Financial Management

IV -Semester BBA
Bangalore University

Prepared by,
Dr.S.HARIHARAPUTHRIAN
Prof.Management
New Horizon College,
Kasturi Nagar,
Bangalore -43.

4.4 FINANCIAL MANAGEMENT

OBJECTIVE
The objective is to enable students to understand the basic concepts of Financial Management and the role of Financial Management in decision-making.

Unit 1: INTRODUCTION TO FINANCIAL MANAGEMENT   **10 Hrs**
Introduction – Meaning of Finance – Business Finance – Finance Function – Aims of Finance Function – Organization structure of finance - Financial Management – Goals of Financial Management – Financial Decisions – Role of a Financial Manager – Financial Planning – Steps in Financial Planning – Principles of a Sound Financial Planning.

Unit 2: TIME VALUE OF MONEY   **10 Hrs**
Introduction – Meaning & Definition – Need – Future Value (Single Flow – Uneven Flow & Annuity) – Present Value (Single Flow – Uneven Flow & Annuity)– Doubling Period – Concept of Valuation – Valuation of Bonds & Debentures – Preference Shares – Equity Shares – Simple Problems.

Unit 3: FINANCING DECISION AND INVESTMENT DECISION   **16Hrs**
Financing Decisions: Introduction – Meaning of Capital Structure – Factors influencing Capital Structure – Optimum Capital Structure – EBIT – EBT – EPS – Analysis – Leverages – Types of Leverages – Simple Problems.
Investment Decisions: Introduction – Meaning and Definition of Capital Budgeting – Features – Significance – Process – Techniques – Payback Period – Accounting Rate of Return – Net Present Value – Internal Rate of Return – Profitability Index - Simple Problems

Unit 4: DIVIDEND DECISION   **08 Hrs**
Introduction – Meaning and Definition – Determinants of Dividend Policy – Types of Dividends Provisions under Campiness Act in relation to dividends.

Unit 5: WORKING CAPITAL MANAGEMENT   **12 Hrs**
Introduction – Concept of Working Capital – Significance of Adequate Working Capital – Evils of Excess or Inadequate Working Capital – Determinants of Working Capital – Sources of Working Capital –Cash Management – Receivables Management – Inventory Management,.

SKILL DEVELOPMENT
☐ Draw the organization chart of Finance Function
☐ Illustrate operating cycle for at least 2 companies of your choice.
☐ Evaluate the NPV of an investment made in any one of the capital projects with imaginary figures for 5 years.
☐ Prepare an ageing schedule of debtors with imaginary figures.
☐ Capital structure analysis of companies in different industries

BOOKS FOR REFERENCE
1. Reddy, Appananaih: Financial Management., HPH
2. Sudrashan Reddy – Financial Management, HPH.
3. Venkataraman R _ Financial Management, VBH.
4. S N Maheshwari, Financial Management., Sultan Chand.
5. R.M.Srivastava : Financial Management –Management and Policy, Himalaya Publishers.
6. Khan and Jain, Financial Management, Tata McGraw Hill.
7. Dr. K.V. Venkataramana, Financial Management, SHB Publications.
8. Sudhindra Bhatt: Financial Management, Excel Books.

Unit I

INTRODUCTION TO FINANCIAL MANAGEMENT

Introduction – Meaning of Finance – Business Finance – Finance Function – Aims of Finance Function – Organization structure of finance - Financial Management – Goals of Financial Management – Financial Decisions – Role of a Financial Manager – Financial Planning – Steps in Financial Planning – Principles of a Sound Financial Planning.

Introduction

Finance describes the management, creation and study of money, banking, credit, investments, assets and liabilities that make up financial systems, as well as the study of those financial instruments. Some people prefer to divide finance into three distinct categories: public finance, corporate finance and personal finance. There is also the recently emerging area of social finance. Additionally, the study of behavioral finance aims to learn about the more "human" side of a science considered by most to be highly mathematical.

'Finance'

Public finance includes tax systems, government expenditures, budget procedures, stabilization policy and instruments, debt issues and other government concerns.

Corporate finance involves managing assets, liabilities, revenues and debt for a business. Personal finance defines all financial decisions and activities of an individual or household, including budgeting, insurance, mortgage planning, savings and retirement planning.

Corporate Finance

Businesses obtain financing through a variety of means, ranging from equity investments to credit arrangements. A firm might take out a loan from a bank, or arrange for a line of credit. Acquiring and managing debt properly can help a company expand and ultimately become more profitable.

Startups may receive capital from angel investors or venture capitalists in exchange for a percentage of ownership. If a company thrives and decides to go public, it will issue shares on a stock exchange; such initial public offerings (IPO) bring a great influx of cash into a firm. Established companies may sell additional shares, or issue corporate bonds to raise money. Businesses may purchase dividend-paying stocks, blue-chip bonds or interest-bearing bank certificates of deposit; they may even buy other companies in an effort to boost revenue.

Finance describes the management, creation and study of money, banking, credit, investments, assets and liabilities that make up financial systems, as well as the study of those financial

instruments. Some people prefer to divide finance into three distinct categories: public finance, corporate finance and personal finance. There is also the recently emerging area of social finance. Additionally, the study of behavioral finance aims to learn about the more "human" side of a science considered by most to be highly mathematical.

'Finance'

Public finance includes tax systems, government expenditures, budget procedures, stabilization policy and instruments, debt issues and other government concerns. Corporate finance involves managing assets, liabilities, revenues and debt for a business. Personal finance defines all financial decisions and activities of an individual or household, including budgeting, insurance, mortgage planning, savings and retirement planning.

Public Finance

The federal government helps prevent market failure by overseeing allocation of resources, distribution of income and stabilization of the economy. Regular funding for these programs is secured mostly through taxation. Borrowing from banks, insurance companies and other governments and earning dividends from its companies also help finance the federal government. State and local governments also receive grants and aid from the federal government. In addition, user charges from ports, airport services and other facilities; fines resulting from breaking laws; revenues from licenses and fees, such as for driving; and sales of government securities and bond issues are also sources of public finance.

Corporate Finance

Businesses obtain financing through a variety of means, ranging from equity investments to credit arrangements. A firm might take out a loan from a bank, or arrange for a line of credit. Acquiring and managing debt properly can help a company expand and ultimately become more profitable.

Startups may receive capital from angel investors or venture capitalists in exchange for a percentage of ownership. If a company thrives and decides to go public, it will issue shares on a stock exchange; such initial public offerings (IPO) bring a great influx of cash into a firm. Established companies may sell additional shares, or issue corporate bonds to raise money. Businesses may purchase dividend-paying stocks, blue-chip bonds or interest-bearing bank certificates of deposit; they may even buy other companies in an effort to boost revenue.

Personal Finance

Personal financial planning generally involves analyzing an individual's or a family's current financial position, predicting short-term and long-term needs and executing a plan to fulfill those need within individual financial constraints. Personal finance is a very personal activity that depends largely on one's earnings, living requirements and individual goals and desires.

Features of Finance

1. Investment Opportunities

2. Profitable Opportunities

3. Optimal Mix of Funds

4. System of Internal Controls

5. Future Decision Making

Aims of Finance Function:

The primary aim of finance function is to arrange as much funds for the business as are required from time to time.

This function has the following aims:

1. Acquiring Sufficient Funds:

The main aim of finance function is to assess the financial needs of an enterprise 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.

A concern with longer gestation period should rely more on owner's funds instead of interest-bearing securities because profits may not be there for some years.

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. If the cost of raising funds is more, then profitability will go down. Finance function also requires matching of cost and returns from funds.

4. Maximising Firm's Value:

Finance function also aims at maximising the value of the firm. It is generally said that a concern's value is linked with its profitability. Even though profitability influences a firm's value but it is not all. Besides profits, the type of sources used for raising funds, the cost of funds, the condition of money market, the demand for products are some other considerations which also influence a firm's value.

Organization structure of finance

The roles assigned to **finance** department employees create the base of its **organizational structure**. For most small businesses, these involve bookkeeping, payroll, **financial** and tax reporting, financing and assisting in long-term business planning.

DEFINITION OF FINANCIAL MANAGEMENT

Financial management is an integral part of overall management. It is concerned with the duties of the financial managers in the business firm.
The term financial management has been defined by **Solomon**, "It is concerned with the efficient use of an important economic resource namely, capital funds".
The most popular and acceptable definition of financial management as given by **S.C. Kuchal** is that "Financial Management deals with procurement of funds and their effective utilization in the business".
Howard and Upton : Financial management "as an application of general managerial principles to the area of financial decision-making.
Weston and Brigham : Financial management "is an area of financial decision-making, harmonizing individual motives and enterprise goals".

Joshep and Massie : Financial management "is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations. Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by business firms can be called as Corporation Finance or Business Finance.

SCOPE OF FINANCIAL MANAGEMENT

Financial management is one of the important parts of overall management, which is directly related with various functional departments like personnel, marketing and production. Financial management covers wide area with multidimensional approaches. The following are the important scope of financial management.

1. Financial Management and Economics

Economic concepts like micro and macroeconomics are directly applied with the financial management approaches. Investment decisions, micro and macro environmental factors are closely associated with the functions of financial manager. Financial management also uses the economic equations like money value discount factor, economic order quantity etc. Financial economics is one of the emerging area, which provides immense opportunities to finance, and economical areas.

2. Financial Management and Accounting

Accounting records includes the financial information of the business concern. Hence, we can easily understand the relationship between the financial management and accounting. In the olden periods, both financial management and accounting are treated as a same discipline and then it has been merged as Management Accounting because this part is very much helpful to finance manager to take decisions. But nowaday's financial management and accounting discipline are separate and interrelated.

3. Financial Management or Mathematics

Modern approaches of the financial management applied large number of mathematical and statistical tools and techniques. They are also called as econometrics. Economic order quantity, discount factor, time value of money, present value of money, cost of capital, capital structure theories, dividend theories,
ratio analysis and working capital analysis are used as mathematical and statistical tools and techniques in the field of financial management.

4. Financial Management and Production Management

Production management is the operational part of the business concern, which helps to multiple the money into profit. Profit of the concern depends upon the production performance. Production performance needs finance, because production department requires raw material,

machinery, wages, operating expenses etc. These expenditures are decided and estimated by the financial department
and the finance manager allocates the appropriate finance to production department. The financial manager must be aware of the operational process and finance required for each process of production activities.

5. Financial Management and Marketing

Produced goods are sold in the market with innovative and modern approaches. For this, the marketing department needs finance to meet their requirements. Introduction to Financial Management **5** The financial manager or finance department is responsible to allocate the adequate finance to the marketing department. Hence, marketing and financial management are interrelated and depends on each other.

6. Financial Management and Human Resource

Financial management is also related with human resource department, which provides an power to all the functional areas of the management. Financial manager should carefully evaluate the requirement of manpower to each department and allocate the finance to the human resource department as wages,
salary, remuneration, commission, bonus, pension and other monetary benefits to the human resource department. Hence, financial management is directly related with human resource management.

OBJECTIVES OF FINANCIAL MANAGEMENT

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

Profit Maximization

Main aim of any kind of economic activity is earning profit. A business concern is also functioning mainly for the purpose of earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at, maximizes the profit of the concern. Profit maximization consists of the following important features.
1. Profit maximization is also called as cashing per share maximization. It leads to maximize the business operation for profit maximization.

2. Ultimate aim of the business concern is earning profit, hence, it considers all the possible ways to increase the profitability of the concern.

3. Profit is the parameter of measuring the efficiency of the business concern. So it shows the entire position of the business concern.

4. Profit maximization objectives help to reduce the risk of the business.

Favourable Arguments for Profit Maximization

The following important points are in support of the profit maximization objectives of the business concern:

(i) Main aim is earning profit.

(ii) Profit is the parameter of the business operation.

(iii) Profit reduces risk of the business concern.

(iv) Profit is the main source of finance.

(v) Profitability meets the social needs also.

Unfavourable Arguments for Profit Maximization

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

(i) Profit maximization leads to exploiting workers and consumers.

(ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.

(iii) Profit maximization objectives leads to inequalities among the sake holders such as customers, suppliers, public shareholders, etc.

Drawbacks of Profit Maximization

Profit maximization objective consists of certain drawback also:

Wealth Maximization

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

Favourable Arguments for Wealth Maximization

(i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.

(ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides extract value of the business concern.

(iii) Wealth maximization considers both time and risk of the business concern.

(iv) Wealth maximization provides efficient allocation of resources.

(v) It ensures the economic interest of the society.

