to fixed assets, the current assets are short-term in nature. The life of the assets are usually less than one year.</p>

<p>3. Earnings Basically these are the assets which determine the future earnings / profits of the firm. Benefits from fixed assets are indirect rather than direct.</p> <p>Fixed assets = $\frac{\text{Cost of goods sold}}{\text{turnover} \times \text{Fixed Assets}}$</p> <p>4. Nature of expenditure It is a capital expenditure. The assets that are purchased through capital expenditure are shown in the Balance sheet on the assets side.</p>	<p>Circulating the current assets determines the current earnings / profit of the firm. Earnings from current assets are direct rather than indirect.</p> <p>Current assets = $\frac{\text{Cost of goods sold}}{\text{turnover} \times \text{Average Current Assets}}$</p> <p>It is revenue expenditure. These items are debited to trading account or profit and loss account.</p>
<p>5. Nature of financing These assets are financed by mainly long-term sources like share capital, debentures, term loans, etc. A company's fixed assets can never be financed by short-term funds. If it is so, the company's liquidity position becomes very bad. In that case current ratio must be less than one.</p>	<p>These assets are financed by both long-term funds and short-term funds. Usually in a firm, which has good liquidity position, 20% to 25% of current assets must be financed by long-term funds. The remaining assets are financed by short-term funds like sundry creditors, outstanding expenses, bank overdraft, cash credit, etc</p>

6. Components

These assets may be tangible or intangible. Tangible assets have physical existence and generate goods and services (Land, building, plant and machinery furniture). They are used for the production of goods and services. They are shown in the Balance sheet in accordance with the cost concept. An asset, which cannot be seen with our naked eye and does not have any physical existence, is called an intangible assets, goodwill, patents, trade mark etc. Patents leads to invention, copy writes lead to scale of literacy and trade mark represents use of certain symbols.

Current assets are always tangible. But for the management purpose these assets are divided into permanent current assets, and fluctuating current assets and liquid assets. Permanent current asset are financed by long-term sources. Fluctuating current asset are financed by short-term sources. Liquid assets refer to current assets which can be converted into cash immediately or at a short notice without diminution of value.



<p>7. Depreciation:</p> <p>Cost of these assets is spread over their useful life. This is known as depreciation or expired cost. Depreciation is provided due to wear and tear or lapse of time. As a result of charging depreciation of fixed cost, the value of the fixed assets decline every year.</p> <p>Cost of fixed asset minus</p> $\begin{array}{ccc} \text{Depreciation} & = & \text{Book Value} \\ \downarrow & & \downarrow \\ \text{Expired cost} & & \text{Unexpired cost} \end{array}$	<p>Cost of these assets is charged, in the income statement of the year in which it is incurred. Their life is very short and usually less than one year. Therefore provision for depreciation of current assets does not arise</p>
<p>8. Cost components</p> <p>Cost of the fixed assets includes actual purchase price plus freight charges plus erection and installation charges.</p>	<p>Cost of the current assets includes purchase price plus transport charges. Erection and installation charges do not arise.</p>

Types of working capital:

Working capital can be divided into two categories on the basis of time:

1. Permanent, fixed or regular working capital,
2. Temporary, variable, fluctuating, seasonal or specified working capital.

Permanent working capital:

This refers to minimum amount of investment required in all current assets at all times to carryout minimum level of activity. In other words, it represents the current assets required over the entire life of the business. Tandon committee



has referred to this type of working capital as ‘Core current assets’ or ‘Hard-core working capital’.

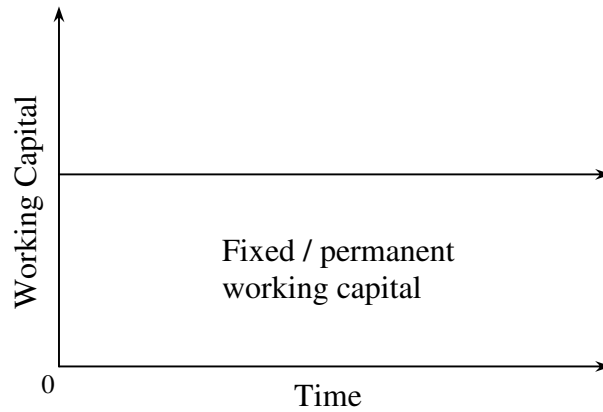


Fig 1.1: Fixed working capital

remaining constant over time

The need for investment in current assets may increase or decrease over a period of time according to the level of production. Some amount of permanent working capital remains in the business in one form or another. This is particularly important from the point of view of financing. Tandon Committee has pointed out that this type of core current assets should be financed through long-term sources like capital, reserves and surplus, preference share capital, term loans, debentures, etc.

Leader in two-wheelers Hero Honda Ltd. and in four-wheelers Maruthi Udyog Ltd. keeping their model in each type in their showrooms are typical examples of permanent working capital.

Temporary Working Capital:

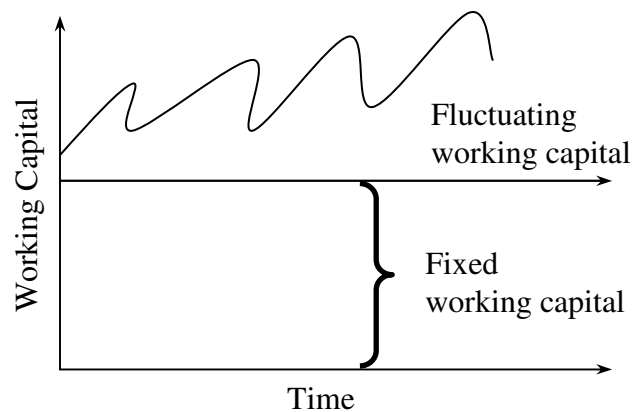


Fig 1.2: *Working capital fluctuating over time*

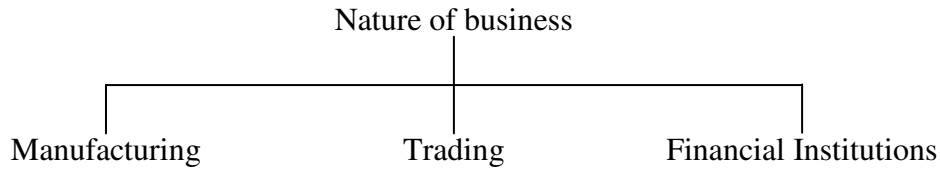
Depending upon the production and sales, the need for working capital over and above permanent working capital will change. The changing working capital may also vary on account of seasonal changes or price level changes or unanticipated conditions. For example, raising the prices of materials, labour rate and other expenses may lead to an increase in the amount of funds invested in the stock of raw materials, work-in-progress as well as in finished goods. Sometimes additional working capital may be required to face the cut-throat competition in the market. Sometimes when the company is planning for special advertisement campaigns organised for promotional activities or increasing the sales, additional working capital may have to be financed. All these extra capital needed to support the changing business activities are called temporary, fluctuating or variable working capital.

Determination of working capital requirements:

There are no uniform rules or formulae to determine the working capital requirements in a firm. A firm should not plan its working capital neither too much nor too low. If it is too high it will affect profits. On the other hand if it is

too low, it will have liquidity problems. The total working capital requirements is determined by a wide variety of factors. They also vary from time to time. Among the various factors, the following are necessary.

1. Nature of business:



The working capital requirements of an organization are basically influenced by the nature of its business. The trading and financial institutions require more working capital rather than fixed assets because these firms usually keep more varieties of stock to satisfy the varied demands of their customers. The public utility service organisations require more fixed assets rather than working capital because they have cash sales only and they supply only services and not products. Thus, the amounts tied up with stock and debtors are almost nil. Generally, manufacturing business needs, more fixed assets rather than working capital. Further, the working capital requirements also depend on the seasonal products.

2. Size of the business: Another important factor is the size of the business. Size of the business means scale of operation. If the operation is on a large scale, it will need more working capital than a firm that has a small-scale operation.

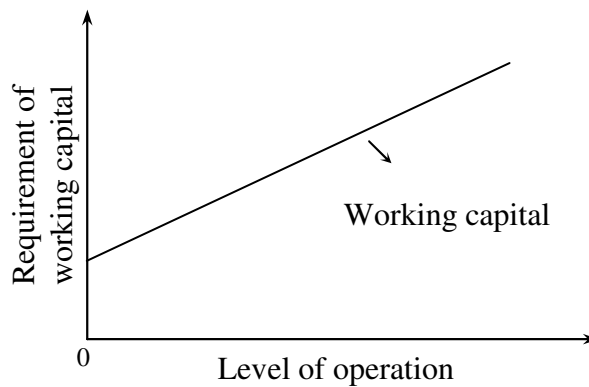


Fig 1.3: Increasing operation

3.Operating cycle: The term “production cycle” or “manufacturing cycle” refers to the time involvement from cash to purchase of raw materials and completion of finished goods and receipt of cash from sales. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of larger tie up of funds in all the processes. If there is any delay in a particular process of sales or collection there will be further increase in the working capital requirements. A distillery is to make a relatively heavy investment in working capital. A bakery will have a low working capital.

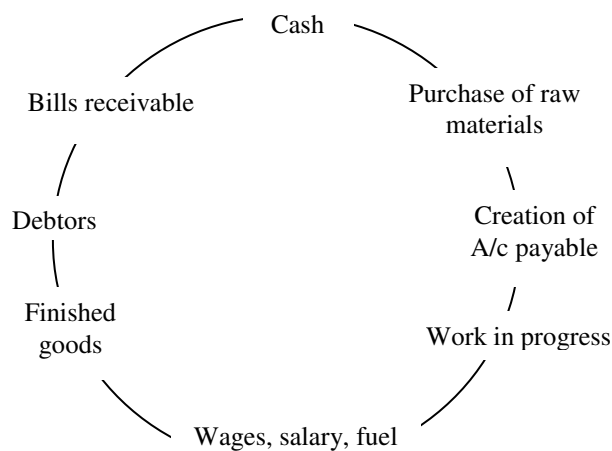


Fig 1.4:Operating cycle

$$O = (R + W + F + D) - C$$

- Where O = Duration of operating cycle
R = Raw material average storage period
W = Average period of work-in-progress
F = Finished goods average storage period
D = Debtors Collection period
C = Creditors payment period

4. Production policy: The requirements of working capital are also determined by production policy. When the demand for the product is seasonal, inventory must be accumulated during the off-season period and this leads to more cost and risks. These firms, which manufacture variety of goods, will have advantages of keeping low working capital by adjusting the production according to season.

5. Turnover of Working capital: The speed of working capital is also influenced by the requirements of working capital. If the turnover is high, the requirement of working capital is low and vice versa.

$$\text{Working Capital Turnover} = \frac{\text{Cost of goods sold}}{\text{Working capital}}$$

6. Credit Terms: The level of working capital is also determined by credit terms, which is granted to customers as well as available from its creditors. More credit period allowed to debtors will result in high book debts, which leads to high working capital and more bad debts. On the other hand liberal credit terms available from creditors will lead to less working capital.

7. Growth and Expansion: As a company grows and expands logically, it requires a larger amount of working capital. Other things remaining same, growing industries need more working capital than those that are static.

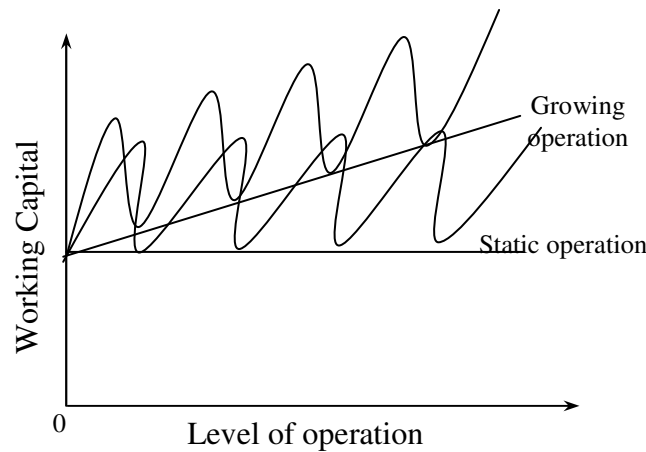


Fig 1.5: Level of working capital for different operations

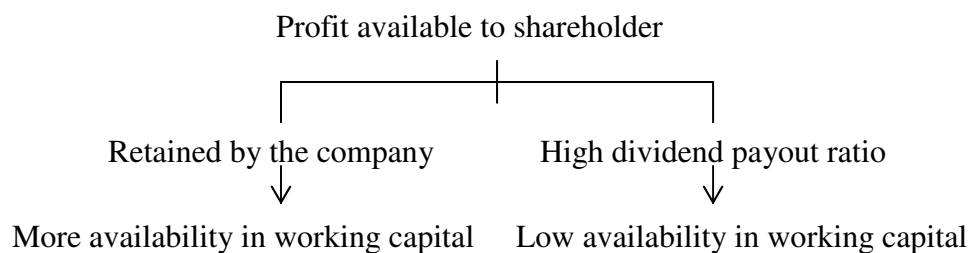
8. Price level changes: Rising prices would necessitate the organization to have more funds for maintaining the same level of activities. Raising the prices in material, labour and expenses without proportionate changes in selling price will require more working capital. When a company raises its selling prices proportionally there will be no serious problem in the working capital.

9. Operating efficiency: Though the company cannot control the rising price in material, labour and expenses, it can make use of the assets at a maximum utilisation with reduced wastage and better coordination so that the requirement of working capital is minimised.

10. Other factors:

Level of taxes: In this respect the management has no option. If the government increases the tax liability very often, taxes have to be paid in advance on the basis of the profit on the current year and this will need more working capital.

Dividend policy: Availability of working capital will decrease if it has a high dividend payout ratio. Conversely, if the firm retains all the profits without dividend, the availability of working capital will increase. In practice, although many firms earn profit, they do not declare dividend to augment the working capital.