Unfavourable Arguments for Wealth Maximization

(i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.

(ii) Wealth maximization is nothing, it is also profit maximization, it is the indirect name of the profit maximization.

(iii) Wealth maximization creates ownership-management controversy.

(iv) Management alone enjoy certain benefits.

(v) The ultimate aim of the wealth maximization objectives is to maximize the profit.

ion, which involves the(vi) Wealth maximization can be activated only with the help of the profitable position

of the business concern.

IMPORTANCE OF FINANCIAL MANAGEMENT

Finance is the lifeblood of business organization. It needs to meet the requirement of the business concern. Each and every business concern must maintain adequate amount of finance for their smooth running of the business concern and also maintain the business carefully to achieve the goal of the business concern. The business goal can be achieved only with the help of effective management of finance. We can't neglect the importance of finance at any time at and at any situation. Some of the importance of the financial management is as follows:

Financial Planning

Financial management helps to determine the financial requirement of the business concern and leads to take financial planning of the concern. Financial planning is an important part of the business concern, which helps to promotion of an enterprise.

Acquisition of Funds

Financial management involves the acquisition of required finance to the business concern. Acquiring needed funds play a major part of the financial management, which involve possible source of finance at minimum cost.

Proper Use of Funds

Proper use and allocation of funds leads to improve the operational efficiency of the business concern. When the finance manager uses the funds properly, they can reduce the cost of capital and increase the value of the firm.

Financial Decision

Financial management helps to take sound financial decision in the business concern. Financial decision will affect the entire business operation of the concern. Because there is a direct relationship with various department functions such as marketing, production personnel, etc.

Improve Profitability

Profitability of the concern purely depends on the effectiveness and proper utilization of funds by the business concern. Financial management helps to improve the profitability position of the concern with the help of strong financial control devices such as budgetary control, ratio analysis and cost volume profit analysis.

Increase the Value of the Firm

Financial management is very important in the field of increasing the wealth of the investors and the business concern. Ultimate aim of any business concern will achieve the maximum profit and higher profitability leads to maximize the wealth of the investors as well as the nation.

Promoting Savings

Savings are possible only when the business concern earns higher profitability and maximizing wealth. Effective financial management helps to promoting and mobilizing individual and corporate savings.

Nowadays financial management is also popularly known as business finance or corporate finances. The business concern or corporate sectors cannot function without the importance of the financial management.

FUNCTIONS OF FINANCE MANAGER

Finance function is one of the major parts of business organization
permanent, and continuous process of the business concern. Finance is one of the interrelated functions which deal with personal function, marketing function, production function and research and development activities of the business concern. At present, every business concern concentrates more on the field of finance because, it is a very emerging part which reflects the entire operational and profit ability position of the concern. Deciding the proper financial function is the essential and ultimate goal of the business organization.

Finance manager is one of the important role players in the field of finance function. He must have entire knowledge in the area of accounting, finance, economics and management. His position is highly critical and analytical to solve various problems related to finance. A person who deals finance related activities may be called finance manager.

Finance manager performs the following major functions:

1. Forecasting Financial Requirements

It is the primary function of the Finance Manager. He is responsible to estimate the financial requirement of the business concern. He should estimate, how much finances required to acquire fixed assets and forecast the amount needed to meet the working capital requirements in future.

2. Acquiring Necessary Capital

After deciding the financial requirement, the finance manager should concentrate how the finance is mobilized and where it will be available. It is also highly critical in nature.

3. Investment Decision

The finance manager must carefully select best investment alternatives and consider the reasonable and stable return from the investment. He must be well versed in the field of capital budgeting techniques to determine the effective utilization of investment. The finance manager must concentrate to principles of safety, liquidity and profitability while investing capital. Introduction to Financial Management **9**

4. Cash Management

Present days cash management plays a major role in the area of finance because proper cash management is not only essential for effective utilization of cash but it also helps to meet the short-term liquidity position of the concern.

5. Interrelation with Other Departments

Finance manager deals with various functional departments such as marketing, production, personel, system, research, development, etc. Finance manager should have sound knowledge not only in finance related area but also well versed in other areas. He must maintain a good relationship with all the functional departments of the business organization

UNIT – II
TIME VALUE OF MONEY

Definition

Time Value of Money is a concept that recognizes the relevant worth of future cash flows arising as a result of financial decisions by considering the opportunity cost of funds.

Concept

Money loses its value over time which makes it more desirable to have it now rather than later.

There are several reasons why money loses value over time. Most obviously, there is inflation which reduces the buying power of money.

But quite often, the cost of receiving money in the future rather than now will be greater than just the loss in its real value on account of inflation. The opportunity cost of not having the money right now also includes the loss of additional income that you could have earned simply by having received the cash earlier. Moreover, receiving money in the future rather than now may involve some risk and uncertainty regarding its recovery. For these reasons, future cash flows are worth less than the present cash flows.

Time Value of Money concept attempts to incorporate the above considerations into financial decisions by facilitating an objective evaluation of cash flows from different time periods by converting them into present value or future value equivalents. This ensures the comparison of 'like with like'.

The present or future value of cash flows are calculated using a discount rate (also known as cost of capital, WACC and required rate of return) that is determined on the basis of several factors such as:
● Rate of inflation   Higher the rate of inflation, higher the return that investors would require on their investment.
● Interest Rates   Higher the interest rates on deposits and debt securities, greater the loss of interest income on future cash inflows causing investors to demand a higher return on investment.
● Risk Premium   Greater the risk associated with future cash flows of an investment, higher the rate of return required by an investors to compensate for the additional risk.

Why is the Time Value of Money Important?

The time value of money is a concept integral to all parts of business. A business does not want to know just what an investment is worth todayit wants to know the total value of the investment. What is the investment worth in total? Let's take a look at a couple of examples.

Suppose you are one of the lucky people to win the lottery. You are given two options on how to receive the money.

1. Option 1: Take Rs 5,00000 right now.
2. Option 2: Get paid Rs 6,00000 every year for the next 10 years.

In option 1, you get Rs5,000,000 and in option 2 you get Rs6,000,000. Option 2 may seem like the better bet because you get an extra Rs 1,000,000, but the time value of money theory says that since some of the money is paid to you in the future, it is worth less.

By figuring out how much option 2 is worth today (through a process called discounting), you'll be able to make an apples-to-apples comparison between the two options. If option 2 turns out to be worth less than $5,000,000 today, you should choose option 1, or vice versa.

Let's look at another example. Suppose you go to the bank and deposit $100. Bank 1 says that if you promise not to withdraw the money for 5 years, they'll pay you an interest rate of 5% a year. Before you sign up, consider that there is a cost to you for not having access to your money for 5 years. At the end of 5 years, Bank 1 will give you back $128. But you also know that you can go to Bank 2 and get a guaranteed 6% interest rate, so your money is actually worth 6% a year for every year you don't have it. Converting our present cash worth into future value using the two different interest rates offered by Banks 1 and 2, we see that putting our money in Bank 1 gives us roughly $128 in 5 years, while Bank 2's interest rate gives $134. Between these two options, Bank 2 is the better deal for maximizing future value.

Relevance of time value of money in financial decision making

A finance manager is required to make decisions on investment, financing and dividend in view of the company's objectives. The decisions as purchase of assets or procurement of funds i.e. the investment/financing decisions affect the cash flow in different time periods. Cash outflows would be at one point of time and inflow at some other point of time, hence, they are not comparable due to the change in rupee value of money. They can be made comparable by introducing the interest factor. In the theory of finance, the interest factor is one of the crucial and exclusive concept, known as the time value of money.

Time value of money means that worth of a rupee received today is different from the same received in future. The preference for money now as compared to future is known as time preference of money. The concept is applicable to both individuals and business houses.

Reasons of time preference of money :

1) Risk :

There is uncertainty about the receipt of money in future.

2) Preference for present consumption :

Most of the persons and companies have a preference for present consumption may be due to urgency of need.

3) Investment opportunities :

Most of the persons and companies have preference for present money because of availabilities of opportunities of investment for earning additional cash flows.

Importance of time value of money :

The concept of time value of money helps in arriving at the comparable value of the different rupee amount arising at different points of time into equivalent values of a particular point of time, present or future. The cash flows arising at different points of time can be made comparable by using any one of the following :

- by compounding the present money to a future date i.e. by finding out the value of present money.

- by discounting the future money to present date i.e. by finding out the present value(PV) of future money.

1) Techniques of compounding :

i) Future value (FV) of a single cash flow :

The future value of a single cash flow is defined as :

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

Where, FV = future value

PV = Present value

r = rate of interest per annum

n = number of years for which compounding is done.

If, any variable i.e. PV, r, n varies, then FV also varies. It is very tedious to calculate the value of

$(1 + r)^n$ so different combinations are published in the form of tables. These may be referred for computation, otherwise one should use the knowledge of logarithms.

ii) Future value of an annuity :

An annuity is a series of periodic cash flows, payments or receipts, of equal amount. The premium payments of a life insurance policy, for instance are an annuity. In general terms the future value of an annuity is given as :

$$FVA_n = A * ([(1 + r)^n - 1]/r)$$

Where,

FVA_n = Future value of an annuity which has duration of n years.

A = Constant periodic flow

r = Interest rate per period

n = Duration of the annuity

Thus, future value of an annuity is dependent on 3 variables, they being, the annual amount, rate of interest and the time period, if any of these variable changes it will change the future value of the annuity. A published table is available for various combination of the rate of interest 'r' and the time period 'n'.

2) Techniques of discounting :

i) Present value of a single cash flow :

The present value of a single cash flow is given as :

$$PV = FV_n \left(\frac{1}{1 + r} \right)^n$$

Where,

$FV_{n} = $ Future value n years hence

r = rate of interest per annum

n = number of years for which discounting is done.

From above, it is clear that present value of a future money depends upon 3 variables i.e. FV, the rate of interest and time period. The published tables for various combinations of $(\frac{1}{1+r})^n$

are available.

ii) **Present value of an annuity** :

Sometimes instead of a single cash flow**,** cash flows of same amount is received for a number of years. The present value of an annuity may be expressed as below :

$$PVA_n = A/(1+r)^1 + A/(1+r)^2 + \ldots\ldots\ldots + A/(1+r)^{n-1} + A/(1+r)^n$$

$$= A\,[1/(1+r)^1 + 1/(1+r)^2 + \ldots\ldots\ldots + 1/(1+r)^{n-1} + 1/(1+r)^n\,]$$

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

Where,

PVA_n = Present value of annuity which has duration of n years
A = Constant periodic flow
r = Discount rate.

Risk and return is a complex topic. There are many types of risk, and many ways to evaluate and measure risk. In the theory and practice of investing, a widely used definition of risk is:

"Risk is the uncertainty that an investment will earn its expected rate of return."

Note that this definition does not distinguish between loss and gain. Typically, individual investors think of risk as the possibility that their investments could lose money. They are likely to be quite happy with an investment return that is greater than expected - a "positive surprise." However, since risky assets generate negative surprises as well as positive ones, defining risk as the **uncertainty** of the rate of return is reasonable. Greater uncertainty results in greater likelihood that the investment will generate larger gains, as well as greater likelihood that the investment will generate larger losses (in the short term) and in higher or lower accumulated value (in the long term.)

Concept of risk and return of a single asset and of a portfolio

The fact is that most investors invest their funds in more than one security suggest that there are other factors, besides return, and they must be considered.

The investors not only like return but also dislike risk. So, what is required is: i.Clear understanding of what risk and return are, ii.What creates them, and iii. How can they be measured?

Return:

the return is the basic motivating force and the principal reward in the investment process. The return may be defined in terms of (i) realized return, i.e., the return which has been earned, and (ii) expected return, i.e., the return which the investor anticipates to earn over some future investment period.

The expected return is a predicted or estimated return and mayor may not occur. The realized returns in the past allow an investor to estimate cash inflows in terms of dividends, interest, bonus, capital gains, etc, available to the holder of the investment.

The return can be measured as the total gain or loss to the holder over a given period of time and may be defined as a percentage return on the initial amount invested. With reference to investment inequity shares, return is consisting of the dividends and the capital gain or loss at the time of sale of these shares.

Risk:

Risk in investment analysis means that future returns from an investment are unpredictable. The concept of risk may be defined as the possibility that the actual return may not be same as expected.

In other words, risk refers to the chance that the actual outcome (return)from an investment will differ from an expected outcome. With reference to a firm, risk may be defined as the possibility that the actual outcome of a financial decision may not be same as estimated.