Significance of working capital:

The basic objective of financial management is to maximize the shareholders' wealth. This is possible only when the company increases the profit. Higher profits are possible only by way of increasing sales. However sales does not convert into cash instantaneously. So some amount of funds are required to meet the time gap arrangement in order to sustain the sales activity, which is known as working capital. In case adequate working capital is not available for this period, the company will not be in a position to sustain stocks as it is not in a position to purchase raw materials, pay wages and other expenses required for manufacturing goods to be sold. Working capital, thus, is a life-blood of a business. As a matter of fact, any organization, whether profit oriented or otherwise, will not be able to carry on day-to-day activities without adequate working capital.

Problems of inadequate working capital:

Proper management of working capital is very important for the success of an enterprise. It should be neither large nor small, but at the optimum level. In case of inadequate working capital, a business may suffer the following problems.

1. Purchase of raw materials: Availing the cash discount from the suppliers (creditors) or on favourable credit terms may not be available from creditors due to shortage of funds. For eg. This situation arises when the suppliers supply the goods on two months credit allowing 5% cash discount, if it is payable within the 30 days.

In the above situation, if a person buys material for Rs. 10,000 by availing the cash discount, he has to pay only Rs 9500 [10,000 – 500]. This is possible only with the help of adequate working capital.

2. Credit rating: When the financial crisis continues due to shortage of funds [working capital], the credit worthiness of the company may be lost, resulting in poor credit rating. E.g. a company is having the liquid assets of Rs 20,000, current assets of Rs 30,000 and current liabilities of Rs 40,000. From the above data we can determine the short-term solvency with the help of the following ratios 1. Liquid ratio 0.50 and 2. Current ratio 0.75.

The standard ratios are 1:1 and 2:1 for liquidity ratio and current ratio respectively. But seeing the above ratios, it shows that the short-term solvency is very poor. This clearly shows that the company is not in a position to repay the short-term debt. This is due to inadequate working capital.

3. Seizing business opportunity: Due to lack of adequate working capital, the company is not in a position to avail business opportunity during boom period by increasing the production. This will result in loss of opportunity profit. E.g. During boom or seasonal period, generally the company will be getting more contribution per unit by accepting special orders or by increasing the production, matching with high demand. This opportunity can be availed only if it is having sufficient amount of working capital.

4. Duration of operating Cycle: The duration of operating cycle is to be extended due to inadequate working capital. E.g. If the company's duration of operating cycle is 45 days when a company is having sufficient amount of working capital, due to delay in getting the material from the suppliers and delay in the production process, it will have to extend the duration of operating cycle. Consequently, this results in low turnover and low profit.

5. Maintenance of plant and machinery: Due to lack of adequate working capital, plant and machinery and fixed assets cannot be repaired, renovated, maintained or modernized in an appropriate time. This results in non-utilisation of fixed assets. Moreover, inadequate cash and bank balances will curtail

production facilities. Consequently, it leads to low fixed assets turnover ratio. E.g. Cost of goods sold is Rs 2,40,000 fixed assets is Rs 60,000 and average industrial fixed assets turnover ratio is 10 times.

$$\text{Fixed assets turnover ratio} = \frac{\text{Cost of sales}}{\text{Fixed assets}} = \frac{2,40,000}{60,000} = 4 \text{ times}$$

When industrial average ratio is 10 times and the actual turnover ratio is 4 times, it is understood that the fixed assets are not utilized to the maximum.

6. Higher interest: In order to account for the emergency working capital fund, the company has to pay higher rate of interest for arranging either short-term or long-term loans.

7. Low Return on Investment (ROI): Inadequate working capital will reduce the working capital turnover, which results in low return on investment.

8. Liquidity verses profitability: Inadequate working capital may result in stock out of cost, reduced sales, loss of future sales, loss of customers, loss of goodwill, down time cost, idle labour, idle production and finally results in lower profitability.

9. Dividend policy: A study of dividend policy cannot be possible unless and otherwise the organization has sufficient available funds.

In the absence of proper planning and control, the company's inadequate working capital will cause the above said problems.

Working capital management under inflation:

One of the most important areas in the day-to-day management of working capital includes all the short term assets (current assets) used in daily operations. Such management will have more significance during the time of inflation. The following measures can be applied to control the working capital during the period of inflation.

Cost control: Cost control aims at maintaining the costs in accordance with the predetermined cost. According to this concept, the management aims at material, labour and other expenses.

Cost reduction: Cost reduction aims at exploring the possibilities of using alternative raw materials without affecting the quality of the products by adoptions of new technology for the improved quality of products and reducing the cost.

Large-scale production: Within the given capacities the management can increase the productivity by proper cost control strategy. Increased price due to inflation may compensate with reduction in fixed cost when production is increased.

Management cost: Since management cost is a fixed, period cost, the maximum possible use of facilities already created must be ensured.

Operating cycle: The time gap between purchase of inventory and converting the material into cash is known as operating cycle. The management attempts to decrease the duration of operating cycle during inflation.

Turnover: Turnover ratio indicates how the capitals are effectively used in order to increase the sales during the purchase period. By increasing the rate of rotation there will be an increase in sales which in turn will increase the profit.

$$\text{Turnover ratio} = \frac{\text{Sales}}{\text{Capital employed}}$$

Improvement of turnover includes improvement in fixed assets turnover ratio and working capital turnover ratio, which are elements of the capital employed.

$$\text{Capital employed} = \text{Fixed assets} + \text{working capital.}$$

Creditors turnover ratio:

It indicates the speed with which the payments are made to credit purchases.

This can be computed as follows:

$$\text{Creditors payment period} = \frac{\text{Average Creditors}}{\text{Credit purchase}} \times 365$$

Higher creditors turnover ratio with a lower payment period shows that the creditors are paid promptly or even earlier. During inflation the company with help of bargaining power and good relation they can ask to increase the payment period, trade discount, cash discount, etc.

Stock turnover ratio:

A low stock turnover ratio may indicate a slow moving inventory suffering from low sales force. On the contrary, higher stock turnover ratio shows better performance of the company. Under this situation the company may keep relatively small amount of funds as resources. Thus during inflation the company tries to keep high stock turnover ratio.

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

This should be more during inflation than the ordinary period.

Debtors' turnover:

Debtors constitute an important component of the working capital and therefore the quality of debtors to a great extent determines the liquidity position during inflation. A higher ratio gives a lower collection period and a low ratio gives a

longer collection period. During inflation, the management tries to keep a high turnover ratio.

Other factors:

The management can try to decrease the overhead expenses like administrative, selling and distributing expenses. Further the management should be very careful in sanctioning any new expenditure belonging to the cost areas. The managers should match the cash inflow with cash outflow for future period through cash budgeting.

What is negative working capital and how it arises? Negative working capital is where the organization uses supplier credit or customer prepayment to fund their day-to-day needs. Organization with negative working capital use the money from their customer with which to invest and to pay suppliers. Banks and financial services, retailers, distributors, industries with cash sales or advance payments on signature of contract are some of the firms which may have low or negative working capital / sales % figures. Competition is fiercest among industries with low or negative working capital / sales % figures. Financial entry barriers are lower and these industries are easier to expand. However, profit margins are often lower because of the competition (but not always!) and the failure rate among such industries in developed countries is usually higher. Banks are attracted to industries with low or negative working capital/ sales % figure s cash and profits are more quickly. Entrepreneurs are attracted to industries with low or negative working capital % figures. The customers,

suppliers and authors of books publishers also want to operate to a low or negative working capital/ sales %.

Key Words

Gross current assets means the aggregate of all current assets including cash

Net current assets means the aggregate of all current assets less current liabilities. This is same as working capital.

Fixed working capital is the amount that remains more or less permanently invested as working capital in business.

Fluctuating working capital is the amount of working capital over and above the fixed amount of working capital. It may keep on fluctuating from period to period depending upon several factors.

Current liabilities, which are due for payment in the short run, say one year.

Self-assessment Questions/Exercises

1. What are current assets and current liabilities? Explain with suitable examples.
2. Discuss the different concepts of working capital.
3. Discuss the significance of working capital management in business enterprises.
4. Distinguish between fixed and fluctuating working capital. What is the significance of such distinction in financing working capital of an enterprise?

5. Which concept of working capital is more suitable to creditors for analysis to provide working capital finance and why?
6. What are the factors, which determines the working capital requirements?
7. What are the problems faced by a firm due to inadequate working capital?
8. During inflation pressure how can a finance managers control the needs of increasing working capital.
9. Current assets are financed by both long - term and short - term funds while fixed assets are long - term funds only. Explain.
10. What is meant by negative working capital? Also explain situations in which it arises.

LESSON 2

Operating Cycle and Estimation of Working Capital

LESSON OUTLINE

1. Operating cycle
 - a. Trading cycle
 - b. Manufacturing cycle
2. Estimation of Working Capital requirements
 - a. For trading firm
 - b. For manufacturing organization

LEARNING OBJECTIVES

After reading this lesson you should be able to

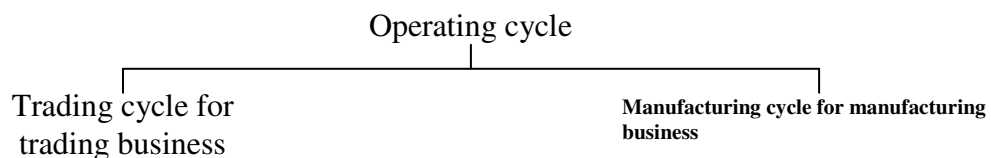
- Understand what is operating cycle for trading and manufacturing firms.
- Know what are the possible methods to reduce the operating cycle period to increase the sales.
- Calculate operating cycle period.
- Estimate working capital requirements for trading and manufacturing concerns.

OPERATING CYCLE:

This is the chronological sequence of events in a manufacturing company in regard to working capital. We know that working capital is the excess of current assets over current liabilities. In reality such excess of current assets over current liabilities may be either more or less than the working capital requirement of the company. Accordingly it is necessary to calculate the working capital of the company. This is illustrated with an example. Such computation of working capital requirement may also be necessary for planning increase of sales from existing level.

The operating cycle is the length of time for a company to acquire materials, produce the products, sell the products, and collect the proceeds from customers. The normal operating cycle is the average length of time for a company to acquire materials, produce the products and collect the proceeds from customers.

From the above it is very clear that the working capital is required to meet the **time-gap** between the raw materials and actual realisation of stocks. This time gap is technically termed as operating cycle or working capital cycle. The operating cycle can be sub-divided into two on the basis of the nature of the business namely trading cycle and manufacturing cycle.



TRADING CYCLE:

Trading business does not involve any manufacturing activities. Their activities are limited to buying finished goods and selling the same to consumers. Therefore operating cycle requires a short time span behaviour cash to cash, the

requirement of working capital will be low because very less number of processes in the operation is given below:

Cash → Inventories → Debtors → Bills Receivable → Cash

In the case of trading firm the operating cycle includes time required to convert (1) Cash into inventories (2) Inventories into debtors (3) Debtors into cash.

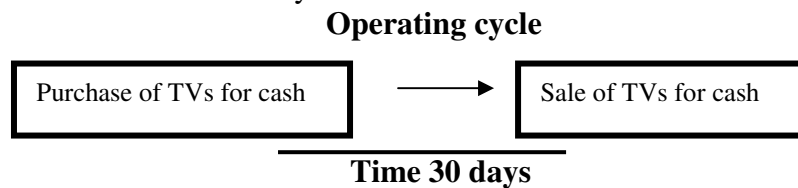
In the case of financing firm, the operating cycle is still less when compared to trading business. Its operating cycle includes time taken for (1) Conversion of cash into suitable borrowers and (2) Borrowers into cash.

Example 1:

You have invested Rs.50,000 in your company on 1.1.2006 for buying and selling of color TVs assuming:

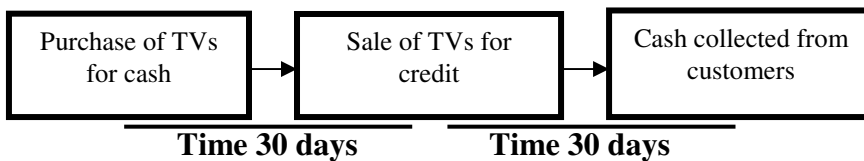
1. Inventory costing Rs. 50,000 is purchased at the beginning of each month.
 2. All of the TVs were sold at the end of each month on cash for Rs. 60,000
1. What is the operating cycle of the company?

The answer is 30 days



2. If the sales are made on account (credit) of 30 days terms what is the operating cycle of the company?

The answer is 60 days



3. Suppose when the suppliers allow 20 days term and sales are made on account of 60 days' term. What is the operating cycle of the company?

The answer is 70 days (30+60-20)



In the above all cases one could see how much retained earnings are available for dividends.

Importance of operating cycle:

If a company can shorten the operating cycle, cash can accumulate more quickly, and due to the time value of money, there should be a positive impact on the share value. Holding everything else constant, an investor would prefer a company with a short operating cycle to a similar company with a longer operational cycle.

The formula to calculate operating cycle:

Operating cycle = Age of inventory + collection period

Net operating cycle = Age of inventory + collection period – deferred payments

For calculating net operating cycle, various conversion periods may be calculated as follows:

Raw material cycle period (RMCP)

= (Average Raw material stock/Total raw material Consumable) x 365

Working progress cycle period (WPCP)

= (Average work in progress/Total cost of Production) x 365

Finished goods cycle period (FGCP)

= (Average finished goods/Total cost of goods Sold) x 365

Accounts receivable cycle period (ARCP)

$$= (\text{Average Account receivable} / \text{Total of sales}) \times 365$$

Accounts payable cycle period (APCP)

$$= (\text{Average account payable} / \text{Total credit purchase}) \times 365$$

where, Total credit purchase = cost of goods sold + ending inventory –
beginning of inventory

For above calculations, the following points are essential:

1. The average value is the average of opening balance and closing balance of the respective items. In case the opening balance is not available, only the closing balance is taken as the average.