The risk may be considered as a chance of variation in return. Investments having greater chances of variations are considered more risky than those with lesser chances of variations. Between equity shares and corporate bonds, the former is riskier than latter.

If the corporate bonds are held till maturity, then the annual interest inflows and maturity repayment are fixed. However, in case of equity investment, neither the dividend inflow nor the terminal price is fixed. Risk should be differentiated with uncertainty:

Risk is defined as a situation where the possibility of happening or non happening of an event can be quantified and measured: while uncertainty is defined as a situation where this possibility cannot be measured.

Thus, risk is a situation when probabilities can be assigned to an event on the basis of facts and figures available regarding the decision. Uncertainty, on the other hand, is a situation where either the facts and figures are not available, or the probabilities cannot be assigned.

Types of Risk:

1. Systematic Risk: It refers to that portion of variability in return which is caused by the factors affecting all the firms. It refers to fluctuation in return due to general factors in the market such as money supply, inflation, economic recessions, interest rate policy of the government, political factors, credit policy, tax reforms, etc. these are the factors which affect almost all firms. The effect of these factors is to cause the prices of all securities to move together. This part of risk arises because every security has a built in tendency to move in line with fluctuations in the market. No investor can avoid or eliminate this risk, whatever precautions or diversification may be resorted to. The systematic risk is also called the non-diversifiable risk or general risk.

2. Market Risk: Market prices of investments, particularly equity shares may fluctuate widely within a short span of time even though the earnings of the company are not changing. The reasons for this change in prices may be varied. Due to one factor or the other, investors' attitude may change towards equities resulting in the change in market price. Change in market price causes the return from investment to very. This is known as market risk. The market risk refers to variability in return due to change in market price of investment. Market risk appears because of reaction of investors to different events. There are different social, economic, political and firm specific events which affect the market price of equity shares. Market psychology is another factor affecting market prices. In bull phases, market prices of all shares tend to increase while in bear phases

The prices tend to decline. In such situations, the market prices are pushed beyond far out of line with the fundamental value.

3. Interest-rate Risk:

interest rates on risk free securities and general interest rate level are related to each other. If the risk free rate of interest rises or falls, the rate of interest on the other bond securities also rises or falls. The interest rate risk refers to the variability in return caused by the change in level of interest rates. Such interest rate risk usually appears through the change in market price of fixed income securities, i.e., bonds and debentures. Security (bond and debentures) prices have an inverse relationship with the level of interest rates. When the interest rate rises, the prices of existing securities fall and vice-versa.

3. Purchasing power or Inflation Risk:

The inflation risk refers to the uncertainty of purchasing power of cash flows to be received out of investment. It shows the impact of inflation or deflation on the investment. The inflation risk is related to interest rate risk because as inflation increases, the interest rates also tend to increase. The reason being that the investor wants an additional premium for inflation risk (resulting from decrease in purchasing

power). Thus, there is an increase in interest rate. Investment involves a postponement in present consumption. If an investor makes an investment, he forgoes the opportunity to buy some goods or services during the investment period. If, during this period, the prices of goods and services go up, the investor losses in terms of purchasing power. The inflation risk arises because of uncertainty of purchasing power of the amount to be received from investment in future.

Unsystematic Risk:

The unsystematic risk represents the fluctuation in return from an investment due to factors which are specific to the particular firm and not the market as a whole.

These factors are largely independent of the factors affecting market in general. Since these factors are unique to a particular firm, these must be examined separately for each firm and for each industry.

These factors may also be called firm-specific as these affect one firm without affecting the other firms.

For example, a fluctuation in price of crude oil will affect the fortune of petroleum companies but not the textile manufacturing companies.

As the unsystematic risk results from random events that tend to be unique to an industry or a firm, this risk is random in nature. Unsystematic risk is also called specific risk or diversifiable risk

Types of Unsystematic Risk:

1. Business Risk:

Business risk refers to the variability in incomes of the firms and expected dividend there from, resulting from the operating condition in which the firms have to operate. For example, if the earning or dividends from a company are expected to increase say, by 6%, however, the actual increase is 10% or 12 %.The variation in actual earnings than the expected earnings refers to business risk. Some industries have higher business risk than others. So, the securities of higher business risk firms are more risky than the securities of other firms which have lesser business risk.

2. Financial Risk:

It refers to the degree of leverage or degree of debt financing used by a firm in the capital structure. Higher the degree of debt financing, the greater is the degree of financial risk. The presence of interest payment brings more variability in the earning available for equity shares. This is also known as financial leverage. A firm having lesser or no risk financing has lesser or no financial risk.

Measurement of risk:

No investor can predict with certainty whether the income from an investment increase or decrease or by how much. Statistical measures can be used to make precise measurement of risk about the estimated returns, to gauge the extent to which the expected return and actual return are likely to differ

Methods Of Valuation Of Shares
The methods of valuation depends on the purpose for which valuation is required. Generally, there are three methods of valuation of shares:

1. Net Assets Method Of Valuation Of Shares

Under this method, the net value of assets of the company are divided by the number of shares to arrive at the value of each share. For the determination of net value of assets, it is necessary to estimate the worth of the assets and liabilities. The goodwill as well as non-trading assets should also be included in total assets. The following points should be considered while valuing of shares according to this method:
* Goodwill must be properly valued
* The fictitious assets such as preliminary expenses, discount on issue of shares and debentures, accumulated losses etc. should be eliminated.
* The fixed assets should be taken at their realizable value.
* Provision for bad debts, depreciation etc. must be considered.
* All unrecorded assets and liabilities (if any) should be considered.
* Floating assets should be taken at market value.
* The external liabilities such as sundry creditors, bills payable, loan, debentures etc. should be deducted from the value of assets for the determination of net value.

The net value of assets, determined so has to be divided by number of equity shares for finding out the value of share. Thus the value per share can be determined by using the following formula:

Value Per Share=(Net Assets-Preference Share Capital)/Number Of Equity Shares

2. Yield or Market Value Method Of Valuation Of Shares

The expected rate of return in investment is denoted by yield. The term "rate of return" refers to the return which a shareholder earns on his investment. Further it can be classified as (a) Rate of earning and (b) Rate of dividend. In other words, yield may be earning yield and dividend yield.

a. Earning Yield

Under this method, shares are valued on the basis of expected earning and normal rate of return. The value per share is calculated by applying following formula:

Value Per Share = (Expected rate of earning/Normal rate of return) X Paid up value of equity share

Expected rate of earning = (Profit after tax/paid up value of equity share) X 100

b. Dividend Yield

Under this method, shares are valued on the basis of expected dividend and normal rate of return. The value per share is calculated by applying following formula:

Expected rate of dividend = (profit available for dividend/paid up equity share capital) X 100

Value per share = (Expected rate of dividend/normal rate of return) X 100

3. Earning Capacity Method Of Valuation Of Shares

Under this method, the value per share is calculated on the basis of disposable profit of the company. The disposable profit is found out by deducting reserves and taxes from net profit. The following steps are applied for the determination of value per share under earning capacity:

Step 1: To find out the profit available for dividend
Step 2: To find out the capitalized value
Capitalized Value =(Profit available for equity dividend/Normal rate of return) X 100
Step 3: To find out value per share
Value per share = Capitalized Value/Number of Shares

4. Intrinsic value

The intrinsic value is the difference between the underlying price and the strike price, to the extent that this is in favor of the option holder. For a call option, the option is in-the-money if the underlying price is higher than the strike price; then the intrinsic value is the underlying price minus the strike price. For a put option, the option is in-the-money if the strike price is higher than the underlying price; then the intrinsic value is the strike price minus the underlying price. Otherwise the intrinsic value is zero.

In simple words, it is the value by which is already available in the market. If you are holding NIFTY 5000 Call (Bullish/Long) option and NIFTY is at 5050 level then you already have ☐ 50 advantage if the option expires today. These ☐ 50 are the intrinsic value of option.

Conversely if you are holding a put option and NIFTY is below strike price then your option has an intrinsic value equaling the difference between the strike price and NIFTY value. So,

Intrinsic value

   = current stock price – strike price (call option)

   = strike price – current stock price (put option)

Time value

The option premium is always greater than intrinsic value. This extra money is for the risk which the option writer/seller is undertaking. This is called the Time Value.

Time value is the amount the option trader is paying for a contract above its intrinsic value, with the belief that prior to expiration the contract value will increase because of a favorable change in the price of the underlying asset. Obviously, the longer the amount of time until the expiry of the contract, the greater the time value. So,

Time value = option premium – intrinsic value

There are many factors which determine option premium. These factors affect the premium of the option with varying intensity. Some of these factors are listed here:

Price of the underlying: Any fluctuation in the price of the underlying (stock/index/commodity) obviously has the largest impact on premium of an option contract. An increase in the underlying price increases the premium of call option and decreases the premium of put option. Reverse is true when underlying price decreases.

Strike price: How far is the strike price from spot also has an impact on option premium. Say, if NIFTY goes from 5000 to 5100 the premium of 5000 strike and of 5100 strike will change a lot compared to a contract with strike of 5500 or 4700.

Time till expiry: Lesser the time to expiry, option premium follows the intrinsic value more closely. On the expiry date Time Value approaches zero.

Volatility of underlying: Underlying security is a constantly changing entity. The degree by which its price fluctuates can be termed as volatility. So a share which fluctuates 5% on either side on daily basis is said to have more volatility than let's say a stable blue chip shares whose fluctuation is more benign at 2–3%. Volatility affects calls and puts alike. Higher volatility increases the option premium because of greater risk it brings to the seller.

Apart from above, other factors like bond yield (or interest rate) also affect the premium. This is due to the fact that the money invested by the seller can earn this risk free income in any case and hence while selling option; he has to earn more than this because of higher risk he is taking.
Pricing models

Because the values of option contracts depend on a number of different variables in addition to the value of the underlying asset, they are complex to value. There are many pricing models in use, although all essentially incorporate the concepts of rational pricing, moneyness, option time value and put-call parity.

Amongst the most common models are:

Black–Scholes and the Black model
Binomial options pricing model

Monte Carlo option model
Finite difference methods for option pricing

Other approaches include:

Heston model
Heath–Jarrow–Morton framework   Variance gamma model (see variance gamma process)

Bond Valuation

Bonds are long-term debt securities that are issued by corporations and government entities. Purchasers of bonds receive periodic interest payments, called coupon payments, until maturity at which time they receive the face value of the bond and the last coupon payment. Most bonds pay interest semiannually. The *Bond Indenture* or *Loan Contract* specifies the features of the bond issue. The following terms are used to describe bonds.

Par or Face Value
The par or face value of a bond is the amount of money that is paid to the bondholders at maturity. For most bonds the amount is $1000. It also generally represents the amount of money borrowed by the bond issuer.

Coupon Rate
The coupon rate, which is generally fixed, determines the periodic coupon or interest payments. It is expressed as a percentage of the bond's face value. It also represents the interest cost of the bond issue to the issuer.

Coupon Payments
The coupon payments represent the periodic interest payments from the bond issuer to the bondholder. The annual coupon payment is calculated be multiplying the coupon rate by the bond's face value. Since most bonds pay interest semiannually, generally one half of the annual coupon is paid to the bondholders every six months.

Maturity Date
The maturity date represents the date on which the bond matures, *i.e.,* the date on which the face value is repaid. The last coupon payment is also paid on the maturity date.

Original Maturity
The time remaining until the maturity date when the bond was issued.

Remaining Maturity
The time currently remaining until the maturity date.

Call Date
For bonds which are callable, *i.e.,* bonds which can be redeemed by the issuer prior to maturity, the call date represents the date at which the bond can be called.

Call Price
The amount of money the issuer has to pay to call a callable bond. When a bond first becomes callable, *i.e.,* on the call date, the call price is often set to equal the face value plus one year's interest.

Required Return
The rate of return that investors currently require on a bond.

Yield to Maturity

The rate of return that an investor would earn if he bought the bond at its current market price and held it until maturity. Alternatively, it represents the discount rate which equates the discounted value of a bond's future cash flows to its current market price.

Yield to Call

The rate of return that an investor would earn if he bought a callable bond at its current market price and held it until the call date given that the bond was called on the call date.

The box below illustrates the cash flows for a semiannual coupon bond with a face value of $1000, a 10% coupon rate, and 15 years remaining until maturity. (Note that the annual coupon is $100 which is calculated by multiplying the 10% coupon rate times the $1000 face value. Thus, the periodic coupon payments equal $50 every six months.)