2. The figure 365 represents number of days in a year. Sometimes even 360 days are considered.

3. The calculation of RMCP, WPCP and FGCP the denomination is taken as the total cost raw material consumable, total cost of production total, cost of goods sold respectively since they form respective end products.

On the basis of the above, the operating cycle period:

$$\begin{aligned} \text{Total operating cycle period (TOCP)} &= \text{RMCP} + \text{WPCP} + \text{FGCP} + \text{ARCP} \\ \text{Net operating cycle period (NOCP)} &= \text{TOCP} - \text{DP (deferred payment)} - \text{APCP} \end{aligned}$$

The operating cycle for individual components are not constant in the growth of the business. They keep on changing from time to time, particularly the Receivable Cycle Period and the Deferred Payment. But the company tries to retain the Net Operating Cycle Period as constant or even less by applying some requirements such as inventory control and latest technology in production. Therefore regular attention on the firm's operating cycle for a period with the previous period and with that of the industrial average cycle period may help in maintaining and controlling the length of the operating cycle.

Example 2:

Gee Pee, a trading organization has supplied the following information. Calculate the operating period.

	Amount(Rs.)
Total sales	500 lakhs
Cost elements are Materials 70%, overheads 20%	
Average stock of merchandise inventory	10 lakhs
Average debtors	25 lakhs
Average creditors	14.6 lakhs

Solution:

Merchandise inventory holding period	$(10/450) \times 360$	=	8 days
Debtors holding period	$(25/500) \times 360$	=	18 days
<u>Less:</u> Creditors availing period	$14.6/350 \times 360$	=	<u>(15) days</u>
			<u>11 days</u>

Note: Total cost of merchandise inventory = $500 \times (90/100) = 450$
 Total cost of material purchased = $500 \times (70/100) = 350$

Example 3:

From the following data of a trading company compute the realisation period (operating cycle)

	Rs. in lakhs
Average inventories	13.0
Average Debtors	22.5
Average Creditors	14.0
Purchases	240.0
Cost of goods sold	260.0
Sales	300.0

Solution:

Inventory holding period	$(13/260) \times 360$	=	18 days
Debtors holding period	$(22.5/300) \times 360$	=	27 days
<u>Less:</u> Availing creditors extending loan period	$(14/240) \times 360$	=	<u>(21) days</u>
			<u>24 days</u>

MANUFACTURING CYCLE:

In the case of manufacturing company the operating cycle refers to the time involvement from cash through the following events and again leading to collection of cash.

Cash → Purchase of raw materials → Work-in-progress →
 Finished goods → Debtors → Bills receivable → Cash

Operating cycle of a manufacturing concern starts from cash to purchase of raw materials, conversion of work in progress into finished goods, conversion of finished goods into Bills Receivable and conversion of Bills Receivable into cash. In the other words the operating cycle is the number of days from cash to inventory to accounts receivable back to cash. The operating cycle denotes how long cash is tied up in inventories and receivables. If the operating cycle requires a longer time span between cash to cash, the requirement of working capital will be more because of the huge funds required in all the process. If there is any delay in a particular process there will be further increase in the working capital requirement. A long operating cycle means that less cash is available to meet short-term allegations. A distillery has to make a heavy investment in working capital rather than a bakery, which has a low working capital.

Forecasting/estimate of working capital requirement

“Working capital is the life-blood and the controlling nerve centre of a business”. No business can run successfully without an adequate amount of working capital. To avoid the shortage in working capital, an estimate of working capital requirements should be made in advance so that arrangements can be made to procure adequate working capital.

Suggested proforma for estimation of working capital requirements are given below:

Statement of working capital requirements

	Amount(Rs.)	Amount(Rs.)
Current Assets		
1. Stock of Raw materials		-----
2. Work-in-progress (for ... months)		
a) Raw materials		-----

b) Direct labour	-----	
c) Overheads	-----	-----
3. Stock of finished goods		-----
4. Debtors		-----
Less: Current liabilities		
i. Creditors	-----	
ii. Lag in payment of expenses	-----	
iii. Others (if any)	-----	-----
Working capital (C.A.- C.L.)		-----
Add: Provision/Margin for contingencies		-----
		<hr/>
	Net working capital required =	-----

Notes:

Profits should be ignored while calculating working capital requirements for the following reasons:

- ☞ *Profits may or may not be used as working capital.*
- ☞ *Even if profits are to be used for working capital it has to be reduced by the amount of income tax, drawings, dividends paid etc.*
- ☞ *Calculation of work-in progress depends upon its degree of completion as regards to material, labour and overheads. However, if nothing is given in a question as regards to the degree of completion, we suggest the students to take 100% cost of material, labour and overheads.*
- ☞ *Calculation for stocks of finished goods and debtors should be made at cost unless otherwise asked in the question.*

Example 4.

You are provided with the following information in respect of XYZ Ltd. For the ensuing year:

Production for the year	69,000 units
Finished goods in store	3 months
Raw material in store	2 months
Production process	1 month
Credit allowed by creditors	2 months
Credit given to debtors	3 months
Selling price per unit	Rs. 50

Raw material	50% of selling price
Direct wages	10% of selling price
Overheads	20% of selling price

There is a regular production and sales cycle and wages and overheads accrue evenly. Wages are paid in the next month of accrual. Material is introduced in the beginning of production cycle.

You are required to find out:

- (1) Its working capital requirement
- (2) Its permissible bank borrowing as per 1st and 2nd method of lending.
(Please refer lesson 4 unit 5)

Solution:

-Statement of working capital requirement:

Current assets	Rs.	Rs.
Raw materials stock (69000 x 25 x 2/12)		2,87,000
Working progress:		
1. Raw materials (69,000 x 25 x 1/2)	1,43,750	
2. Direct wages (69,000 x 5 x 1/24)	14,375	
3. Overhead (69,000 x 10 x 1/24)	<u>28,750</u>	1,86,875
Finished goods: (69000x40x3/12)		6,90,000
Debtors: (69,000x40x3/12)		<u>6,90,000</u>
		<u>18,54,375</u>
Current Liabilities:		
Creditors Raw materials 69,000 x25x2/12	2,87,500	
Outstanding Wages 69,000 x 5 x 1/12	28,750	<u>3,16,250</u>
Working capital requirement	=	<u>15,38,125</u>

Assumptions: Debtors are taken at cost price not at selling price.

Working capital requirement

First lending method	Amount(Rs.)	Second lending method	Amount(Rs.)
Working capital requirement	15,38,125	Working capital requirement	15,38,125
<u>Less: 25% Margin of above</u>	3,84,531	<u>Less: 25% Margin of current asset</u> 1854375 x 25/100	4,63,594
Bank Borrowing	11,53,594	Bank Borrowing	10,74,531

(The above calculations are made on the basis of Tandon Committee. Please refer lesson 4)

Example 5

A proforma cost sheet of a company provides the following particular:

Element of cost:

Material	40%
Direct labour	20%
Overheads	20%

The following further particular are available:

- (a) It is proposed to maintain a level of activity of 2,00,000 Units
- (b) Selling price is Rs. 12 per unit.
- (c) Raw material are expected to remain in stores for an average period of one month
- (d) Materials will be in process, on an average for half a month.
- (e) Finished goods are required to be in stock for an average period of one month.
- (f) Credit allowed to debtors is two months
- (g) Credit allowed by suppliers is one month.

You may assume that sales and production follow a consistent pattern. You are required to prepare a statement of working capital requirement, a forecast profit and loss account and balance sheet of the company assuming that:

	Amount(Rs.)
Share capital	15,00,000
8% Debentures	2,00,000
Fixed Asset	13,00,000

Solution:

Statement of working capital

Particular	Rs.	Rs.
Current asset:		
Stock of raw material (1 month) $\frac{24,00,000 \times 40}{100 \times 12}$		80,000
Work-in-progress (1/2 month):		
Material $\frac{24,00,000 \times 40}{100 \times 24}$	40,000	
Labour $\frac{24,00,000 \times 20}{100 \times 24}$	20,000	
Overheads $\frac{24,00,000 \times 20}{100 \times 24}$	<u>20,000</u>	
		80,000

Stock of finished goods (1 month)		
Material	$\frac{24,00,000 \times 40}{100 \times 12}$	80,000
Labour	$\frac{24,00,000 \times 20}{100 \times 12}$	40,000
Overheads	$\frac{24,00,000 \times 20}{100 \times 12}$	<u>40,000</u>
		1,60,000
Debtors (2 months) at cost		
Material		1,60,000
Labour		80,000
Overheads		<u>80,000</u>
Less: Current Liabilities		<u>3,20,000</u>
		6,40,000
Creditors (1 month) for raw material	$\frac{24,00,000 \times 40}{100 \times 12}$	80,000

LESSON 3

Sources of working capital

LESSON OUTLINE

1. Permanent sources
2. Long-term sources
3. Medium-term sources
4. Short-term sources
 - A. Spontaneous sources
 - a) Trade credit
 - i. Open account
 - ii. Bills payable
 - b) Accrued expenses
 - B. Bank loans
 - a) Cash credit
 - b) Overdraft
 - c) Bill purchasing and bill discounting
 - C. Other sources
 - a) Factoring
 - i. Recourse factoring
 - ii. Non-recourse factoring
 - iii. Others – Advanced and maturity factoring
 - b) Commercial papers
 - c) Intercorporate deposits

LEARNING OBJECTIVES

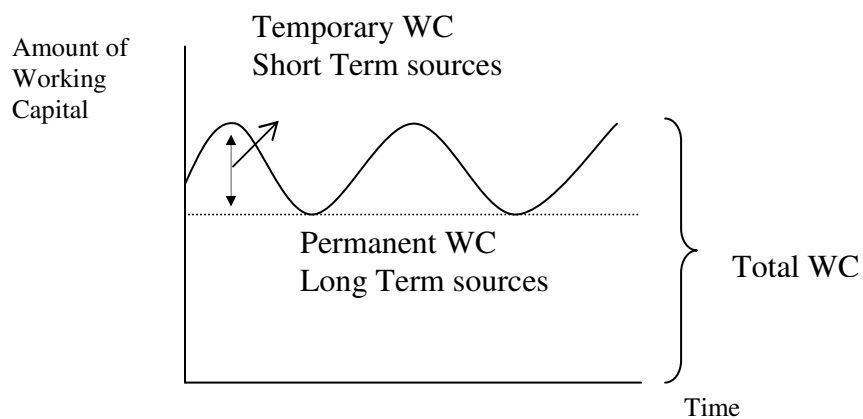
After reading this lesson you should be able to tell

- *How to finance working capital through permanent and long-term sources?*
- *How short-term sources are cheaper than long-term sources?*
- *What is working capital term loan and how it works?*
- *What are the different short-term sources of working capital?*
- *How factoring becomes an important source of working capital and how it works?*

Introduction:

Once the financial manager has estimated to invest in current assets like raw material, working-in-progress, finished goods, debtors etc. the next step is, he must arrange for funds for working capital. Working capital management refers not only to estimating working capital requirement but also includes the process of bifurcating the total working capital requirement into permanent working capital and temporary working capital. The permanent working capital should be financed by arranging funds from long-term sources such as issue of shares, debentures and long-term loans. Financing of working capital from long term resources provide the following benefits:

- (1) It reduces risk, since the need to repay loans at frequent intervals is eliminated.
- (2) It increases liquidity since the firms need not worry about the payment of these funds in the near future.



The temporary working capital requirement should be financed from short-term sources such as borrowing loan from banks, creditors, factoring etc. The financing of working capital through short-term sources of funds has the benefit of **lower cost** and establishing close relationship with the banks.

The finance manager has to make use of both long-term and short-term sources of funds in a way that the **overall cost** of working capital is the lowest and the funds are available on time and for the period they are really needed. Before going to see in detail about working capital finance, first let us see what are the different sources of finance available for the company and also see what are the sources particularly available to working capital.

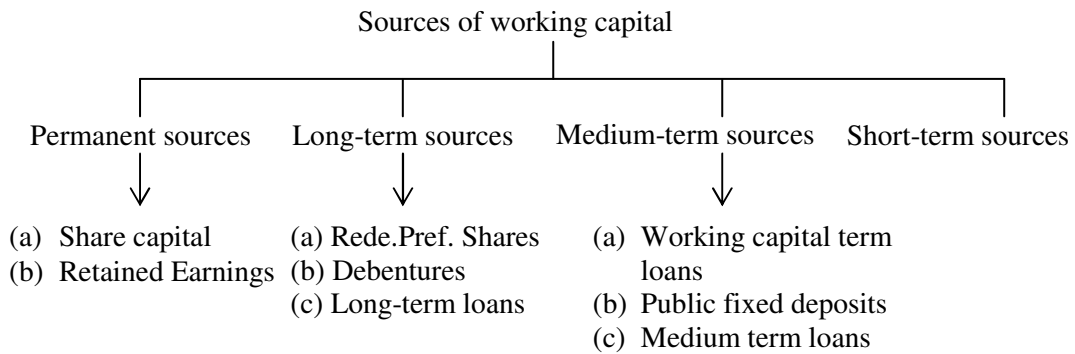


Chart showing different sources of finance available for working capital

Now let us discuss in detail the various sources of finance, which are mainly available for working capital and their relative merits and demerits. The financial manager must look into different aspects such as cost, flexibility, reliability and restrictions whenever he selects sources of finance.

1.Financing through permanent sources:

Permanent sources of working capital should be provided in such a manner that the enterprise might have its uninterrupted use for an unlimited duration. It can be conveniently financed by the following sources:

a. Issue of shares:

Issue of shares is the most important sources for raising the permanent working capital. Shares are of two types – Equity shares and preference shares. Maximum amount of permanent working capital should be raised by the issue of equity shares.

b. Retained earnings:

It means the reinvestment by a concern of its surplus earning in its business. This is, a part of the earned profits may be ploughed back by the firm, in meeting their working capital needs. It is an internal source of finance and is most suitable.