Valuation of shares and bonds

Cost of Equity

Cost of equity capital is the rate at which investors discount the expected dividends of the firm to determine its share value.

Conceptually the cost of equity capital (Ke) defined as the "Minimum rate of return that a firm must earn on the equity financed portion of an investment project in order to leave unchanged the market price of the shares".

Cost of equity can be calculated from the following approach:
• Dividend price (D/P) approach
• Dividend price plus growth (D/P + g) approach
• Earning price (E/P) approach
• Realized yield approach.

Dividend Price Approach

The cost of equity capital will be that rate of expected dividend which will maintain the present market price of equity shares.

Dividend price approach can be measured with the help of the following formula:

$$K_e = \frac{D}{N_p}$$

Where,
Ke = Cost of equity capital
D = Dividend per equity share
Np = Net proceeds of an equity share

Exercise 1

A company issues 10,000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 25% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute the cost of equity capital. Will it make any difference if the market price of equity share is Rs. 175?

Solution

$$K_e = \frac{D}{N_p}$$

$$= \frac{25}{100} \times 100$$

$$= 22.72\%$$

If the market price of a equity share is Rs. 175.

$$K_e = \frac{D}{N_p}$$

$$= \frac{25}{175} \times 100$$

$$= 14.28\%$$

Dividend Price Plus Growth Approach

The cost of equity is calculated on the basis of the expected dividend rate per share plus growth in dividend. It can be measured with the help of the following formula:

$$\boxed{K_e = \frac{D}{N_p} + g}$$

Where,

K_e = Cost of equity capital

D   = Dividend per equity share

g   = Growth in expected dividend

N_p = Net proceeds of an equity share

Exercise 2

(a) A company plans to issue 10000 new shares of Rs. 100 each at a par. The floatation costs are expected to be 4% of the share price. The company pays a dividend of Rs. 12 per share initially and growth in dividends is expected to be 5%. Compute the cost of new issue of equity shares.

(b) If the current market price of an equity share is Rs. 120. Calculate the cost of existing equity share capital

Solution

(a)
$$K_e = \frac{D}{N_p} + g$$

$$= \frac{12}{100-4} + 5 = 17.5\%$$

(b)
$$K_e = \frac{D}{N_p} + g$$

$$= \frac{12}{120} + 5\% = 15\%$$

Exercise 3

The current market price of the shares of A Ltd. is Rs. 95. The floatation costs are Rs. 5 per share amounts to Rs. 4.50 and is expected to grow at a rate of 7%. You are required to calculate the cost of equity share capital.

Solution

Market price Rs. 95
Dividend Rs. 4.50
Growth 7%.

$$K_e = \frac{D}{N_p} + g$$

$$= \frac{4.50}{95} \times 100 + 7\%$$

$$= 4.73\% + 7\% = 11.73\%$$

Earning Price Approach

Cost of equity determines the market price of the shares. It is based on the future earning prospects of the equity. The formula for calculating the cost of equity according to this approach is as follows.

$$\boxed{K_e = \frac{E}{N_p}}$$

Where,

K_e = Cost of equity capital
E = Earning per share
N_p = Net proceeds of an equity share

Exercise 4

A firm is considering an expenditure of Rs. 75 lakhs for expanding its operations The relevant information is as follows :

Number of existing equity shares =10 lakhs

Market value of existing share =Rs.100

Net earnings =Rs.100 lakhs

Compute the cost of existing equity share capital and of new equity capital assuming that new shares will be issued at a price of Rs. 92 per share and the costs of new issue will be Rs. 2 per share.

Solution

Cost of existing equity share capital:

$$K_e = \frac{E}{N_p}$$

$$\text{Earnings Per Share(EPS)} = \frac{100\,\text{lakhs}}{10\,\text{lakhs}} = \text{Rs.}10$$

$$K_e = \frac{10}{100} \times 10$$

$$= 10\%$$

Cost of Equity Capital

$$K_e = \frac{E}{N_P}$$

$$= \frac{10}{92-2} \times 100$$

$$= 11.11\%$$

Valuation of Debenture (Bond)

Cost of Debt

Cost of debt is the after tax cost of long-term funds through borrowing. Debt may be issued at par, at premium or at discount and also it may be perpetual or redeemable.

Debt Issued at Par

Debt issued at par means, debt is issued at the face value of the debt. It may be calculated with the help of the following formula.

$$\boxed{K_d = (1-t)\,R}$$

Where,

Kd = Cost of debt capital

t = Tax rate

R = Debenture interest rate

Debt Issued at Premium or Discount

If the debt is issued at premium or discount, the cost of debt is calculated with the help of the following formula

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

Where,

Kd = Cost of debt capital

I = Annual interest payable

Np = Net proceeds of debenture

t = Tax rate

Exercise 5

(a) A Ltd. issues Rs. 10,00,000, 8% debentures at par. The tax rate applicable to the company is 50%. Compute the cost of debt capital.

(b) B Ltd. issues Rs. 1,00,000, 8% debentures at a premium of 10%. The tax rate applicable to the company is 60%. Compute the cost of debt capital.

(c) A Ltd. issues Rs. 1,00,000, 8% debentures at a discount of 5%. The tax rate is 60%, compute the cost of debt capital.

(d) B Ltd. issues Rs. 10,00,000, 9% debentures at a premium of 10%. The costs of floatation are 2%. The tax rate applicable is 50%. Compute the cost of debt-capital.

In all cases, we have computed the after-tax cost of debt as the firm saves on account of tax by using debt as a source of finance.

Solution

(a) $$K_{da} = \frac{I}{N_p}(1-t)$$

$$= \frac{8,000}{1,00,000} \times (1 - 0.5)$$

$$= \frac{8,000}{1,00,000} \times 0.5$$

$$= 4\%$$

$$K_{da} = \frac{I}{N_p}(1 - t)$$

(b) N_p = Face Value + Premium = $1,00,000 + 10,000 = 1,10,000$

$$= \frac{8,000}{1,10,000} \times (1 - 0.6)$$

$$= \frac{8,000}{1,10,000} \times 0.6$$

$$= 2.91\%$$

(c) $$K_{da} = \frac{I}{N_p}(1 - t)$$

$$= \frac{8,000}{95,000} \times (1 - t)$$

$$= 3.37\%$$

(d) $$K_{da} = \frac{I}{N_p}(1 - t), N_p = Rs. (10,00,000 + 1,00,000) \times \frac{2}{100}$$

$$= \frac{90,000}{10,78,000} \times (1 - 0.5)$$

$$= 4.17\% = 11,00,000 - 22,000 = Rs. 10,78,000$$

UNIT- III

FINANACING DECISISONS AND INVESTMENT DECISIONS

Capital Budgeting: Principles and techniques - Nature of capital budgeting- Identifying relevant cash flows - Evaluation Techniques: Payback, Accounting rate of return, Net Present Value, Internal Rate of Return, Profitability Index - Comparison of DCF techniques - Project selection under capital rationing - Inflation and capital budgeting - Concept and measurement of cost of capital - Specific cost and overall cost of capital

Nature of Capital Budgeting:

Capital budgeting is the process of making investment decisions in capital expenditures. A capital expenditure may be defined as an expenditure the benefits of which are expected to be received over period of time exceeding one year.

The main characteristic of a capital expenditure is that the expenditure is incurred at one point of time whereas benefits of the expenditure are realized at different points of time in future. In simple language we may say that 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 as land and building, plant and 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. Thus, capital expenditure decisions are also called as long term investment decisions. Capital budgeting involves the planning and control of capital expenditure. It is the process of deciding whether or not to commit resources to a particular long term project whose benefits are to be realized over a period of time, longer than one year. Capital budgeting is also known as Investment Decision Making, Capital Expenditure Decisions, Planning Capital Expenditure and Analysis of Capital Expenditure.

Charles T. Horngreen has defined capital budgeting as, "Capital budgeting is long term planning for making and financing proposed capital outlays."

According to G.C. Philippatos, "Capital budgeting is concerned with the allocation of the firm's scarce financial resources among the available market opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project with the immediate and subsequent streams of earning from a project, with the immediate and subsequent streams of expenditures for it".

Richard and Greenlaw have referred to capital budgeting as acquiring inputs with long-run return.

In the words of Lynch, "Capital budgeting consists in planning development of available capital for the purpose of maximizing the long term profitability of the concern."

From the above description, it may be concluded that the important features which distinguish capital budgeting decision from the ordinary day to day business decisions are:

(1) Capital budgeting decisions involve the exchange of current funds for the benefits to be achieved in future;

(2) The future benefits are expected to be realized over a series of years;

 (3) The funds are invested in non-flexible and long term activities;

(4) They have a long term and significant effect on the profitability of the concern;

(5) They involve, generally, huge funds;

(6) They are irreversible decisions.

(7) They are 'strategic' investment decisions, involving large sums of money, major departure from the past practices of the firm, significant change of the firm's expected earnings associated with high degree of risk, as compared to 'tactical' investment decisions which involve a relatively small amount of funds that do not result in a major departure from the past practices of the firm.

Need and Importance of Capital Budgeting:

Capital budgeting means planning for capital assets.

Capital budgeting decisions are vital to any organisation as they include the decisions as to:

(a) Whether or not funds should be invested in long term projects such as setting of an industry, purchase of plant and machinery etc.

(b) Analyze the proposal for expansion or creating additional capacities.

(c) To decide the replacement of permanent assets such as building and equipment's.

(d) To make financial analysis of various proposals regarding capital investments so as to choose the best out of many alternative proposals.

The importance of capital budgeting can be well understood from the fact that an unsound investment decision may prove to be fatal to the very existence of the concern.

The need, significance or importance of capital budgeting arises mainly due to the following:

(1) Large Investments:

Capital budgeting decisions, generally, involve large investment of funds. But the funds available with the firm are always limited and the demand for funds far exceeds the resources. Hence, it is very important for a firm to plan and control its capital expenditure.

(2) Long-term Commitment of Funds:

Capital expenditure involves not only large amount of funds but also funds for long-term or more or less on permanent basis. The long-term commitment of funds increases the financial risk involved in the investment decision. Greater the risk involved, greater is the need for careful planning of capital expenditure, i.e. Capital budgeting.

(3) Irreversible Nature:

The capital expenditure decisions are of irreversible nature. Once the decision for acquiring a permanent asset is taken, it becomes very difficult to dispose of these assets without incurring heavy losses.

(4) Long-Term Effect on Profitability:

Capital budgeting decisions have a long-term and significant effect on the profitability of a concern. Not only the present earnings of the firm are affected by the investments in capital assets but also the future growth and profitability of the firm depends upon the investment decision taken today. An unwise decision may prove disastrous and fatal to the very existence of the concern. Capital budgeting is of utmost importance to avoid over investment or under investment in fixed assets.

(5) Difficulties of Investment Decisions:

The long term investment decisions are difficult to be taken because:

(i) Decision extends to a series of years beyond the current accounting period,

(ii) Uncertainties of future and

(iii) Higher degree of risk.

(6) National Importance:

Investment decision though taken by individual concern is of national importance because it determines employment, economic activities and economic growth. Thus, we may say that without using capital budgeting techniques a firm may involve itself in a losing project. Proper timing of purchase, replacement, expansion and alternation of assets is essential.

Limitations of Capital Budgeting:

Capital budgeting techniques suffer from the following limitations:

(1) All the techniques of capital budgeting presume that various investment proposals under consideration are mutually exclusive which may not practically be true in some particular circumstances.

(2) The techniques of capital budgeting require estimation of future cash inflows and outflows. The future is always uncertain and the data collected for future may not be exact. Obliviously the results based upon wrong data may not be good.

(3) There are certain factors like morale of the employees, goodwill of the firm, etc., which cannot be correctly quantified but which otherwise substantially influence the capital decision.

(4) Urgency is another limitation in the evaluation of capital investment decisions.

(5) Uncertainty and risk pose the biggest limitation to the techniques of capital budgeting.

METHODS OF CAPITAL BUDGETING OF EVALUATION

By matching the available resources and projects it can be invested. The funds available are always living funds. There are many considerations taken for investment decision process such as environment and economic conditions.

The methods of evaluations are classified as follows:

(A) Traditional methods (or Non-discount methods)

(i) Pay-back Period Methods

(ii) Post Pay-back Methods

(iii) Accounts Rate of Return

(B) Modern methods (or Discount methods)

(i) Net Present Value Method

(ii) Internal Rate of Return Method

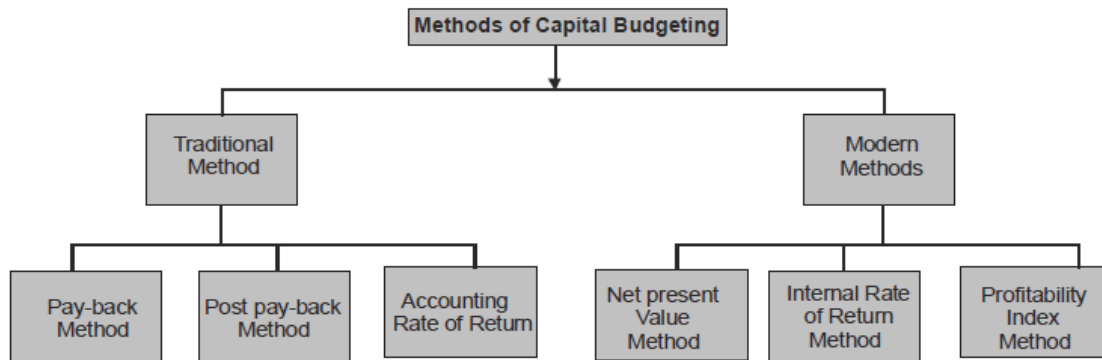(iii) Profitability Index Method

Fig. 9.2 Capital Budgeting Methods

Pay-back Period

Pay-back period is the time required to recover the initial investment in a project

(It is one of the non-discounted cash flow methods of capital budgeting).

$$\text{Pay-back period} = \frac{\text{Initial investment}}{\text{Annual cash inflows}}$$

Merits of Pay-back method

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

1. It is easy to calculate and simple to understand.

2. Pay-back method provides further improvement over the accounting rate return.

3. Pay-back method reduces the possibility of loss on account of obsolescence.

Demerits

1. It ignores the time value of money.

2. It ignores all cash inflows after the pay-back period.

3. It is one of the misleading evaluations of capital budgeting.

Accept /Reject criteria

If the actual pay-back period is less than the predetermined pay-back period, the project would be accepted. If not, it would be rejected.

Exercise 1

Project cost is Rs. 30,000 and the cash inflows are Rs. 10,000, the life of the project is 5 years. Calculate the pay-back period.

$$\text{Solution} = \frac{\text{Rs. } 30,000}{\text{Rs. } 10,000} = 3 \text{ Years}$$

The annual cash inflow is calculated by considering the amount of net income on the amount of depreciation project (Asset) before taxation but after taxation. The income precision earned is expressed as a percentage of initial investment, is called unadjusted rate of return. The above problem will be calculated as below:

$$\text{Unadjusted rate of return} = \frac{\text{Annual Return}}{\text{Investment}} \times 100$$

$$= \frac{\text{Rs. } 10,000}{\text{Rs. } 30,000} \times 100$$

$$= 33.33\%$$

Exercise 2

A project costs Rs. 20,00,000 and yields annually a profit of Rs. 3,00,000 after

depreciation @ 12½% but before tax at 50%. Calculate the pay-back period.

Profit after depreciation	3,00,000
Tax 50 %	1,50,000
	1,50,000
Add depreciation	
20,00,000 $12\frac{1}{2}$%	2,50,000
Cash in flow	4,00,000

Solution

$$\text{Pay-back period} = \frac{\text{Investment}}{\text{Cash flow}}$$

$$= \frac{20,00,000}{4,00,000} = 5 \text{ years.}$$

Uneven Cash Inflows

Normally the projects are not having uniform cash inflows. In those cases the pay-back period is calculated, cumulative cash inflows will be calculated and then interpreted.

Exercise 3

Certain projects require an initial cash outflow of Rs. 25,000. The cash inflows for 6 years are Rs. 5,000, Rs. 8,000, Rs. 10,000, Rs. 12,000, Rs. 7,000 and Rs. 3,000.

Solution

Certain projects require an initial cash outflow of Rs. 25,000. The cash inflows for 6 years are Rs. 5,000, Rs. 8,000, Rs. 10,000, Rs. 12,000, Rs. 7,000 and Rs. 3,000.

Solution

Year	Cash Inflows (Rs.)	Cumulative Cash Inflows (Rs.)
1	5,000	5,000
2	8,000	13,000
3	10,000	23,000
4	12,000	35,000
5	7,000	42,000
6	3,000	45,000

The above calculation shows that in 3 years Rs. 23,000 has been recovered Rs. 2,000, is balance out of cash outflow. In the 4th year the cash inflow is Rs. 12,000. It means the pay-back period is three to four years, calculated as follows

$$\text{Pay-back period} = 3 \text{ years} + 2000/12000 \times 12 \text{ months}$$
$$= 3 \text{ years 2 months.}$$

Accounting Rate of Return or Average Rate of Return

Average rate of return means the average rate of return or profit taken for considering the project evaluation. This method is one of the traditional methods for evaluating the project proposals:

Merits

1. It is easy to calculate and simple to understand.

2. It is based on the accounting information rather than cash inflow.

3. It is not based on the time value of money.

4. It considers the total benefits associated with the project.

Demerits

1. It ignores the time value of money.

2. It ignores the reinvestment potential of a project.

3. Different methods are used for accounting profit. So, it leads to some difficulties in the calculation of the project.

Accept/Reject criteria

If the actual accounting rate of return is more than the predetermined required rate of return, the project would be accepted. If not it would be rejected.

Exercise 5
A company has two alternative proposals. The details are as follows

	Proposal I	Proposal II
	Automatic Machine	Ordinary Machine
Cost of the machine	Rs. 2,20,000	Rs. 60,000
Estimated life	5½ years	8 years
Estimated sales p.a.	Rs. 1,50,000	Rs. 1,50,000
Costs : Material	50,000	50,000
Labour	12,000	60,000
Variable Overheads	24,000	20,000

Compute the profitability of the proposals under the return on investment meth

(M.Com., Madras and Bharathida

Solution

Profitability Statement

	Automatic Machine	Ordinary Machine
Cost of the machine	Rs. 2,20,000	Rs. 60,000
Life of the machine	5½ years	8 years
	Rs.	Rs.
Estimated Sales	(A) 1,50,000	1,50,000
Less : Cost : Material	50,000	50,000
Labour	12,000	60,000
Variable overheads	24,000	20,000
Depreciation (1)	40,000	7,000
Total Cost	(B) 1,26,000	1,37,000
Profit (A) – (B)	24,000	12,500

Working:

(1) Depreciation = Cost ÷ Life

Automatic machine = $2,20,000 \div 5\frac{1}{2} = 40,000$

Ordinary machine = $60,000 \div 8 = 7,500$

$$\text{Return on investment} = \frac{\text{Average profit}}{\text{Original investment}} \times 100$$

$$= \frac{24,000}{2,20,000} \times 100 \qquad \frac{12,500}{60,000} \times 100$$

$$10.9\% \qquad\qquad 20.8\%$$

Automatic machine is more profitable than the ordinary machine.

Net Present Value

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

Merits

1. It recognizes the time value of money.

2. It considers the total benefits arising out of the proposal.

3. It is the best method for the selection of mutually exclusive projects.

4. It helps to achieve the maximization of shareholders' wealth.

Demerits

1. It is difficult to understand and calculate.

2. It needs the discount factors for calculation of present values.

3. It is not suitable for the projects having different effective lives.

Accept/Reject criteria

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

Exercise 6

From the following information, calculate the net present value of the two project and suggest which of the two projects should be accepted a discount rate of the two.

From the following information, calculate the net present value of the two project and suggest which of the two projects should be accepted a discount rate of the two.

	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 taxation (cash flows) are as follows:

	Year 1	Year 2	Year 3	Year 4	Year 5
	Rs.	Rs.	Rs.	Rs.	Rs.
Project x	5,000	10,000	10,000	3,000	2,000
Project y	20,000	10,000	5,000	3,000	2,000

Note : The following are the present value factors @ 10 % p.a.

Year	1	2	3	4	5	6
Factor	0.909	0.826	0.751	0.683	0.621	0.564

(MBA, Madurai-Kamaraj University, May 2005)

Solution

	Cash Inflows		Present Value of Rs. 1 @ 10%	Present Value of Net Cash Inflow	
Year	Project X Rs.	Project Y Rs.		Project X Rs.	Project Y Rs.
1	5,000	20,000	0.909	4,545	18,180
2	10,000	10,000	0.826	8,260	8,260
3	10,000	5,000	0.751	7,510	3,755
4	3,000	3,000	0.683	2,049	2,049
5	2,000	2,000	0.621	1,242	1,242
Scrap Value	1,000	2,000	0.621	621	1,245
Total present valueInitial investments				24,227 20,000	34,728 30,000
Net present value				4,227	4,728

Project Y should be selected as net present value of project Y is higher.

Exercise 7

Internal Rate of Return

Internal rate of return is time adjusted technique and covers the disadvantages of the traditional techniques. In other words it is a rate at which discount cash flows to zero. It is expected by the following ratio: Cash inflow Investment

$$\frac{\text{Cash inflow}}{\text{Investment initial}}$$

Steps to be followed:

Step1. find out factor

Factor is calculated as follows:

$$F = \frac{\text{Cash outlay (or) initial investment}}{\text{Cash inflow}}$$

Step 2. Find out positive net present value

Step 3. Find out negative net present value

Step 4. Find out formula net present value

Formula

$$\text{IRR} = \text{Base factor} + \frac{\text{Positive net present value}}{\text{Difference in positive and Negative net present value}} \times \text{DP}$$

Base factor = Positive discount rate
DP = Difference in percentage

Merits

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

Demerits

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

Accept/Reject criteria

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

Capital Rationing

In the rationing the company has only limited investment the project are selected according to the profitability. The project has selected the combination of proposal that will yield the greatest portability.

Exercise 12 Let us assume that a firm has only Rs. 20 lakhs to invest and funds cannot be provided. The various proposals along with the cost and profitability index are as follows.

Proposal	Pool of the project	Profitability Index
1	6,00,000	1.46
2	2,00,000	.098
3	10,00,000	2.31
4	4,00,000	1.32
5	3,00,000	1.25

Solution

In this example all proposals expect number 2 give profitability exceeding one and are profitable investments. The total outlay required to be invested in all other (profitable) project is Rs. 25,00,000(1+2+3+4+5) but total funds available with the firm are Rs. 20 lakhs and hence the firm has to do capital combination of project within a total which has the lowest profitability index along with the profitable proposals cannot be taken.

Meaning of Cost of Capital

Cost of capital is the rate of return that a firm must earn on its project investments to maintain its market value and attract funds. Cost of capital is the required rate of return on its investments which belongs to equity, debt and retained earnings. If a firm fails to earn return at the expected rate, the market value of the shares will fall and it will result in the reduction of overall wealth of the shareholders.

Definitions

The following important definitions are commonly used to understand the meaning and concept of the cost of capital.

According to the definition of **John J. Hampton** " Cost of capital is the rate of return the firm required from investment in order to increase the value of the firm in the market place".

According to the definition of **Solomon Ezra,** "Cost of capital is the minimum required rate of earnings or the cut-off rate of capital expenditure".

IMPORTANCE OF COST OF CAPITAL

Computation of cost of capital is a very important part of the financial management to decide the capital structure of the business concern.

Importance to Capital Budgeting Decision

Capital budget decision largely depends on the cost of capital of each source. According to net present value method, present value of cash inflow must be more than the present value of cash outflow. Hence, cost of capital is used to capital budgeting decision.

Importance to Structure Decision

Capital structure is the mix or proportion of the different kinds of long term securities. A firm uses particular type of sources if the cost of capital is suitable. Hence, cost of capital helps to take decision regarding structure.

Importance to Evolution of Financial Performance

Cost of capital is one of the important determine which affects the capital budgeting, capital structure and value of the firm. Hence, it helps to evaluate the financial performance of the firm.

Importance to Other Financial Decisions

Apart from the above points, cost of capital is also used in some other areas such as, market value of share, earning capacity of securities etc. hence, it plays a major part in the financial management.

COMPUTATION OF COST OF CAPITAL

Computation of cost of capital consists of two important parts:

1. Measurement of specific costs

2. Measurement of overall cost of capital

Measurement of Cost of Capital

It refers to the cost of each specific sources of finance like:

• Cost of equity

• Cost of debt

• Cost of preference share

• Cost of retained earnings

Cost of Equity

Cost of equity capital is the rate at which investors discount the expected dividends of the firm to determine its share value. Conceptually the cost of equity capital (Ke) defined as the "Minimum rate of return that a firm must earn on the equity financed portion of an investment project in order to leave unchanged the market price of the shares".