2. Financing through long-term sources:

The fund, which is required for 7 to 20 years and above, is called long-term funds. Financing of working capital through long-term sources provides reduction of risk and increases the liquidity. These long-term sources can be raised through the following methods:

a. Redeemable preference shares:

Preference shares are those, which carry the following preferential rights over other classes of shares:

- (i) A preferential right to payment of fixed dividend over equity shareholder.
- (ii) A preferential right to repayment of capital in case of winding up of the company to other classes of shares.

Redeemable preference shares are those, which can be redeemed during the lifetime of the company. According to the companies (Amendment) Act, 1996,

w.e.f. March 1997, no company can now issue preference shares, which are irredeemable or are redeemable after 20 years from the date of their issue.

b. Debentures:

A debenture is an instrument issued by the company acknowledging its debt to its holder. It is also an important source of long-term working capital. The firm issuing debenture also enjoys a number of benefits, such as trading on equity, retention of control, tax benefit etc.

c. Long-term loans:

Financing institutions such as commercial banks, life insurance corporation of India, industrial finance corporation of India, state financial corporations, industrial development bank of India etc. provide long-term and medium-term loans. This type of finance is ordinarily repayable in instalments.

3. Financing through medium-term sources.

The funds, which are basically required for a period of 2 to 5 years, are called medium-term funds. Previously the commercial banks were concentrating on short-term and medium-term loans in the form of working capital loans whereas the financial institutions like IDBI, ICICI, IFCI were concentrating on long-term funds. But, recently, the commercial banks have also entered into providing medium-term as well as long-term funds to trade and industry, either independently, or sometimes, in collaboration with one or more specialized financing institutions. The medium-term funds can be raised through the following methods:

a. Working capital term loans:

It refers to the quantum of credit that a bank should disburse. Tandon committee suggested three methods of lending which banks generally follow the second method of lending. As per this method, the borrower will have to contribute 25% of the total current assets. The remaining working capital gap will be funded by bank borrowings. Where borrower fails to bring such additional funds, the banks usually sanction “Working capital term loans” which the borrower is to repay in a phased manner. Such repayment time allowed is a maximum of five years. To put a pressure on the borrower for early repayment of such loan, the banks generally charge 1% higher rate on such loans over and above rates charged in cash credit account. However, such excess charge of interest is entirely in the jurisdiction of the bank, which may discriminate between borrowers depending financial status and future project of the concerned borrower.

The concept of “**Working capital term loan**” has been introduced by Chore committee, which was appointed for reviewing working capital lending by banks subsequent to introduction of recommendation of Tandon committee.

b. Public fixed deposits:

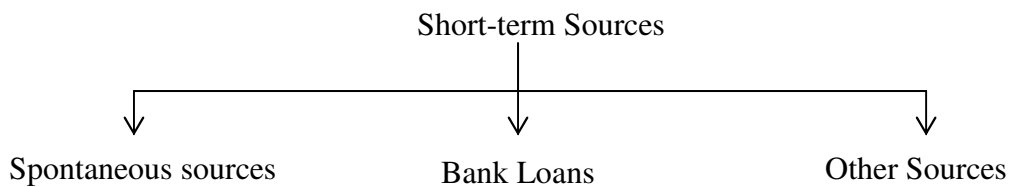
Public deposits are the fixed deposits accepted by a business enterprise directly from public deposit as source finance have a large number of advantages such as simple and convenient source of finance, Taxation benefits, inexpensive sources of finance etc.

c. Medium term loans:

These loans are generally provided by banks or financial institutions. The period of loans vary from 3 to 7 years. The investment of these loans from funds is in plant and machinery, vehicle and certain other equipments. The procedures of granting such loan may not be as high as in case of long-term loans. Besides, in most cases consortium finance may not be required. In case of long-terms, the funds are invested in freehold land or in long leased land since their period of loan vary from 7 years to 20 years. Thus the difference between medium term loans and long-term loans may be termed as of degree rather than of kind.

4. Financing working capital through short-term sources:

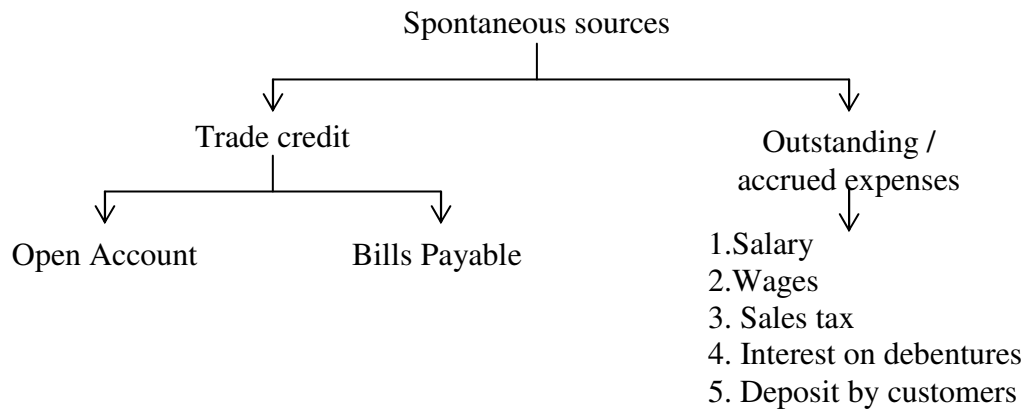
Funds available for a period of one year or less are called short-term sources of finance. They are raised from sources, which can provide funds only for short period quickly, and its cost is less than the funds raised from long-term sources. These funds are usually met by taking short-term loans or getting the bills discounting from the commercial banks. Spontaneous sources and bank loans are important sources of short-term funds. They are explained in detail below:



I. Spontaneous Sources:

Some sources of funds, which are created during the course of normal business activity have zero cost and are termed as spontaneous sources. For example

suppliers supply goods, employees provide services where the payment are made at a latter stage. To an extent, the payment is delayed and the funds are made available to the firm. These are called trade liabilities or current liabilities. The two important spontaneous sources of short-term finance are (a). Trade credit and (b). Outstanding expenses / accrued expenses. These are explained in detail below:



A. Trade credit:

The credit extended in connection with the goods purchased for resale by a retailer or a wholesaler for materials used by manufacturers in producing its products is called the trade credit.

Trade credit is a form of short-term financing common is almost all types of business firm. As a matter of fact, it is the largest source of short-term funds. The amount of such financing depends on the volume of purchase and the payment timings. Small and new firms are usually more dependent on the trade credit, as they find it difficult to obtain funds from other sources. This trade credit may be extended to the customers in the form of (a) An opening account credit and (b) Acceptance credit management / bills payable.

(i) Open account:

Trade credit is mostly an informal arrangement, and is granted on an open account basis. Open account is usually extended only after the seller conducts a fairly extensive investigation of the buyer's standard and reputation. In the case of open account credit arrangement the buyer does not sign any formal debt instrument as an evidence of the amount due by him to the seller. The only evidence is the copy of the invoice that goods have been delivered. Open account trade credit appears as Sundry creditors on the buyer's balance sheet in the liability side.

(ii) Acceptance credit / Bills payable:

Trade credit may also take the form of Bills payable. In such a case the buyer accepts a bill of exchange or gives a promissory note for the amount due by him to the seller. This bill has specified future date, and is usually used when the supplier is less sure about buyers willingness and ability to pay or when the suppliers wants cash by discounting the bill from a bank. Thus, it is an arrangement by which the indebtedness of the buyer is recognized formally. This appears in the buyer's balance sheet as accounts payable or bills payable.

Merits of trade credit:

1. **Easy availability:** Unlike other sources of finance trade credit as a source of finance relatively easy to obtain. The easy availability is very important in the case of small and medium firms where they cannot raise funds in the capital market.

2. **Flexibility:** The trade credit increases or decreases depending upon the growth of the firm. Moreover it need not pledge securities or adhere to strict payment schedule.

3. **Informality:** Trade credit is an informal spontaneous source of finance. It does not require to sign in the negotiable instruments to obtain the credit.

Demerits of trade credit:

1. **Increased cost:** The trade credit is usually very high when compared to cash sales. The seller while fixing the selling price will consider all explicit and implicit costs.
2. **Overtrading:** Trade credit facility may induce the buyer to buy a large quantity as a result it may occur in over trade.

B. Accrued expenses:

Another spontaneous source of short-term financing is the accrued expenses as the outstanding expense liabilities. Accrued expenses refer to services received by the firm but the payment for which has not been made. The accrued expenses represent an interest free source of finance. There is no explicit and implicit cost included in the accrued expenses. The most common accrued expenses are salary, wages and taxes. In these cases the amount may be due but the payments are not paid immediately. For example, a firm having a policy of paying salary and wages on a monthly basis. Similarly, the sales commission or target incentives, sales tax etc. are always payable with a time lag. The interest on debentures and borrowings is also payable periodically and thereby provide funds to the firms for the intervening period between two interest rates.

Merits:

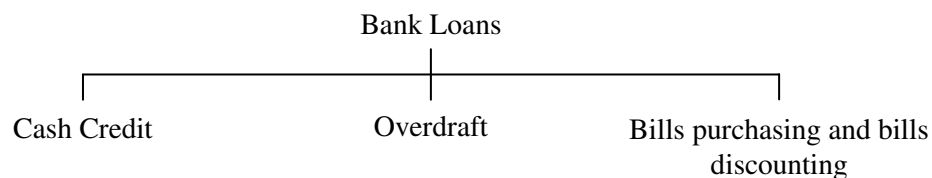
Interest free cost: The accrued expenses are interest free sources of financing. It is consistent with the general philosophy of paying the creditors as late as possible as long as the firm does not damage its credit rating.

Demerits:

Postponement of salary and wages beyond normal level will affect the morale of the employees, resulting in reduced efficiency and higher labour turnover.

II. Bank Loans:

The bank loans, in general, are a short-term financing say for a year or so. This short-term financing to business firm is regarded as self-liquidating. It means, banks routinely provide finance to meet the seasonal demand e.g., to cover the seasonal increase in inventories or receivables. Sometimes, the banks may approve separate limits for peak season and non-peak season. The main sources of short-term funds are cash credit, overdraft and bill discounting.

**Types of Bank Loans:**

In India banks provide financial assistance for working capital in different shapes and forms. The usual form of bank loans are as follows:

a. Cash credit: Cash credit arrangements are usually made against the security of commodities hypothecated with the bank. It is an arrangement by which a banker allows his customer to borrow money upto a certain limit. The interest is charged at the specified rate on the amount withdrawn and for the relevant period.

b. Overdraft: A firm, already having a current account with a banker is allowed to withdraw above the balance in the current account. The amount so overdrawn may be repaid by depositing back in the current account as and when the firm wants. The firm need not get permission from the banker every time it is overdrawing but one time approval is necessary. However a bank can review and modify the overdraft limit at any time. A cash credit differs from an overdraft in the sense that the former is used for long-term by commercial and industrial concerns during regular business while the latter is supposed to be a form of bank credit to be used occasionally and for shorter durations.

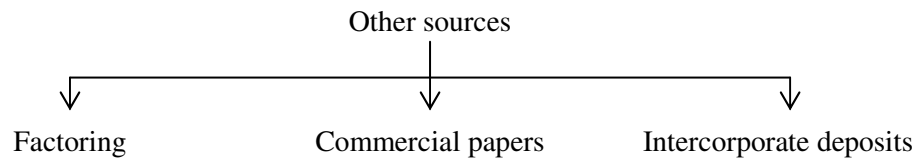
c. Bills discount and bills purchased: The banks also give short-term advances to their customers by discounting the bills of exchange. The discount depends upon the amount of the bill, the maturity period and the prime-lending rate prevailing at that time. The bills may be payable on demand or on maturity. Whenever bills payable on demand is discounted, it is called **bills purchased**, and when the bills payable at maturity is discounted by bank, it is called **bills discounting**.

Merits:

1. **Low cost:** Bank loans provided by the commercial banks are generally cheaper as compared to any other source of short-term finance.

2. **Flexibility:** Since the banks are providing loans by deferred schemes of finance, considerable flexibility can be maintained.

III. Other sources:



a. Factoring:

In case of credit sales, it attracts more customers, resulting in increased sales and higher profit, but it has a cost also. This cost may be of two types, namely investment cost and administrative cost. Moreover, the sellers have to raise funds from various sources in order to finance the receivables. While maintaining receivables, a firm may have to face two types of problems. First, the problem of raising funds to finance the receivables, and second the problem relating to collection, delay and defaults of the receivables. If the firm concentrates on managing funds and receivables, it cannot concentrate on other functions like finance, production, marketing, personal etc. Under this situation a firm can avail the services of a specialist organization engaged in receivables management. These specialist firms are known as **factoring firms**.

Definition:

Factoring is a service that covers the financing and collection of account receivables in domestic and international trade.

Factoring may be defined as the relationship between the seller of the goods and a financial firm, called the factor, whereby the latter purchases the receivables from the former and also administers the receivables of the former.

Factoring is an ongoing arrangement between client and factor, where invoices raised on open account sales of goods and services are regularly assigned to 'the Factor' for financing, collection and sales ledger administration.

Factoring is a financing technique in which a business sells invoiced receivables at a discount to a bank or a financing house or to an internal finance company. The factor may or may not accept the incumbent credit risk. This is a service offered by a factoring company that enables companies to sell their outstanding book debts for cash.

Companies benefiting from factoring:

Companies that typically benefit from factoring include those that rapidly grow, seasonal, in start up mode, under capitalized, those that have a lengthy manufacturing cycle, those strained by slow turnovers of receivables, hurt by high bad debt losses and those saddled with a large customer concentration.

How it works:

The factor fully manages your sales ledger and provides you with credit control and collection services of all your outstanding debts. The invoices you issue upon a sale are sent to the factor that typically advances upto **80% to 90%** of the invoice amount to you. The balance, less charge, is paid when the customer makes payment directly to the factor. These services are disclosed to your customer who typically receives a letter from the factor, or attached note to your invoice, containing payment instructions to the factor. Funds are typically released to you with in **24 hours** of issuing the invoices.