Cost of equity can be calculated from the following approach:

• Dividend price (D/P) approach

• Dividend price plus growth (D/P + g) approach

• Earning price (E/P) approach

• Realized yield approach.

Dividend Price Approach

The cost of equity capital will be that rate of expected dividend which will maintain the present market price of equity shares.

Dividend price approach can be measured with the help of the following formula:

$$K_e = \frac{D}{N_p}$$

Where,
Ke = Cost of equity capital
D = Dividend per equity share
Np = Net proceeds of an equity share

Exercise 1
A company issues 10,000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 25% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute the cost of equity capital. Will it make any difference if the market price of equity share is Rs. 175?

Dividend Price plus Growth Approach

The cost of equity is calculated on the basis of the expected dividend rate per share plus growth in dividend. It can be measured with the help of the following formula:

$$K_e = \frac{D}{N_p} + g$$

Where,

K_e = Cost of equity capital

D = Dividend per equity share

g = Growth in expected dividend

N_p = Net proceeds of an equity share

Earning Price Approach

Cost of equity determines the market price of the shares. It is based on the future earning prospects of the equity. The formula for calculating the cost of equity according to this approach is as follows.

$$K_e = \frac{E}{N_p}$$

Where,

K_e = Cost of equity capital

E = Earning per share

N_p = Net proceeds of an equity share

UNIT- IV

DIVIDEND DECISION

Meaning of Leverage

The term leverage refers to an increased means of accomplishing some purpose. Leverage is used to lifting heavy objects, which may not be otherwise possible. In the financial point of view, leverage refers to furnish the ability to use fixed cost assets or funds to increase the return to its shareholders.

Definition of Leverage

James Horne has defined leverage as, "the employment of an asset or fund for which the firm pays a fixed cost or fixed return.

Types of Leverage

Leverage can be classified into three major headings according to the nature of the finance mix of the company.

OPERATING LEVERAGE

The leverage associated with investment activities is called as operating leverage. It is caused due to fixed operating expenses in the company. Operating leverage may be defined as the company's ability to use fixed operating costs to magnify the effects of changes in sales on its earnings before interest and taxes.

Operating leverage consists of two important costs viz., fixed cost and variable cost. When the company is said to have a high degree of operating leverage if it employs a great amount of fixed cost and smaller amount of variable \cost. Thus, the degree of operating leverage depends upon the amount of various cost structure. Operating leverage can be determined with the help of a break even analysis.

Operating leverage can be calculated with the help of the following formula:

$$OL = \frac{C}{OP}$$

Where,
OL = Operating Leverage
C = Contribution
OP = Operating Profits

Degree of Operating Leverage

The degree of operating leverage may be defined as percentage change in the profits resulting from a percentage change in the sales. It can be calculated with the help of the following formula:

$$DOL = \frac{\text{Percentage change in profits}}{\text{Percentage change in sales}}$$

From the following selected operating data, determine the degree of operating leverage. Which company has the greater amount of business risk? Why?

	Company A Rs.	Company B Rs.
Sales	25,00,000	30,00,000
Fixed costs	7,50,000	15,00,000

Variable expenses as a percentage of sales are 50% for company A and 25% for company B.

Statement of Profit

	Company A Rs.	Company B Rs.
Sales	25,00,000	30,00,000
Variable cost	12,50,000	7,50,000
Contribution	12,50,000	22,50,000
Fixed cost	7,50,000	15,00,000
Operating Profit	5,00,000	7,50,000

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

$$\text{"A" Company Leverage} = \frac{12,50,000}{5,00,000} = 2.5$$

$$\text{"B" Company Leverage} = \frac{2,25,000}{7.50.000} = 3$$

FINANCIAL LEVERAGE

Leverage activities with financing activities is called financial leverage. Financial leverage represents the relationship between the company's earnings before interest and taxes (EBIT) or operating profit and the earning available to equity shareholders.

Financial leverage is defined as "the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share". It involves the use of funds obtained at a fixed cost in the hope of increasing the return to the shareholders.

"The use of long-term fixed interest bearing debt and preference share capital along with share capital is called financial leverage or trading on equity". Financial leverage may be favourable or unfavourable depends upon the use of fixed cost funds.

Favourable financial leverage occurs when the company earns more on the assets purchased with the funds, then the fixed cost of their use. Hence, it is also called as positive financial leverage.

Unfavourable financial leverage occurs when the company does not earn as much as the funds cost. Hence, it is also called as negative financial leverage. Financial leverage can be calculated with the help of the following formula:

$$FL = \frac{OP}{PBT}$$

Where,
FL = Financial leverage
OP = Operating profit (EBIT)
PBT = Profit before tax.

Degree of Financial Leverage
Degree of financial leverage may be defined as the percentage change in taxable profit as a result of percentage change in earning before interest and tax (EBIT). This can be calculated by the following formula

$$DFL = \frac{\text{Percentage change in taxable Income}}{\text{Precentage change in EBIT}}$$

A Company has the following capital structure.

Rs. Equity share capital 1,00,000
10% Prof. share capital 1,00,000
8% Debentures 1,25,000

The present EBIT is Rs. 50,000. Calculate the financial leverage assuring that the company is in 50% tax bracket.

Statement of Profit	Rs.
Earning Before Interest and Tax (EBIT) (or) Operating Profit	50,000
Interest on Debenture 1,25,000 × 8 × 100	
Earning before Tax (EBT)	10,000
	40,000
Income Tax	20,000
Profit	20,000

$$\text{Financial leverage} = \frac{\text{Operating Profit (OP)}}{\text{Profit Before Tax (PBT)}}$$

$$= \frac{50,000}{40,000} = 1.25$$

Uses of Financial Leverage

Financial leverage helps to examine the relationship between EBIT and EPS. Profit

Financial leverage measures the percentage of change in taxable income to the percentage change in EBIT.

Financial leverage locates the correct profitable financial decision regarding capital structure of the company.

Financial leverage is one of the important devices which is used to measure the fixed cost proportion with the total capital of the company.

If the firm acquires fixed cost funds at a higher cost, then the earnings from those assets, the earning per share and return on equity capital will decrease.

The impact of financial leverage can be understood with the help of the following exercise.

DISTINGUISH BETWEEN OPERATING LEVERAGE AND FINANCIAL LEVERAGE

Operating Leverage/Financial Leverage

Operating Leverage	Financial Leverage
1. Operating leverage is associated with investment activities of the company.	1. Financial leverage is associated with financing activities of the company.
2. Operating leverage consists of fixed operating expenses of the company.	2. Financial leverage consists of operating profit of the company.
3. It represents the ability to use fixed operating cost.	3. It represents the relationship between EBIT and EPS.
4. Operating leverage can be calculated by $OL = \dfrac{C}{OP}$.	4. Financial leverage can be calculated by $FL = \dfrac{OP}{PBT}$.
5. A percentage change in the profits resulting from a percentage change in the sales is called as degree of operating leverage.	5. A percentage change in taxable profit is the result of percentage change in EBIT.
6. Trading on equity is not possible while the company is operating leverage.	6. Trading on equity is possible only when the company uses financial leverage.
7. Operating leverage depends upon fixed cost and variable cost.	7. Financial leverage depends upon the operating profits.
8. Tax rate and interest rate will not affect the operating leverage.	8. Financial leverage will change due to tax rate and interest rate.

COMBINED LEVERAGE

When the company uses both financial and operating leverage to magnification of any also called as composite leverage or total leverage. Combined leverage express the relationship between the revenue in the account of sales and the taxable income.

Combined leverage can be calculated with the help of the following formulas:

$CL = OL \times FL$

$$CL = \frac{C}{OP} \times \frac{OP}{PBT} = \frac{C}{PBT}$$

Where,
CL = Combined Leverage
OL = Operating Leverage
FL = Financial Leverage
C = Contribution
OP = Operating Profit (EBIT)
PBT= Profit Before Tax

Degree of Combined Leverage
The percentage change in a firm's earning per share (EPS) results from one percent change in sales. This is also equal to the firm's degree of operating leverage (DOL) times its degree of financial leverage (DFL) at a particular level of sales.

Kumar company has sales of Rs. 25,00,000. Variable cost of Rs. 12,50,000 and fixed cost of Rs. 50,000 and debt of Rs. 12,50,000 at 8% rate of interest. Calculate combined leverage

Solution

Statement of Profit

Sales		25,00,000
Less:	Variable cost	15,00,000
	Contribution	10,00,000
Less:	Fixed cost	5,00,000
	Operating Profit	5,00,000

Combined leverage = Operating leverage × Financial leverage

Calculation of financial leverage

$$\frac{\text{Contribution}}{\text{Operating Profit}} = \frac{10,00,000}{5,00,000} = 2$$

Calculation of financial leverage

Earning before Interest and Tax (EBIT)	5,00,000
Less: Interest on Debenture (8% of 12,50,000)	1,00,000
Earnings before Tax	4,00,000

$$\text{Operating leverage} = \frac{\text{Operating Profit}}{\text{Earning Before Tax}} = \frac{5,00,000}{4,00,000} = 1.25$$

Combined leverage = 2 × 1.25 = 2.5

Meaning of Capital Structure

Capital structure refers to the kinds of securities and the proportionate amounts that make up capitalization. It is the mix of different sources of long-term sources such as equity shares, preference shares, debentures, long-term loans and retained earnings.

The term capital structure refers to the relationship between the various long-term source financing such as equity capital, preference share capital and debt capital. Deciding the suitable capital structure is the important decision of the financial management because it is closely related to the value of the firm.

Capital structure is the permanent financing of the company represented primarily by long-term debt and equity.

Definition of Capital Structure

The following definitions clearly initiate, the meaning and objective of the capital structures.According to the definition of **Gerestenbeg,** "Capital Structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources".

According to the definition of **James C. Van Horne,** "The mix of a firm's permanent long-term financing represented by debt, preferred stock, and common stock equity".

According to the definition of **Presana Chandra,** "The composition of a firm's financing consists of equity, preference, and debt".

Objectives of Capital Structure
Decision of capital structure aims at the following two important objectives:
1. Maximize the value of the firm.
2. Minimize the overall cost of capital.
Forms of Capital Structure
Capital structure pattern varies from company to company and the availability of finance.
Normally the following forms of capital structure are popular in practice.
• Equity shares only.
• Equity and preference shares only.
• Equity and Debentures only.
• Equity shares, preference shares and debentures.

FACTORS DETERMINING CAPITAL STRUCTURE

The following factors are considered while deciding the capital structure of the firm.
Leverage
It is the basic and important factor, which affect the capital structure. It uses the fixed cost financing such as debt, equity and preference share capital. It is closely related to the overall cost of capital.
Cost of Capital
Cost of capital constitutes the major part for deciding the capital structure of a firm. Normally long- term finance such as equity and debt consist of fixed cost while mobilization. When the cost of capital increases, value of the firm will also decrease. Hence the firm must take careful steps to reduce the cost of capital.

(a) Nature of the business: Use of fixed interest/dividend bearing finance depends upon the nature of the business. If the business consists of long period of operation, it will apply for equity than debt, and it will reduce the cost of capital.

(b) Size of the company: It also affects the capital structure of a firm. If the firm belongs to large scale, it can manage the financial requirements with the help of internal sources. But if it is small size, they will go for external finance. It consists of high cost of capital.

(c) Legal requirements: Legal requirements are also one of the considerations while dividing the capital structure of a firm. For example, banking companies are restricted to raise funds from some sources.

(d) Requirement of investors: In order to collect funds from different type of investors, it will be appropriate for the companies to issue different sources of securities.

Government policy

Promoter contribution is fixed by the company Act. It restricts to mobilize large, longterm funds from external sources. Hence the company must consider government policy regarding the capital structure.

CAPITAL STRUCTURE THEORIES

Capital structure is the major part of the firm's financial decision which affects the value of the firm and it leads to change EBIT and market value of the shares. There is a relationship among the capital structure, cost of capital and value of the firm. The aim of effective capital structure is to maximize the value of the firm and to reduce the cost of capital.

There are two major theories explaining the relationship between capital structure, cost of capital and value of the firm.

Traditional Approach

It is the mix of Net Income approach and Net Operating Income approach. Hence, it is also called as intermediate approach. According to the traditional approach, mix of debt and equity capital can increase the value of the firm by reducing overall cost of capital up to certain level of debt. Traditional approach states that the Ko decreases only within the responsible limit of financial leverage and when reaching the minimum level, it starts increasing with financial leverage.