Cost involvement in factoring:

a. Monetary Costs:

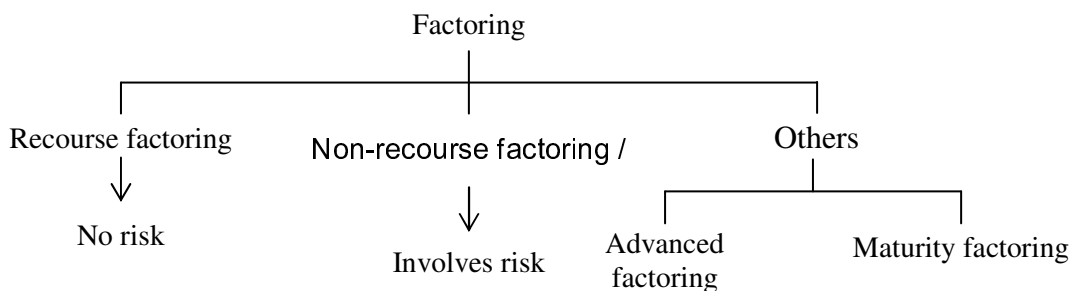
The factors are providing advances to their client upto 80% to 90% of the invoice amount within 24 hours of issuing invoices. For this cash advance they are charging interest. The interest charges calculated on the daily usage of funds are typically comparable to normal secured bank overdraft rates.

b. Service Charges:

The charge, which is known as service charge, is expressed as a percentage of sales factored. The service charge, covering sale ledger management, collection services, and bad debts protection can range between **0.60% and 3.0%** of turnover.

Types of Factoring:

Factoring is a financial service provided by a factor firm to the client seller. The type of factoring depends upon the terms and conditions on which the services are provided, it is classified as follows:



Types of factoring

1. Recourse factoring: This refers to those situations where factor firms assume only the work of collection of the receivables. They do not take any responsibility of **bad debts** i.e. any loss due to delay or default by the receivables is borne by the selling firms. In case the factor firm has already

given advance to the selling firm against the receivable, then the seller firm should reduce the advance to the factor firm in case of default by the customer.

2. Non-recourse factoring: It is also known as **full factoring**. Non-recourse factoring protects against customers who fail to pay. The basic feature of non-recourse factoring is that the risk of default is born by the factor firm and the selling firms in any case receives the sales amount. Thus the factor typically covers this risk by taking out credit insurance. The cost of the credit insurance is passed on to the selling firm and depends on the risk profile of your customer and the amount of your factor is typically between 0.3% and 0.7% of turnover. The coverage limit with the factor is normally 80% - 95% of the factored amount.

3. Other types of factoring: Factoring may be advanced factoring or maturity factoring. In the case of advance factoring 80 – 90% of the receivable is paid by the factor to the seller within 24 hours of issue of invoice and the balance less charges payable at the time of collection of receivables. In the case of maturity factoring no advance is payable to the seller, rather the payment is made only after collection from the customers.

Factoring vs. invoice discounting: If the business is already large enough to afford the staff and information system to efficiently manage the outstanding invoices, then the firm may want to consider an invoice discounting rather than factoring. It is identical to factoring except that in the sales ledger management the collection responsibility remains with the firm and the service is undisclosed to the customer.

Factoring and internet:

Many factoring companies provide Internet access to the seller, allowing you to constantly monitor your sales ledger, balances, and individual customer details. Paperwork can be eliminated by electronic transfer of your invoices.

Benefits of factoring:

1. Better working capital management: Since there is instant cash and 80-90% of issued invoices are prepaid within 24 hours the problem of additional working capital required to match sales growth does not arise at all.

2. Management of receivables: Sales ledger management and debt collection is done by the factoring company.

3. Improved growth: Firm borrows based on sales activity so firm can automatically set up to finance the growth of the company.

4. Flexibility with financing: Factoring replaces and often replaces the traditional bank overdraft. In addition to all the credit management services, a factoring facility grows with the business and does not need renegotiating every time an increase is required.

5. Better risk management: In case of non - recourse factoring, the risk of default is born by the factor firm and the selling firm does not assume any risk in connection with collection of money from the customers.

Factoring in India:

Factoring in India is of recent origin. In order to study the feasibility of factoring services in India the RBI constituted a committee in January 1988. The committee submitted its response in January 1989 and RBI accepted its recommendation with specific guidelines permitting banks to start factoring in India through their subsidiaries.

In India, factoring is still not very common and only a few commercial banks have established factoring agencies. The first factoring i.e. the SBI

commercial and factoring services Ltd started working in April 1991. This company looks after the business of Western India. The business of Northern India, Southern India and Eastern India are being looked after by Punjab national bank, Canara bank and Allahabad bank respectively. Honkong and Shanghai Banking Corporation (HSBC) currently offers both domestic and international factoring. When such banks are fully in operation, it will be a boon to specially small and medium sections.

Forfaiting:

In February 1992, the RBI issued guidelines for the introduction of forfaiting, which refers to factoring of export receivables. It refers to discounting of future trade related receivables under credit, made available by exporters to the customers.

b. Commercial Papers (CPs).

Commercial Papers are debt instruments issued by corporates for raising short-term resources from the money market. These are unsecured debts of corporates. They are issued in the form of promissory notes, redeemable at par to the holder at maturity. Only corporates who get an investment grade rating can issue CPs as per RBI rules. Though CPs are issued by corporates, they could be good investments if proper caution is exercised.

c. Inter Corporate Deposits (ICD)

Sometimes, the companies borrow funds for a short-term period; say up to six months, from other companies, which have surplus liquidity for the time being. The ICD are generally unsecured and are arranged by a financier. The ICD are very common and popular in practice, as these are not influenced by the legal hassles. The convenience is the basic virtue of this method of financing. There is no regulation at present in India to regulate these ICD. Moreover, these are not

covered by the section 58A of the companies Act, 1956, as the ICD are not for long term.

Key words:

Trade creditor is a source of funds available from the supplies, supplying the goods on credit.

Open account, which refers to supply of goods on credit. But the buyer does not sign any formal debt instrument evidencing the amount due.

Accrued expenses is a spontaneous source of short-term financing referred to the services availed by the firm, but the payment for which has not yet been made.

Spontaneous sources of funds are those, which occur and result from the course of normal business activity. The cost of these funds is almost nil.

Permanent sources of funds which are available to the company until the company is alive.

Short-term sources of funds, which are available to the company for less than 12 months.

Bank overdraft is a short-term source available to the customer. A customer can withdraw over and above the balance in the current account

Credit insurance - Insurance in case the customer fails to pay the invoice. In these situations payment for bad debts are received upto pre determined limits.

Factoring - Instant cash upon issuing invoices on sales ledger.

Non-recourse Factoring - If the customers fail to pay the invoices, the factors will pay. Hence we pay an additional charge to cover the credit insurance costs.

Recourse Factoring - If the customers fail to pay their invoices, the factors will look for reimbursement of any amounts advanced against the invoice. The service excludes bad debts protection.

Self-assessment Questions/Exercises

1. What is factoring and explain the benefits of factoring?
2. What are the sources of short-term working capital?
3. What is the difference between factoring and invoice discounting?
4. What is the difference between recourse and non-recourse factoring?
5. How much of the invoice amount is advanced in factoring?
6. Discuss the various sources of working capital funds.
7. Whether working capital should be met from short-term or long-term capital.
8. If a firm has a constant requirement of working capital throughout the year, which of the three financing plan is preferable? Why?
9. Discuss the new trends in financing of working capital by banks
10. Examine the role of bank credit in financing of working capital. What are the types of bank credit?
11. What is a medium term loan? Name some of them.
12. Write notes on: a) Public fixed deposit, b) Working capital term loans
13. Write notes on: a) Bank loan, b) Trade credit, c) Cash credit and overdraft, d) Bill discounting, e) Commercial paper.
14. Explain the concept of factoring. What are its different types?

LESSON 4

Working Capital and Banking Policy

LESSON OUTLINE

1. Dehejia committee 1969
2. Tandon committee reports 1974
Lending practices
 - a) Inventory and receivable norms
 - b) Maximum permissible bank finance
 - i. First method of lending
 - ii. Second method of lending
 - iii. Third method of lending
 - c) Style of credit
 - d) Information and reporting system
3. Chore committee reports 1980
4. Marathe committee reports 1982
5. Chakravarthy committee reports 1985
6. Kannan committee reports 1997
7. Recent RBI guidelines

LEARNING OBJECTIVES

After reading this lesson you should be able to

- Understand why banks are charging different interest rates for long-term and short-term loans.
- Understand the recommendations of different committees for working capital.
- Identify the Maximum Permissible Bank Finance (MPBF) for working capital requirements.
- Estimate maximum permissible bank finance available under different methods of lending.
- Know recent trends adopted by RBI with regards to working capital.
- How to regulate working capital finance under the FAST TRACK SYSTEM?
- What is the working capital policy in liberalized scenario?

Need for working capital banking policy?

Banks provide finance to industrial entrepreneurs in India, in addition to financial institutions. They provide finance in two ways – long-term loans to invest in the permanent assets and short-term loans for working capital finance. However the interest rates are different for the two different loans – a higher interest rate for long-term loans and a lower interest rate for working capital loans. This is because of two reasons. One, the long-term loans carry high risk and more administrative cost; second, when banks accept deposits from the public they pay higher interest for long-term deposits than for short-term deposits. By taking the advantage of the low interest rates for working capital loans, invariably most of the industrial entrepreneurs entered different banks for the same purpose and borrow funds from these banks. After using the short-term loans for working capital, they diverted to fixed assets also since it carries low interest rate than long-term loans. This results in low economic growth, loss for the banks and also failure of the individual entrepreneurs to grow. Hence the bank credit working capital has been subjected to various rules, regulations and controls. The RBI has appointed different study groups from time to time to suggest ways and means of making the bank credit an effective instrument for economic growth, industrialization as well as to improve the profit of the banking sectors. The current chapter discusses the various committees constituted by the RBI for the purpose of providing working capital finance.

Reports submitted by the following committees are significant in this respect:

1. Dehejia Committee Report 1969.
2. Tandon Committee Report 1974.
3. Chore Committee Report 1980.
4. Marathe Committee Report 1982.
5. Chakravarthy Committee Report 1985.

6. Kannan Committee Report 1997.

1. Dehejia Committee:

A study group under the chairmanship of V.T. Dehejia was constituted in 1968 in order to determine “ the extent to which credit needs of industry and trade were inflated and to suggest ways and means of curbing this phenomenon”. The committee submitted its reports in September 1969.

Findings: The important findings of the committee are given below.

1. Higher growth rate of bank credit to industry than the rise in industrial output.
2. Banks in general sanctioned working capital loans to the industry without properly assessing their needs based on projected financial statements.
3. There was also a tendency on the part of industry to divert short-term bank credit to some extent for acquiring fixed assets and for other purposes.
4. The present lending system facilitated industrial units to rely on short-term bank credit to finance for fixed assets.

Recommendations: On the basis of the above findings the following recommendations were made by Dehejia Committee to bring about improvements in the lending system:

1. Credit application should be appraised by the bankers with reference to present and projected total financial position as shown by cash flow analysis and forecast submitted by borrowers.

2. The total cash credit requirement is divided into two parts namely (i) **Hard core** components representing the minimum level of raw materials, finished goods and stores which the industry requires for maintaining a given level of production and which is made on a formal term loan basis. (ii) Short-term components representing the fluctuating part of current assets.

3. In order to avoid the possibility of multiple financing, a customer should deal with only one bank. However if the credit requirement is more the committee recommended the adoption of “**Consortium arrangement**”.

The recommendations given by Dehejia Committee could not be implemented, further in view of unprecedented inflation during 1974 the demand for bank credit rose sharply. Most of the banks had to freeze the credit limit and therefore a need was felt to have a close look at the entire bank credit system. A Committee was, therefore appointed by RBI in July 1974, under the chairmanship of Shri P.L.Tandon.

2. Tandon Committee:

A study group under the chairmanship of Shri P.L. Tandon was constituted in 1974 by the RBI in order to frame guidelines for bank credit. The terms of reference of the committee were as follows.

Terms of reference:

1. To suggest guidelines for commercial banks to follow up and supervise credit from the point of view of ensuring proper end-use of funds and keeping a watch on the safety of advances.
2. To make recommendations for obtaining periodical information that may be obtained by banks from the borrower.
3. To make suggestions for prescribing inventory norms for different industries.
4. To suggest criteria regarding satisfactory capital structure and sound financial basis in relation to borrowings.
5. To suggest whether the existing patterns of financing working capital requirements by cash credit / overdraft system, etc. are required to be modified, if so, to suggest modifications.

Findings: On the basis of the reference given above, the committee studied the existing system of working capital finance provided to industry and identified the following as its major weaknesses.

1. The banks do not have any credit appraisal or planning. It is the borrower who decides how much he would borrow.

2. The security-based approach to lending has led to division of funds to purchase of fixed assets.

3. Bank credit is treated as the first source of finance rather than being taken as a supplementary to other sources of finance.

4. The working capital finance should be made available only for a short period, as it has otherwise, led to accumulation of inventories with the industry.

Recommendations: The report was submitted on 9th August 1975 and it is a landmark in the history of financing working capital by commercial banks in India. The Tandon Committee made comprehensive recommendation regarding the bank lending practices, which can be broadly classified into four groups'. Important features of the Tandon Committee recommendations based on the fixation of norms for bank lending to industry are as follows.

Norms for Bank Lending:

1. Inventory and receivable norms

The borrowers are allowed to keep reasonable current assets particularly inventory and debtors. The normal current assets based on economic ordering levels and certain level of safety, should be financed by banker. Finance to borrower in the form of working capital should not be made available for profit making or to keep excess inventory. Similarly the bank should finance the bills receivable, which are in line with the practices of the borrower's industry. The norms have been worked out according to the time element. The limit of the

raw materials is expressed as so many months of total consumption in the year. The work-in-progress limit determined as so many months of cost of production, the finished goods and bills receivable limits are determined by cost of sales and credit sales respectively. The Tandon Committee has suggested norms for fifteen industries.

2. Lending norms or Maximum Permissible Bank Finance (MPBF)

Tandon Committee introduced the concept of MPBF in the working capital finance by banker. The Committee suggested that bank should attempt to supplement the borrowers' resources in financing the current assets. It has recommended that the current assets first should be financed by trade creditors and other current liabilities. The remaining current assets, which is called **working capital gap**, should be financed particularly by bankers in the form of bank credit and through long-term borrowings or owner's funds. In the context of this approach, the committee has suggested three alternative methods for working out the MPBF. Each successive method reduces the involvement of short-term bank credit to finance the current assets.

First method:

In the first method, 25% of the Working Capital Gap (CA- (CL excluding bank borrowing)) should be contributed by borrower through long-term funds and remaining 75% can be financed from bank borrowings. This method will give a minimum current ratio of 1.17:1. The term working capital gap refers to the total of CA less CL other than bank borrowings. This can be understood with the help of the following examples.

Example 1: Amount of maximum permissible bank borrowings as per the first method can be ascertained as follows:

	Amount(Rs.)
Total CA required by the borrower	50,000
Current liabilities (excluding bank borrowing)	10,000
Working Capital Gap	40,000
<u>Less:</u> 25% from borrower through long-term source	10,000

Maximum Permissible bank borrowing	30,000

Second method:

Under this method the borrower should provide 25% of the total current assets through long-term funds and this will give a current ratio of 1.33:1

Example 2:

The maximum permissible bank borrowings as per second method can be ascertained as follows:

	Amount(Rs.)
Total CA required by the borrower	50,000
<u>Less:</u> 25% to be provided by borrower through long-term funds	12,500
<u>Less:</u> Current liabilities (excluding bank borrowing)	10,000

Maximum Permissible bank borrowing	27,500

Third method:

In this method the borrower should contribute from long-term sources to the extent of core current assets (Fixed Current assets) and 25% of the balance of the current assets. The remaining of the working capital gap can be met from bank borrowings. This method will further strengthen the current ratio.

Example 3:

The maximum permissible bank borrowings as per the third method can be ascertained as follows:

	Amount(Rs.)
Total CA required by the borrower	50,000
<u>Less:</u> Core current assets (assumed)	4,000
Balance	46,000
25% to be provided by borrower through long-term funds	11,500
Balance	34,500
<u>Less:</u> Current liabilities (excluding bank borrowing)	10,000

Maximum permissible bank borrowing	24,500

The committee recommended the first method mainly as a stop-gap method till borrowers get used to the new approach of lending. The borrowers who are already in the second method would not be allowed to revert to the first stage.

Hard Core Working Capital:

It also known as Core current assets or fixed current assets. Any organization has to maintain minimum level of current assets throughout its existence as long as production cycle continues. They are permanent in nature. Thus a minimum amount of raw material, WIP, finished goods etc, that are required to be kept for running a company are called hard core working capital. The hard core working capital are like fixed assets such as machinery and building are for long-terms, but the difference between them is that the same machinery and building continues to exist but in case of elements of hard core working capital the level of working capital remains same but not the exact raw material, WIP on finished goods. These are replaced continuously by other items consisting of utmost same value.

Reserve Bank's direction:

The RBI accepted the recommendations of the committee as a whole. It instructed the commercial banks in 1976 to put all the borrowers having aggregate credit limits from banking system in excess of Rs.10 lakhs, under the first method lending.

Example 4:	Amount(Rs.)		Amount(Rs.)
Current Liabilities		Current Assets	
Sundry creditor	400	Raw Materials	400
Other sundry liabilities	100	Working Progress	250
Bank borrowing	500	Finished Goods	180
		Sundry debtors	250
		other current, asset	<u>50</u>
	<u>1000</u>		<u>1130</u>

Thus current asset = Rs.1130, current liabilities(other than bank borrowing) = Rs.500

Find out MPBF and excess borrowings by the firm under the three methods of lending.

Method 1

(a) Total current assets	1130
(b) <u>Less:</u> other current liabilities (Excluding bank borrowings)	<u>500</u>
(c) Working capital gap	630
(d) <u>Less:</u> 25% margin on working capital gap (To be funded from long-term sources)	157
(e) Maximum permissible bank finance (c-d)	473
(f) Excess Borrowing (Bank Borrowing – e = 500-473)	27

Method 2

(a) Total current assets	1130
(b) <u>Less</u> : 25% margin on Total current assets (To be funded from long-term sources)	<u>283</u>
(c) Less other current liabilities (Excluding bank borrowings)	<u>500</u>
(d) Maximum permissible bank Finance	347
(e) Excess Borrowings (Bank Borrowing – d = 500-347)	153

Method 3

(a) Total current assets	1130
(b) <u>Less</u> : permanent current assets or core current assets (To be funded from long-term sources)	250
(c) Effective current asset for this purpose	880
(d) <u>Less</u> : 25% of (c)(To be funded from long-term sources)	220
	660
(e) <u>Less</u> : other current liabilities (Excluding bank borrowings)	<u>500</u>
(f) Maximum permissible bank Finance	160
(g) Excess Borrowing (Bank Borrowing – f = 500-160)	340

It may be noted that demand from borrower for long-term fund is increasing as we go from Method 1 to Method 2 and to Method 3. It is Rs.157, Rs.283 and Rs.470 (250+220) respectively in Method 1, Method 2 and Method 3.

Suitability of lending method to bankers:

At present all sanctions of working capital by banks are based on Method 2. Because the second method of lending is more acceptable to bankers since, it provides more cushion to them as far as quantum of margin is concerned, compared to first method of lending. Obviously the amount of maximum permissible bank finance under the second method is lesser when compared to the first method.

3. Style of credit:

The Tandon committee also suggested that total MPBF should be bifurcated into two components 1. Loan component, which represents the minimum level of borrowing throughout the year and 2. Demand cash credit component, which would take care of the fluctuating needs and is required to be reviewed periodically. The demand cash credit component should be charged slightly higher interest rate than the loan components. This would provide the borrower an incentive for better planning. Apart from the loan component and cash credit component, a part of the total financing requirements should also be provided by way of bills limit to finance the seller's receivables. The proposed system of lending and the style of credit might be extended to all borrowers having credit limits in excess of Rs. 10 lakhs from the banking system.

4. Information and reporting system:

In order to ensure that the borrowers do not use the cash credit facility in an unplanned manner and they keep only required level inventories and receivables, the committee suggested a new information system. Under this system the borrowers are required to submit the following documents to the bankers periodically.

- (i) A copy of the audited financial statements at the end of each year.
- (ii) A copy of a projected financial statement and funds flow statement for the next year.
- (iii) Quarterly budgeting cum reporting statements.
- (iv) Monthly stock statement.

The Tandon committee further suggested that the information system might be introduced to start with in respect of borrowers with limit of Rs1 crore and above from the entire banking system and then extended progressively to others.

3. Chore committee:

Having implemented the recommendations of the Tandon committee, the RBI constituted another working group under the chairmanship of Shri K.B. Chore, Chief officer, Department of Banking operation and development, RBI.

Terms of reference:

1. The committee was asked to review the cash credit system in recent years with particular reference to the gap between sanctioned limit and the extent of their utilisation.

2. To suggest alternative types of credit facilities, which should ensure greater credit discipline and enable the banks to relate credit limits to increase in output or other production activities.

Recommendations:

1. Continuation of existing credit:

The existing system of three types of lending namely, cash credits, loans and bills should be retained.

2. No bifurcation of credit limit:

Bifurcation of cash credit limit into a loan component and a fluctuating cash credit component has not found acceptance either on the part of the banks or the

borrowers. Therefore the committee recommends withdrawing bifurcation of accounts.

3. Separate limit for peak and non-peak level requirements:

The banks have been asked to fix separate credit limits wherever feasible for the normal non-peak level and peak level credit requirements and indicate the periods during which the separate limits would be utilised by the borrowers. If, however, there is no pronounced seasonal trend, peak-level and normal requirements should be treated as identical and limits should be fixed on that basis. It should be noted that peak-level and non-peak level concepts apply not only to agriculture-based industry but also to certain other consumer industries where the demand may have pronounced seasonal tendencies. Within the limits sanctioned for the peak-level and non-peak level periods the borrowers should indicate before the commencement of each quarter the requirements of funds during that quarters. The statement so submitted by the borrowers should form the basis for quarterly review of the accounts.

4. Submission of Quarterly Statements:

The quarterly statements should be submitted by all the borrowers enjoying working capital limit of Rs.50 lakhs and above and they will have to bring gradual additional contribution based on second method of lending as prescribed by the Tandon Committee.

4. Marathe committee:

The RBI, in 1982, appointed a committee under the chairmanship of Marathe to review the working of **credit authorization scheme (CAS)** and suggest measure for giving meaningful direction to the credit management function of

the RBI. The RBI with some modifications has accepted the recommendations of the committee.

Recommendations:

The principal recommendations of the Marathe committee include:

(1) The committee has declared the third method of lending as suggested by the Tandon committee to be dropped, hence, in future, the banks would provide credit for working capital according to the second method of lending.

(2) The committee has suggested the introduction of the '**Fast-Track Scheme**' to improve the quality of credit appraisal in banks. It recommended that commercial banks can release without prior approval of the reserve bank 50% of the additional credit required by the borrowers (75% in case of export oriented manufacturing units) where the following requirements are fulfilled:

- (a) The estimate/projections in regard to production, sales, chargeable current asset, current liabilities other than bank borrowings, and net working capital are reasonable in terms of the past trends and assumptions regarding most likely trends during the future projected period.
- (b) The classification of assets and liabilities as 'current' and 'non-current' is in conformity with the guidelines issued by the Reserve Bank of India.
- (c) The projected current ratio is not below 1.33:1.
- (d) The borrower has been submitting quarterly information and operating statement (form 1, form 2, and 3) for the past six months within the prescribed time and undertakes to do the same in future also.
- (e) The borrower undertakes to submit to the banks his annual account regularly and promptly. Further, the bank is required to review the borrower's facilities at least once in a year even if the borrower does not need enhancement in credit facilities.

5. Chakravarthy committee:

The Reserve Bank of India appointed another committee under the chairmanship of Mr. Chakravarthy to review the working capital of the monetary system of India. The committee submitted its report in April 1985. The committee made two major recommendations in regard to the working capital finance

1. Penal Interest for Delayed Payment

The committee has suggested that the government must insist all public sectors units, large private sector units and government departments must include penal interest payment clause in their contracts for payment delayed beyond a specified period. The penal interest may be fixed at 2 percent higher than the minimum lending rate of the supplier's bank.

2. Classification of credit limit under three different heads

The committee further suggested that the total credit limit to be sanctioned to a borrower should be considered under the three different heads: (1) Cash credit I to include supplies to government, (2) Cash credit II to cover special circumstances and (3) Normal working capital limit to cover the balance credit facilities. The interest rates proposed for the three heads are also different. Basic lending rate of the bank should be charged to cash credit II, and the normal working capital limit be charged as below:

- | | |
|-------------------------------|---|
| (a) For cash credit portion: | Maximum prevailing lending rate of the bank. |
| (b) For bill finance portion: | 2% below the basic lending rate of the bank. |
| (c) For loan portion: | The rate may vary between the minimum and maximum lending rate of the bank. |

6. Kannan committee:

In view of the ongoing liberalisation in the financial sector, the Indian Banks Association (IBA) constituted a committee headed by shri. K.Kannan, chairmanship and managing director of bank of Baroda to examine all the aspects of working capital finance including assessment of maximum permissible bank finance (MPBF). The committee submitted its report on 25th February 1997. It recommended that the arithmetical rigidities imposed by Tandon committee (and reinforced by chore committee) in the form of MPBF computation so far in practice, should be scrapped. The committee further recommended that freedom to each bank should be given in regard to evolving its own system of working capital finance for a faster credit delivery so as to serve various borrowers more effectively. It also suggested that **line of credit system (LCS)**, as prevalent in many advanced countries, should replace the existing system of assessment/fixation of sub-limits within total working capital requirements. The committee proposed to shift emphasis from the liquidity level lending (security based lending) to the cash deficit lending called **desirable bank finance (DBF)**. Some of the recommendations of the committee have been already been accepted by the Reserve Bank of India with suitable modifications.

Recommendations:

The important measures adopted by RBI in this respect are given below:

(1) Assessment of working capital finance based on the concept of MPBF, as recommended by Tandon committee, has been withdrawn. The bank have been given **full freedom** to evolve an appropriate system for assessing working

capital needs of the borrowers within the guidelines and norms already prescribed by reserve bank of India.

(2) The turnover method may continue to be used as a tool to assess the requirement of small borrowers. For small scale and tiny industries, this method of assessment has been extended upto total credit limits of Rs 2 crore as against existing limit of 1 crore.

(3) Banks may now adopt cash budgeting system for assessing the working capital finance in respect of large borrowers.

(4) The banks have also been allowed to retain the present method of MPBF with necessary modification or any other system as they deem fit.

(5) Banks should lay down transparent policy and guidelines for credit dispensation in respect of each broad category of economic activity.

(6) The RBI's instrument relating to directed credit, quantitative limits on lending and prohibitions of credit shall continue to be in force. The present reporting system to RBI under the Credit Monitoring Arrangement (CMA) shall also continue in force.

Working Capital Assessment:

After dissolution of Tandon Committee guidelines (Known as Maximum Permissible Bank finance – MPBF), except state bank of India (SBI) which is the largest commercial bank in the country, no other bank has come out with any guidelines for assessing the working capital. Most of the banks are virtually following same MPBF with or without slight modification. Other banks are very closely watching the SBI guidelines for slowly adopting the SBI guidelines in one form or the other. The methods, which are being followed by the SBI, are as follows.

(A) **Projected Balance Sheet method:** It is the statement, which provide details regarding anticipated sales revenues, expense, assets and liabilities on a future date. Out of this information a firm can easily project requirements of the working capital.