Assumptions

Capital structure theories are based on certain assumption to analysis in a single and convenient manner:

• There are only two sources of funds used by a firm; debt and shares.
• The firm pays 100% of its earning as dividend.
• The total assets are given and do not change.

• The total finance remains constant.

• The operating profits (EBIT) are not expected to grow.

• The business risk remains constant.

• The firm has a perpetual life.

• The investors behave rationally.

Exercise 1

ABC Ltd., needs Rs. 30,00,000 for the installation of a new factory. The new factory expects to yield annual earnings before interest and tax (EBIT) of Rs.5,00,000. In choosing a financial plan, ABC Ltd., has an objective of maximizing earnings per share (EPS). The company proposes to issuing ordinary shares and raising debt of Rs. 3,00,000 and Rs. 10,00,000 of Rs. 15,00,000. The current market price per share is Rs. 250 and is expected to drop to Rs. 200 if the funds are borrowed in excess of Rs. 12,00,000. Funds can be raised at the following rates.

–up to Rs. 3,00,000 at 8%
–over Rs. 3,00,000 to Rs. 15,000,00 at 10%
–over Rs. 15,00,000 at 15%
Assuming a tax rate of 50% advise the company.

Solution

Earnings Before Interest and Tax (BIT) less Interest Earnings Before Tax less: Tax@50%.

Alternatives		
I	II	III
(Rs. 3,00,000 debt)	Rs. 10,00,000 debt)	(Rs. 15,00,000 debt)
5,00,000	5,00,000	5,00,000
24,000	1,00,000	2,25,000
4,76,000	4,00,000	2,75,000
2,38,000	2,00,000	1,37,500
2,38,000	2,00,000	1,37,500
27,00,000	20,00,000	15,00,000
250	250	200
10800	8,000	7,500
2,38,000	2,00,000	1,37,500
No. of shares 10,800	8,000	7,500
Earnings per share 22.03	25	18.33

The secure alternative which gives the highest earnings per share is the best. Therefore company is advised to revise Rs. 10,00,000 through debt amount Rs. 20,00,000 through inary shares.

Exercise 2

Net Income (NI) Approach

Net income approach suggested by the Durand. According to this approach, the capital structure decision is relevant to the valuation of the firm. In other words, a change in the capital structure leads to a corresponding change in the overall cost of capital as well as the total value of the firm.

According to this approach, use more debt finance to reduce the overall cost of capital and increase the value of firm.

Net income approach is based on the following three important assumptions:
1. There are no corporate taxes.
2. The cost debt is less than the cost of equity.
3. The use of debt does not change the risk perception of the investor
where
V = S+B
V = Value of firm
S = Market value of equity
B = Market value of debt
Market value of the equity can be ascertained by the following formula:

$$S = \frac{NI}{K_e}$$

where
NI = Earnings available to equity shareholder
Ke = Cost of equity/equity capitalization rate
Format for calculating value of the firm on the basis of NI approach.

Format for calculating value of the firm on the basis of NI approach.

Particulars	Amount
Net operating income (EBIT)	XXX
Less: interest on debenture (i)	XXX
Earnings available to equity holder (NI)	XXX
Equity capitalization rate (K_e)	XXX
Market value of equity (S)	XXX
Market value of debt (B)	XXX
Total value of the firm (S+B)	XXX
Overall cost of capital = K_o = EBIT/V(%)	XXX%

Net Operating Income (NOI) Approach

Another modern theory of capital structure, suggested by **Durand**. This is just the opposite to the Net Income approach. According to this approach, Capital Structure decision is irrelevant to the valuation of the firm. The market value of the firm is not at all affected by the capital structure changes.

According to this approach, the change in capital structure will not lead to any change in the total value of the firm and market price of shares as well as the overall cost of capital. NI approach is based on the following important assumptions; The overall cost of capital remains constant;

There are no corporate taxes; The market capitalizes the value of the firm as a whole; Value of the firm (V) can be calculated with the help of the following formula

$$V = \frac{EBIT}{K_o}$$

Where,

V = Value of the firm

EBIT = Earnings before interest and tax

Ko = Overall cost of capital

XYZ expects a net operating income of Rs. 2,00,000. It has 8,00,000, 6% debentures. The overall capitalization rate is 10%. Calculate the value of the firm and the equity capitalization rate (Cost of Equity) according to the net operating income approach. If the debentures debt is increased to Rs. 10,00,000. What will be the effect on volume of the firm and the equity capitalization rate?

Solution

Net operating income = Rs. 2,00,000

Overall cost of capital = 10%

Market value of the firm (V)

$$= \frac{\text{EBIT}}{K_o}$$

$$= 2,00,000 \times \frac{100}{10} = \text{Rs. } 20,00,000$$

Market value of the firm   = Rs. 20,00,000

Less: market value of Debentures =   Rs. 8,00,000

            12,00,000

Equity capitalization rate (or) cost of equity (K_e)

$$= \frac{\text{EBIT} - \text{I}}{\text{V} - \text{D}}$$

Where,   V = value of the firm

    D = value of the debt capital

$$= \frac{2,00,000 - 48,000}{20,00,000 - 8,00,000} \times 100$$

$$= 12.67\%$$

If the debentures debt is increased to Rs. 10,00,000, the value of the firm shall remain changed to Rs. 20,00,000. The equity capitalization rate will increase as follows:

$$= \frac{\text{EBIT} - \text{I}}{\text{V} - \text{D}}$$

$$= \frac{2,00,000 - 60,000}{20,00,000 - 10,00,000} \times 100$$

$$= \frac{1,40,000}{10,00,000} \times 100$$

$$= 14\%.$$

Modigliani and Miller Approach

Modigliani and Miller approach states that the financing decision of a firm does not affect the market value of a firm in a perfect capital market. In other words MM approach maintains that the average cost of capital does not change with change in the debt weighted equity mix or capital structures of the firm.

Modigliani and Miller approach is based on the following important assumptions:
• There is a perfect capital market.
• There are no retained earnings.
• There are no corporate taxes.
• The investors act rationally.
• The dividend payout ratio is 100%.
• The business consists of the same level of business risk.
Value of the firm can be calculated with the help of the following formula:

$$\frac{EBIT}{K_o}(1-t)$$ Where

EBIT = Earnings before interest and tax
Ko = Overall cost of capital
t = Tax rate

There are two firms 'A' and 'B' which are exactly identical except that A does not use any debt in its financing, while B has Rs. 2,50,000 , 6% Debentures in its financing. Both the firms have earnings before interest and tax of Rs. 75,000 and the equity capitalization rate is 10%. Assuming the corporation tax is 50%, calculate the value of the firm.

Solution

The market value of firm A which does not use any debt.

$$V_u = \frac{EBIT}{K_o}$$

$$= \frac{75,000}{10/100} = 75,000 \times 100/10$$

$$= Rs.\ 7,50,000$$

The market value of firm B which uses debt financing of Rs. 2,50,000

$$V_t = V_u + t$$
$$V_u = 7,50,000, \qquad t = 50\% \text{ of Rs. } 2,50,000$$
$$= 7,50,000 + 1,25,000$$
$$= Rs.\ 8,75,000$$

Meaning of Dividend

Dividend refers to the business concerns net profits distributed among the shareholders. It may also be termed as the part of the profit of a business concern, which is distributed among its shareholders.

According to the **Institute of Chartered Accountant of India**, dividend is defined as "a distribution to shareholders out of profits or reserves available for this purpose".

TYPES OF DIVIDEND/FORM OF DIVIDEND

Dividend may be distributed among the shareholders in the form of cash or stock. Hence, Dividends are classified into:

A. Cash dividend

B. Stock dividend

C. Bond dividend

D. Property dividend

Cash Dividend

If the dividend is paid in the form of cash to the shareholders, it is called cash dividend. It is paid periodically out the business concerns EAIT (Earnings after interest and tax). Cash dividends are common and popular types followed by majority of the business concerns.

Stock Dividend

Stock dividend is paid in the form of the company stock due to raising of more finance. Under this type, cash is retained by the business concern. Stock dividend may be bonus issue. This issue is given only to the existing shareholders of the business concern.

Bond Dividend

Bond dividend is also known as script dividend. If the company does not have sufficient funds to pay cash dividend, the company promises to pay the shareholder at a future specific date with the help of issue of bond or notes.

Property Dividend

Property dividends are paid in the form of some assets other than cash. It will distributed under the exceptional circumstance. This type of dividend is not published in India.

DIVIDEND DECISION

Dividend decision of the business concern is one of the crucial parts of the financial manager, because it determines the amount of profit to be distributed among shareholders and amount of profit to be treated as retained earnings for financing its long term growth. Hence, dividend decision plays very important part in the financial management. Dividend decision consists of two important concepts which are based on the relationship between dividend decision and value of the firm.

FACTORS DETERMINING DIVIDEND POLICY

Profitable Position of the Firm

Dividend decision depends on the profitable position of the business concern. When the firm earns more profit, they can distribute more dividends to the shareholders.

Uncertainty of Future Income

Future income is a very important factor, which affects the dividend policy. When the shareholder needs regular income, the firm should maintain regular dividend policy.

Legal Constrains

The Companies Act 1956 has put several restrictions regarding payments and declaration of dividends. Similarly, Income Tax Act, 1961 also lays down certain restrictions on payment of dividends.

Liquidity Position

Liquidity position of the firms leads to easy payments of dividend. If the firms have high liquidity, the firms can provide cash dividend otherwise, they have to pay stock dividend.

Sources of Finance

If the firm has finance sources, it will be easy to mobilise large finance. The firm shall not go for retained earnings.

Growth Rate of the Firm

High growth rate implies that the firm can distribute more dividend to its shareholders.

Tax Policy

Tax policy of the government also affects the dividend policy of the firm. When the government gives tax incentives, the company pays more dividend.

Capital Market Conditions

Due to the capital market conditions, dividend policy may be affected. If the capital marketis prefect, it leads to improve the higher dividend.

Irrelevance of Dividend

According to professors **Soloman, Modigliani and Miller**, dividend policy has no effect on the share price of the company. There is no relation between the dividend rate and value of the firm. Dividend decision is irrelevant of the value of the firm. Modigliani and Miller contributed a major approach to prove the irrelevance dividend concept.

Modigliani and Miller's Approach

According to MM, under a perfect market condition, the dividend policy of the company is irrelevant and it does not affect the value of the firm. "Under conditions of perfect market, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of shares".

Assumptions

MM approach is based on the following important assumptions:

1. Perfect capital market.
2. Investors are rational.
3. There are no tax.
4. The firm has fixed investment policy.
5. No risk or uncertainty.

Proof for MM approach

MM approach can be proved with the help of the following formula:

$$P_o = \frac{D_1 + P_1}{(1 + K_e)}$$

Where,

Po = Prevailing market price of a share.

Ke = Cost of equity capital.

D1 = Dividend to be received at the end of period one.

P1 = Market price of the share at the end of period one.

P1 can be calculated with the help of the following formula.

P1 = Po (1+Ke) – D1

The number of new shares to be issued can be determined by the following formula:

M × P1 = I – (X – nD1)

Where,

M = Number of new share to be issued.

P1 = Price at which new issue is to be made.

I = Amount of investment required.

X = Total net profit of the firm during the period.

nD1= Total dividend paid during the period.

Exercise 1

X Company Ltd., has 100000 shares outstanding the current market price of the shares Rs. 15 each. The company expects the net profit of Rs. 2,00,000 during the year and it belongs to a rich class for which the appropriate capitalisation rate has been estimated to be 20%. The company is considering dividend of Rs. 2.50 per share for the current year. What will be the price of the share at the end of the year (i) if the dividend is paid and (ii) if the dividend is not paid.

Solution

$$P_o = \frac{D_1 + P_1}{(1 + K_e)}$$

(i) If the dividend is paid

$$P_o = Rs.15$$
$$K_e = 20\%$$
$$D_1 = 2.50$$
$$P_1 = ?$$

$$15 = \frac{2.50 + P_1}{1 + 20\%}$$

$$15 = \frac{2.50 + P_1}{1.2}$$

$$2.50 + P_1 = 15 \times 1.2$$
$$P_1 = 18 - 2.50$$
$$P_1 = Rs.\ 15.50$$

(ii) If the dividend is not paid

$$P_o = 15$$
$$K_e = 20\%$$
$$D_1 = 0$$

$$P_1 = ?$$
$$15 = \frac{0 + P_1}{1 + 20\%}$$
$$15 = \frac{0 + P_1}{1.20}$$
$$0 + P_1 = 15 \times 1.20$$
$$P_1 = Rs.\ 18.$$

Walter's Model

Prof. James E. Walter argues that the dividend policy almost always affects the value of the firm.