(B) **Cash budget method:** It is primarily concerned with anticipated sources and application of cash for future period. This is very useful to the management to plan for raising adequate cash and appropriates investment of surplus cash. In general the cash budgets are prepared on a monthly basis.

(C) **Turnover method:** This is a simple method of estimating working capital requirements. According to this method, on the basis of past experience between sales and working capital requirements, a ratio can be determined for estimating the working capital requirements in future. For example, if the past experience shows that working capital has been 25% of sales and it is estimated that the sales for the next year would amount to Rs.1 lakh, the amount of working capital requirement can be assessed as Rs. 25,000.

RBI guidelines regarding working capital finance:

The concept of maximum permissible bank finance (MPBF) was introduced in November 1975 as part of implementation of the recommendation of the Tandon working group. Over the years, with the guidelines of Chore Committee, Marathe Committee and Kannan Committee various improvements had been brought about in the loan delivery system. Consistent with the policy of liberalisation made during 1990s, greater operational freedom has been provided to banks to evolve their own methods of assessing the working capital requirements of the borrowers within the prudential guidelines for financing working capital needs. Accordingly the RBI has withdrawn (w e f. 15th April 1997) the prescription in regard to assessment of working capital needs based on

the concept of MPBF enunciated by Tandon Working group. So, Working Capital finance henceforth will be determined only by the banks according to their perception of the borrower and the credit needs.

Keywords:

Working capital gap refers to current assets minus current liabilities excluding bank borrowing.

Maximum permissible bank finance indicates working capital from the bank under short-term interest rate finance available to company.

Hard core working capital is a fixed current asset maintained by organization throughout its existence as long as production cycle continues. They are permanent in nature.

Self-assessment Questions/Exercises

1. Explain the background and recommendation of tandon committee.
2. What requirements are to be complied with by a borrower before he could be placed on the fast track?
3. Outline the recommendations of the Marathe committee.
4. What is meant by working capital term loan? (WCTL)
5. What are the three alternative methods of working capital out of the maximum permissible level of bank borrowings recommended by the tandon committee?
6. Enumerate any five of the main recommendation of “chore committee” as accepted by reserve bank of India.
7. Write short note on hard-core working capital.
8. How would you assess the working capital requirement of your company?
9. What are the main recommendations of Tandon Committee?

10. What is maximum permissible finance? How is it calculated?
11. Why second method of financing of Tandon Committee has become more acceptable to bankers than other methods?
12. After withdrawal of MPBF what methods are being followed by banks for assessment of working capital of customer?
13. What is meant by working capital gap? How can it be arrived under the three methods of lending?
14. From the following data, calculate the maximum permissible bank finance under the three methods suggested by the Tandon Committee:

Current Liabilities	Rs in lacs	Current Asset	Rs in lacs
Creditors	100	Raw Material	160
Other current liabilities	20	Work-in-progress	60
Bank borrowing	180	Finished goods	120
		Other current assets	20
Total	300	Total	360

The total Core Current Assets (CCA) is Rs.180 lacs.

- Answer:** Method I - Rs 180 lacs
Method II - Rs 150 lacs
Method III - Rs 15 lacs

LESSON 5

Working Capital Management Dimension of Working Capital Management

LESSON OUTLINE

1. Liquidity Vs profitability - Return-risk trade off
2. Current assets to Sales level
3. Financing mix in current assets
4. A good working capital management policy
5. Overtrading and under trading
6. Working capital leverage

LEARNING OBJECTIVES

After reading this lesson you should be able to

- *Understand return-risk trade off and know the different level of current asset for different sales level forecast, identify the financing mix in order to invest in working capital.*
- *What are the important factors to consider for good working capital management policy?*
- *Understand, how to increase Return on Investment (ROI) with working capital management.*
- *Differentiating over trading and under trading.*

Background:

Working capital in general practice refers to the excess of current assets over current liabilities. Management of working capital therefore, is concerned with the problems that arise in attempting to manage current assets, current liabilities and the inter-relationship that exists between them. In other words it refers to all the aspects of administration of both current assets and current liabilities.

What is working capital management?

The basic goal of working capital management is to manage the current assets and current liabilities of a firm in such a way that a satisfactory level of working capital is maintained i.e., it is neither inadequate nor excessive. Companies face many problems involving investment in current assets and current liabilities like: What should be the level of investment in inventories and bills receivables? How much cash on marketable securities should be held? What should be the level of credit purchase and outstanding expenses? To what extent should the current assets be financed through long-term funds? What is sound working capital management policy? How to increase Return On Investment (ROI) with working capital management? These questions relate to the current assets and current liabilities of the firm, and belong to the field of working capital management. Working capital management is thus concerned with the profitability, liquidity and structured health of the organization. In this context, working capital management has five dimensions:

1. Dimension 1 is concerned with the formulation of policies with regard to profitability vs liquidity - Return and risk trade off
2. Dimension 2 is concerned with the decision about the determination of current assets to sales level
3. Dimension 3 is concerned with the decision about the financing of current assets
4. Dimension 4 is concerned with sound working capital management policy

5. Dimension 5 is concerned with other techniques used for working capital management such as
 - a) Ratio analysis
 - b) Over trading and under trading
 - c) Working capital leverage

Dimension 1: Liquidity vs Profitability:

An important aspect of a working capital policy is to maintain and provide sufficient liquidity to the firm. Like most corporate financing decisions, the decision on how much working capital should be maintained involves a trade-off. Having a large net working capital may reduce the liquidity-risk faced by the firm, but it can have a negative effect on the cash flows. Therefore, the net effect on the value of the firm should be used to determine the optimal amount of working capital. A firm must maintain enough cash balance or other liquid assets so that it never faces problems of payment to liabilities. Does it mean that a firm should maintain unnecessarily large liquidity to pay the creditors? Can a firm adopt such a policy? Certainly not. "There is also another side for a coin". Greater liquidity makes it easy for a firm to meet its payment commitments, but simultaneously greater liquidity involves cost also.

The risk-return trade-off involved in managing the firm's working capital is a trade-off between the firm's liquidity and its profitability. By maintaining a large investment in current assets like cash, inventory etc., the firm reduces the chance of (1) production stoppages and the loss from sales due to inventory shortage and (2) the inability to pay the creditors on time. However, as the firm increases its investment in working capital, there is not a corresponding increase in its expected returns. As a result the firm's return on investment drops because the profit is unchanged while the investment in current assets increases.

In addition to the above, the firm's use of current liability versus long-term debt also involves a risk-return trade-off. Other things being equal, the greater the firm's reliance on the short-term debts or current liability in financing its current investment, the greater the risk of illiquidity. On the other hand, the use of current liability can be advantageous as it is less costly and is a flexible means of financing. A firm can reduce its risk of illiquidity through the use of long-term debts at the cost of reduction in its return on investment. The risk-return trade-off thus involves an increased risk of illiquidity and profitability.

So, there exists a trade-off between profitability and liquidity or a trade-off between risk (liquidity) and return (profitability) with reference to working capital. The risk in this context is measured by the probability that the firm will become technically insolvent by not paying current liability as they occur; and profitability here means the reduction of cost of maintaining current assets. The greater the amount of liquid assets a firm has, the less risky the firm is. In other words, the more liquid is the firm, the less likely it is to become insolvent. Conversely, lower levels of liquidity are associated with increasing levels of risk. So, the relationship of working capital, liquidity and risk of the firm is that the liquidity and risk move in opposite direction. So, every firm, in order to reduce the risk will tend to increase the liquidity. But, increased liquidity has a cost. If a firm wants to increase profit by reducing the cost of maintaining liquidity, then it must also increase the risk. If it wants to decrease risk, the profitability is also decreased. So, a trade-off between risk and return is required.

From the above discussion, it is clear that, in order to increase the profitability, the firm reduces the current assets (and thereby increases fixed assets). Consequently, the profitability of the firm will increase but the liquidity

will be reduced. The firm is now exposed to a greater risk of insolvency. The risk return syndrome can be summed up as follows: when liquidity increases, the risk of insolvency is reduced. However, when the liquidity is reduced, the profitability increases but the risks of insolvency also increase. So, profitability and risk move in the same direction. What is required on the part of the financial manager is to maintain a balance between risk and profitability. Neither too much of risk nor too much of profitability is good. This can be explained by means of the balance sheet of PQR Ltd.

The following is the balance sheet of PQR Ltd. as on 31st Dec 2006:

Liabilities	Rs	Asset	Rs
Share capital	5,00,000	Fixed asset	10,00,000
Debenture	6,00,000	Current Asset	2,00,000
Current liabilities	1,00,000		
	12,00,000		12,00,000

The firm is earning 10% return on fixed assets and 2% return on current asset. Find out the effect on liquidity and profitability of the firm for the following:

1. Increase in current asset by 25%.
2. Decrease in current asset by 25%

Solution:

The present earning of the firm may be ascertained as follows:

10% return on fixed asset (10,00,000 x 10/100)	Rs 1,00,000
2% return on current asset (2,00,000 x 2/100)	<u>Rs 4,000</u>
Total return	<u>1,04,000</u>
Total assets (10,00,000 + 2,00,000)	Rs 12,00,000
Rate of return (Earning/total asset)(1,04,000/12,00,000) x 100	8.67%
Ratio of current asset to total asset (2,00,000/12,00,000)	16.7%

Evaluation of Effect on Liquidity vs Profitability

The above problem shows that as the current assets are increased by 25%

Particular	Present CA	Increase in CA	Decrease in CA
Current asset	2,00,000	2,50,000	1,50,000
Fixed asset	10,00,000	9,50,000	10,50,000
Return on fixed asset @ 10%	1,00,000	95,000	1,05,000
Return on current asset @ 2%	4,000	5000	3000
Total return	1,04,000	1,00,000	1,08,000
Ratio of CA to TA	16.67%	20.8%	12.5%
Current liabilities	1,00,000	1,00,000	1,00,000
Ratio of CA to CL	2	2.5	1.5
Return as a % of TA	8.67%	8.33%	9%

(from Rs 2,00,000 to Rs 2,50,000), the ratio of current asset to total asset also increase from 16.7% to 20.8%. The ratio of current asset to current liabilities also increases from 2 to 2.5 times indicating lesser risk of insolvency. However, with this increase, the overall earning of the firm has reduced from Rs 1,04,000 to Rs 1,00,000 or from 8.67% to 8.33% of the total assets. Thus, if the firm opts to increase the current assets in order to increase the liquidity, the profitability of the firm also goes down.

In case, the firm opts to reduce the level of current assets by 25% from Rs 2,00,000 to Rs 1,50,000, the ratio of current asset to total asset will go down from 16.7% to 12.5% and the ratio of current asset to current liabilities will also

go down from 2 to 1.5 times. However, the profitability increases from 8.67% to 9%.

Thus the problem shows that liquidity and return are opposite forces and the financial manager will have to find out a level of current asset where the risk as well as the return, both optimum. The firm just cannot decrease the current asset to increase the profitability because it will result in increase of risk also. The firm should maintain the current asset at such a level at which both the risk and profitability are optimum.

Dimension 2: Determining the ratio of current assets to sales level:

As already said, there is an inevitable relationship between the sales and the current assets. The actual and the forecast sales have a major impact on the amount of current assets, which the firm must maintain. So, depending upon the sales forecast, the financial manager should also estimate the requirement of current assets. This uncertainty may result in spontaneous increase in current assets in line with the increase in sales level, and may bring the firm to a face-to-face tight working capital position. In order to overcome this uncertainty, the financial manager may establish a minimum level as well as a safety component for each of the current asset for different levels of sales. But how much should this safety component be? It may be noted that in fact, this safety component determines the type of working capital policy a firm is pursuing. There are three types of working capital policies which a firm may adopt i.e. conservative, moderate and aggressive working capital policy. These policies describe the relationship between sales level and the level of current asset and have been shown in figure

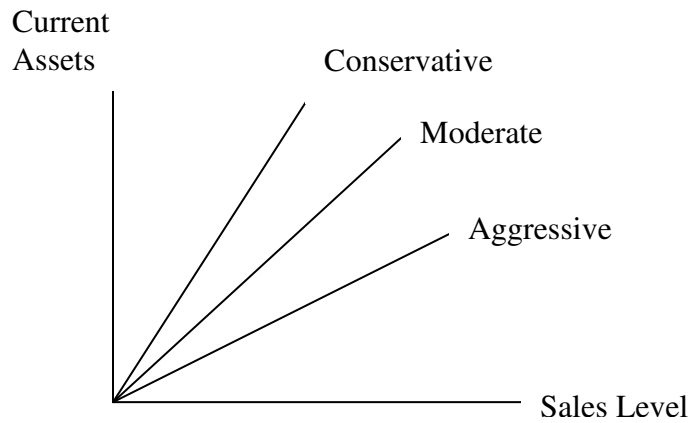


Fig. 5.1: Different types of working capital policies

The figure 5.1 shows that in case of moderate working capital policy, the increase in sales level will be coupled with proportionate increase in level of current asset also e.g., if the sales increase or are expected to increase by 10%, then the level of current assets will also increase by 10%. In case of conservative working capital policy, the firm does not like to take risk. For every increase in sales, the level of current assets will be increased more than proportionately. Such a policy tends to reduce the risks of shortage of working capital by increasing the safety component of current assets. The conservative working capital policy also reduces the risk of non-payment to liabilities.

On the other hand, a firm is said to have adopted an aggressive working capital policy, if the increase in sales does not result in proportionate increase in current assets. For example, for 10% increase in sales the level of current asset is increased by 7% only. This type of aggressive policy has many implications. First, the risk of insolvency of the firm increases as the firm maintains lower liquidity. Second, the firm is exposed to greater risk as it may not be able to face unexpected change in market and, third, reduced investment in current assets will result in increase in profitability of the firm.

The effect of working capital policies on the profitability of a firm is illustrated below:

WORKING CAPITAL POLICIES AND PROFITABILITY

Particular	Conservative policy	Aggressive Policy
Sales	20,00,000	20,00,000
Earnings (EBIT)	5,00,000	5,00,000
Fixed Asset	10,00,000	10,00,000
Current Asset	12,00,000	10,00,000
Total Asset	22,00,000	20,00,000
Profitability= $\frac{\text{Return on total investment}}{\text{Total Asset}}$	$\frac{5,00,000}{22,00,000} \times 100$ = 22.7%	$\frac{5,00,000}{20,00,000} \times 100$ = 25%

In the conservative policy the firm has more current assets, which results in high liquidity, low risk and low return (22.7%). Where as in the aggressive policy the firm has less current assets, which result in low liquidity, high risk and high return (25%).

Dimension 3: Financing of working capital:

Short-term Vs long-term financing:

A firm should decide whether or not it should use short-term financing. If short-term financing has to be used, the firm must determine its portion in total financing. This decision of the firm will be guided by the risk-return trade-off. Short-term financing may be preferred over long-term financing for two reasons: (1) the cost advantage and (2) flexibility. But short-term financing is more risky than long-term financing.

Cost of financing:

The cost of financing has an impact on the firm's return. As short-term financing costs less, the return would be relatively higher. Long-term financing not only

involves higher cost, but also makes the rate of return on equity lesser. Thus, short-term financing is desirable from the point of view of return

Flexibility:

It is relatively easy to refund short-term funds when the need for funds diminishes. Long-term funds such as debenture loan or preference capital cannot be refunded before time. Thus, if a firm anticipates that its requirement for funds will diminish in near future, it would choose to short-term funds because of this flexibility.

Risk of financing with short term sources:

Although short-term financing involves less cost, but it is more risky than long-term financing. If the firm uses short-term financing to finance its current asset, it runs the risk of renewing the borrowing again and again. This is particularly so in the case of the permanent current assets. As discussed earlier, permanent current assets refer to the minimum level of current assets, which a firm should always maintain. If the firm finances its permanent current assets with short-term debt, it will have to raise new short-term funds, as the debt matures. This continued financing exposes the firm to certain risks. It may be difficult for the firm to borrow during stringent credit periods. At times, the firm may be unable to raise any funds and consequently, its operating activities may be disrupted. In order to avoid failure, the firm may have to borrow at most inconvenient terms. These problems do not arise when the firm finances with long-term funds. There is less risk of failure when the long-term financing is used.

Thus, there is a conflict between long-term and short-term financing. Short-term financing is less expensive than long-term financing, but at the same time, short-term financing involves greater risk than long-term financing. The choice between long-term and short-term financing involves a trade-off between

risk and return. This **trade-off** may be further explained with the help of an example.

Suppose that a firm has an investment of Rs. 5 lakhs in its assets, Rs 3 lakhs invested in fixed assets and Rs. 2 lakhs in current asset. It is expected that assets yield a return of 18% before interest and taxes. Tax rate is assumed to be 50%. The firm maintains a debt ratio of 60%. Thus, the firm's assets are financed by 40% equity that is Rs 2,00,000 equity funds are invested in its total assets. The firm has to decide whether it should use a 10% short-term debt or 12% long-term debt. The financing plans would affect the return on equity funds differently. The calculations of return on equity are shown in table.

Financing plans:

	Conservative Amount(Rs.)	Moderate Amount(Rs.)	Aggressive Amount(Rs.)
Fixed asset	300000	300000	300000
Current asset	<u>200000</u>	<u>200000</u>	<u>200000</u>
Total asset	<u>500000</u>	<u>500000</u>	<u>500000</u>
Short-term Debt(10%)	60000	150000	300000
Long-term Debt(12%)	240000	150000	0
EBIT	90000	90000	90000
Less: Interest	<u>34800</u>	<u>33000</u>	<u>30000</u>
EBT	55200	57000	60000
Less: Tax 50%	<u>27600</u>	<u>28500</u>	<u>30000</u>
Net Income	<u>27600</u>	<u>28500</u>	<u>30000</u>
Equity	200000	200000	200000
Return on equity	13.8%	14.25%	15%
SF/TF	12%	30%	60%

where SF = Short-term fund; TF = Total funds

It is clear from the table that return on equity is highest under the aggressive plan and lowest under the conservative plan. The result of moderate plan is in between these two extremes. However, aggressive plan is more risky

as, short-term financing as a ratio of total financing, is maximum in this case. The short-term financing to total financing ratio is minimum in case of the conservative plan and, therefore, it is less risky.

The figure 5.2 shows that the aggressive approach results in a low cost - high risk situation while the conservative approach results in a high cost-low risk situation. The trade-off between risk and return give a financing mix that lies between these two extremes. For this purposes, the risk and return associated with different financing mix can be analyzed and accordingly a decision can be taken up. One way of achieving a trade-off is to find out, in the first instance, the average working capital required (on the basis of minimum and maximum during a period). Then this average working capital may be financed by long-term sources and other requirement if any, arising from time to time may be met from short-term sources. For example, a firm may require a minimum and maximum working capital of Rs.25,000 and Rs.35,000 respectively during a particular year. The firms have long-term sources of Rs.30,000 (i.e. average of Rs.25,000 and Rs.35,000) and additional requirement over and above Rs.30,000 may out of short-term sources as and when the need arises.

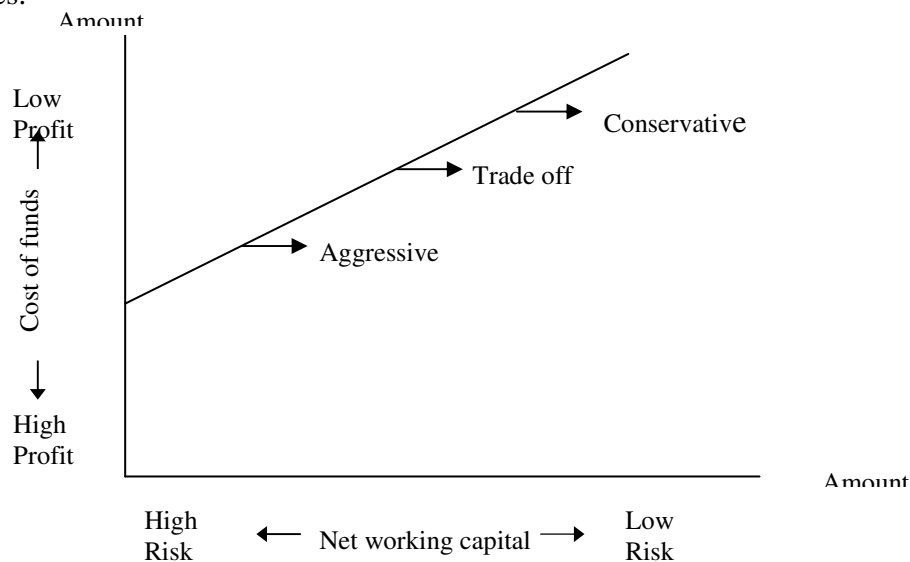


Fig. 5.2: The risk-return trade-off and financing mix

Dimension 4: A sound working capital management policy

General Rules

- Set planning standards for stock days, debtor's days and creditor days.
- Having set planning standard (as above) - keep up to them. Impress on staff that these targets are just as important as operating budgets and standard costs.
- Instill an understanding amongst the staff that working capital management produces profits.

Rules on Stocks

- Keep stock levels as low as possible, consistent with not running out of stock and not ordering stock in uneconomically small quantities.
- Consider keeping stock in warehouse, drawing on it as needed and saving warehousing cost.

Rules on Debtors/Customers

- Assess all significant new customers for their ability to pay. Take references, examine accounts, and ask around. Try not to take on new customers who would be poor payers.
- Re-assess all significant customers periodically. Stop supplying existing customers who are poor payers-you may lose sales, but you are after quality of business rather than quantity of business. Sometime poor-paying customers suddenly find cash to settle invoices if their suppliers are being cut off. If customers can't pay / won't pay let your competitors have them-give your competitors a few more problems.
- Consider factoring sales invoice – the extra cost may be worth it in terms of quick payment of sales revenue, less debtors administration and more time to carry out your business (Rather than spend time chasing debts)
- Consider offering discounts for prompt settlement of invoice, but only if the discounts are lower than the costs of borrowing the money owed from other sources.

Rules on Creditors

- Do not pay invoices too early - take advantage of credit offered by suppliers - it's free!!
- Only pay early if the supplier is offering a discount. Even then, consider this to be an investment. Will you get a better return by using working capital to settle the invoice and take the discount than by investing the working capital in some other way?

Dimension 5: Other techniques

a) Ratio analysis:

A ratio is a simple arithmetical expression of the relationship of one number to another. The technique of ratio analysis can be employed for measuring short-term liquidity or working capital position of a firm. The following ratios may be calculated for this purpose:

- (a) Current Ratio
- (b) Acid test Ratio
- (c) Inventory turnover ratio
- (d) Receivable turnover ratio
- (e) Payable turnover ratio
- (f) Working capital turnover ratio

b) Overtrading and undertrading:

The concepts of overtrading and undertrading are intimately connected with the net working capital position of the business. To be more precise they are connected with the liquidity position of the business.

Sometimes students may confuse over capitalization and under capitalization with over trading and under trading. They are entirely different. The former is concerned with investment on fixed assets where as the latter is concerned with investment into working capital. In this chapter since we are particular about working capital management we can concentrate on overtrading and undertrading.

For sound working capital management one should understand what is overtrading and undertrading and how it can be overcome and hence it is discussed in detail below:

Overtrading:

Overtrading is an aspect of undercapitalisation, which means an attempt being made by business concern to increase value of operation with insufficient amount working capital. As a result the turnover ratio will be more, current and liquidity ratio will be less under this situation, the firm may not be in a position to maintain the sufficient amount of current assets like cash, bills receivables, inventories etc., and has to depend upon the mercy of the suppliers to supply them at the right time. The firm is also not in a position to extend credit to its customers on one side and on the other side the firm may delay the payment too the creditors. This situation should not be continued for a longer period, as it is dangerous for the business since disproportionate increase in the operations of the business without adequate working capital may bring a sudden collapse.

The over trading should be carefully identified and overcome in the early stage itself in order to place the firm in the right direction. In the case of overtrading, 1. A firm can witness higher amount of creditors than the debtors. 2. A firm may buy the fixed assets with the help of short-term sources such cash credit, overdraft, Trade creditors etc, and 3. The firm will have a low current ratio and a high turn over ratio. The cure for overtrading is very simple (1) The firm can go for sufficient amount of long-term sources like issue of share, issue of debenture, term loans etc. (2) In case if the above is not possible the operations have to be reduced to manage with the help of present sources of funds available. (3). Sell the business as a going concern.

Undertrading:

It is just the reverse to over trading. It means improper utilisation of working capital. Under this situation the firm's turnover ratio will be less current ratio and liquidity ratio will be high. As a result the level of trading is low as compared to capital employed. It results in increase in current assets like cash balance, bills receivable, inventories etc.,

This situation arises because of under utilisation of firm's resources. Under trading is an aspect of overcapitalization.

Higher current ratio and low turnover results in decreased return on investment. This can be improved by the firm's policy of adopting a more dynamic and result oriented approach, The firm may go for diversification, expansion by under taking new profitable jobs, projects etc. If a firm is not able to do the above steps then it can try to return a part of the debt, which are idle.

c) Working Capital Leverage:

The ultimate aim of business is increasing return on investment (ROI). How to increase the ROI? This can be possible only with the help of increased turnover. How this can be possible. This is possible only by increasing the operating cycle as much as possible. For example, if the cycle of cash → RM → WIP → FG → Debtors can be rotated 8 times instead of 6 times, naturally the ROI will increase. This can be illustrated as given below.

Suppose the operating profit margin is 6% and Working capital turnover represented by operating cycle is 6 times then ROI is 36% Suppose it increase by 2 times, the ROI will increase by $6 \times 2 = 12\%$. However the turnover ratio not only depend upon the current assets but it also takes the fixed assets but we can't forget current assets also one of the important element to increase to turnover.

Working Capital Leverage expresses the relationship between efficiency of WCM and ROI. Insufficient Working Capital Management leads to decrease in the turn over which results in decrease profit which in turn results in decreased ROI. On the other hand increase in operating cycle of the business efficiently will lead to increase in turnover and hence higher profitability.

Key Words

1. **Conservative approach** refers the working capital needs are primarily financed by long-term sources and the use of short-term sources may be restricted to unexpected and emergency situation.
2. **Aggressive approach** means the firm decide to finance a part of the permanent working capital by short-term sources.
3. **Hedging approach** means trade-off between conservative and aggressive approach.
4. **Working capital leverage** expresses the relationship between efficiency of working capital management and return on investment.
5. **Over trading** is an aspect of under capitalization, which means an attempt being made by business concern to increase value of operation with insufficient amount of working capital.
6. **Under trading** means improper utilisation of working capital. It is due to overcapitalisation.

Self-assessment Questions/Exercises

1. “In managing working capital the finance manager faces the problem of compromising the conflicting goals of liquidity and profitability”. Comment what strategy should the finance manager develop to solve this problem?
2. How would you judge the efficiency of the management of working capital in a business enterprise? Explain with the help of hypothetical data.

3. State the areas, which you consider, would require the particular attention of the management for effective working capital management.
4. Explain and illustrate the profitability vs liquidity trade-off in working capital management.
5. What is “conservative approach” to working capital financing? How is it different from “aggressive approach”?
6. “Liquidity and profitability are competing goals for the finance manager” comment.
7. “Merely increasing the total working capital does not necessarily reduce the riskness of the firm, rather the composition of current assets is equally important” Discuss.
8. Should a firm finance its working capital requirements only with short term financing? If not why?
9. Explain the risk return trade off of current assets financing.
- 10.** What is “Conservative Approach” to working capital financing? How is it different from hedging approach?
- 11.** Is the “Aggressive Approach” to working capital financing a good proposition? What may be the consequences?