Walter model is based in the relationship between the following important factors:

• Rate of return I

• Cost of capital (k)

According to the Walter's model, if r > k, the firm is able to earn more than what the shareholders could by reinvesting, if the earnings are paid to them. The implication of r > k is that the shareholders can earn a higher return by investing elsewhere. If the firm has r = k, it is a matter of indifferent whether earnings are retained or distributed.

Assumptions

Walters model is based on the following important assumptions:

1. The firm uses only internal finance.
2. The firm does not use debt or equity finance.
3. The firm has constant return and cost of capital.
4. The firm has 100 recent payout.
5. The firm has constant EPS and dividend.
6. The firm has a very long life.

Walter has evolved a mathematical formula for determining the value of market share.

$$P = \frac{D + \dfrac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market price of an equity share

D = Dividend per share

r = Internal rate of return

E = Earning per share

Ke = Cost of equity capital

Exercise 5

From the following information supplied to you, ascertain whether the firm is following an optional dividend policy as per Walter's Model?

Total Earnings Rs. 2,00,000

No. of equity shares (of Rs. 100 each 20,000)

Dividend paid Rs. 1,00,000

P/E Ratio 10

Return Investment 15%

The firm is expected to maintain its rate on return on fresh investments. Also find out what should be the E/P ratio at which the dividend policy will have no effect on the value of the share? Will your decision change if the P/E ratio is 7.25 and interest of 10%?

Solution

$$\text{EPS} = \frac{\text{Earnings}}{\text{No. of Shares}} = \frac{200000}{20000} = \text{Rs. 10}$$

$$\text{P/E Ratio} = 10$$

$$K_e = \frac{1}{\text{P/E Ratio}} \quad \frac{1}{10} = 0.10$$

$$\text{DPS} = \frac{\text{Total Dividends paid}}{\text{No. of Shares}}$$

$$= \frac{100000}{20000} = \text{Rs. 5}$$

The value of the share as per Walter's Model is

$$P = \frac{D + r/ke(E - D)}{K_e}$$

$$= \frac{5 + .15/.10\,(10 - 5)}{0.10}$$

$$= \frac{5 + 7.5}{0.10}$$

$$= \text{Rs. 12.5}$$

$$\text{Dividend Payout} = \frac{\text{DPS}}{\text{EPS}} \times 100$$

$$= \frac{5}{10} \times 100 = 60\%$$

r >Ke therefore by distributing 60% of earnings, the firm is not following an optional dividend policy. In this case, the optional dividend policy for the firm would be to pay zero dividend and the Market Price would be:

$$P = \frac{5 + .15/.10 \ (10-0)}{.10}$$

$$= \frac{5 + 15}{.10}$$

$$= \frac{20}{.10}$$

$$P = Rs. \ 200$$

So, the MP of the share can be increased by following a zero payout, of the P/E is 7.25 instead of 10 then the $K_e =1=0.138$ and in this case $K_e>r$ and the MP of the share is 7.25.

$$P = \frac{5 + \dfrac{.15}{.138} \ (10-5)}{.138} \quad .138$$

$$= 5 + 5.435$$

$$\boxed{P = Rs. \ 75.62}$$

Gordon's Model

Myron Gorden suggest one of the popular model which assume that dividend policy of a firm affects its value, and it is based on the following important assumptions:

1. The firm is an all equity firm.
2. The firm has no external finance.
3. Cost of capital and return are constant.
4. The firm has perpetual life.
5. There are no taxes.
6. Constant relation ratio (g=br).
7. Cost of capital is greater than growth rate (Ke>br).

Gordon's model can be proved with the help of the following formula:

$$P = \frac{E(1-b)}{K_e - br}$$

Where,

P = Price of a share

E = Earnings per share

1 – b = D/p ratio (i.e., percentage of earnings distributed as dividends)

Ke = Capitalization rate

br = Growth rate = rate of return on investment of an all equity firm.

Exercise 8

Raja company earns a rate of 12% on its total investment of Rs. 6,00,000 in assets. It has 6,00,000 outstanding common shares at Rs. 10 per share. Discount rate of the firm is 10% and it has a policy of retaining 40% of the earnings. Determine the price of its share using Gordon's Model. What shall happen to the price of the share if the company has payout of 60% (or) 20%?

Solution

According to Gordon's Model, the price of a share is

$$P = \frac{E\,(1-b)}{K_e - br}$$

Given:
$$E = 12\%\ \text{of Rs. }10 = \text{Rs. }1.20$$
$$r = 12\% = 0.12$$
$$K = 10\% = 0.10$$
$$t = 10\% = 0.10$$
$$b = 40\% = 0.40$$

Put the values in formula

$$P = \frac{1.20\,(1-.40)}{10-(.40 \times .12)}$$

$$= \frac{1.20 \times (0.60)}{.10 - 0.048}$$

$$= \frac{0.72}{0.052}$$

$$= \text{Rs. }13.85$$

If the firm follows a policy of 60% payout then $b = 20\% = 0.20$

The price is
$$P = \frac{1.20\ (1 \times 0.20)}{.10 - (.2 \times .12)}$$
$$= 0.05$$

$r = 4\% = 0.04$, $D = 25\%$ of $10 = 2.50$

$$= 2.50 + \frac{\frac{0.04}{0.12}(10 - 2.50)}{0.12}$$

$$= \frac{5}{0.12} = \text{Rs. } 41.67$$

If payout ratio is 50%, $D = 50\%$ of $10 = \text{Rs. } 5$
$r = 12\% = 0.12$, $D = 50\%$ of $10 = \text{Rs. } 5$

$$= 5 + \frac{\frac{0.12}{0.12}(10 - 5)}{0.12}$$

$$= \frac{5 + 5}{0.12}$$

$$= \frac{10}{0.12} = \text{Rs. } 83.33$$

$r = 8\% = 0.08$, $D = 50\%$ of $10 = 5$

$$= \frac{5 + \frac{0.8}{0.12}(10 - 5)}{0.12}$$

$$= \frac{5 + 3.33}{0.12}$$

$$= \frac{8.33}{0.12} = \text{Rs. } 69.42$$

$r = 4\% = 0.04$, $D = 50\%$ of $10 = 5$

$$= 5 + \frac{0.04}{0.12}(10 - 5)$$

$$= \frac{5 + 1.67}{0.12}$$

$$= \frac{6.67}{0.12} = \text{Rs. } 55.58$$

TYPES OF DIVIDEND POLICY

Dividend policy depends upon the nature of the firm, type of shareholder and profitable position. On the basis of the dividend declaration by the firm, the dividend policy may be classified under the following types:

• Regular dividend policy

• Stable dividend policy

• Irregular dividend policy

• No dividend policy.

Regular Dividend Policy

Dividend payable at the usual rate is called as regular dividend policy. This type of policy is suitable to the small investors, retired persons and others.

Stable Dividend Policy

Stable dividend policy means payment of certain minimum amount of dividend regularly.This dividend policy consists of the following three important forms:Constant dividend per share Constant payout ratio Stable rupee dividend plus extra dividend.

Irregular Dividend Policy

When the companies are facing constraints of earnings and unsuccessful business operation, they may follow irregular dividend policy. It is one of the temporary arrangements to meet the financial problems. These types are having adequate profit. For others no dividend is distributed.

No Dividend Policy

Sometimes the company may follow no dividend policy because of its unfavourable working capital position of the amount required for future growth of the concerns.

UNIT -V
WORKING CAPITAL MANAGEMENT

Principles of working capital: Concepts, Needs, Determinants, issues and estimation of working capital - Accounts Receivables Management and factoring - Inventory management – Cash management -Working capital finance : Trade credit, Bank finance and Commercial paper.

Working Capital is another part of the capital which is needed for meeting day to day requirement of the business concern. For example, payment to creditors, salary paid to workers, purchase of raw materials etc., normally it consists of recurring in nature. It can be easily converted into cash. Hence, it is also known as short-term capital.

Definitions
According to the definition of **Mead, Baker and Malott,** "Working Capital means Current Assets".
According to the definition of **J.S.Mill,** "The sum of the current asset is the working capital of a business".

Concept of Working capital Gross Working Capital
Gross Working Capital is the general concept which determines the working capital concept. Thus, the gross working capital is the capital invested in total current assets of the business concern.

Gross Working Capital is simply called as the total current assets of the concern.

GWC = CA

Net Working Capital
Net Working Capital is the specific concept, which, considers both current assets and current liability of the concern.
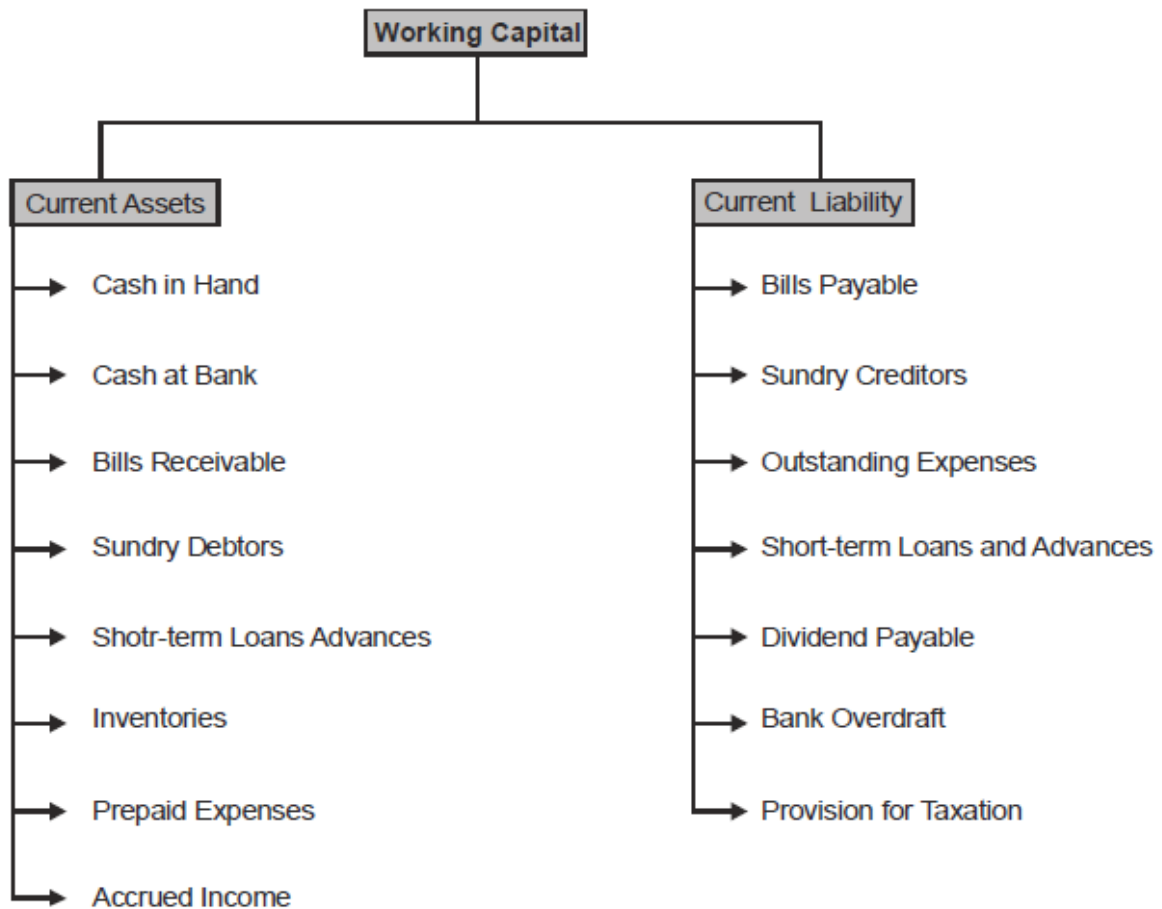Net Working Capital is the excess of current assets over the current liability of the concern during a particular period.
If the current assets exceed the current liabilities it is said to be positive working capital; it is reverse, it is said to be Negative working capital.

NWC = C A – CL

Component of Working Capital

Working capital constitutes various current assets and current liabilities. This can be illustrated by the following chart.

```
                         Working Capital
                               |
           ┌───────────────────┴───────────────────┐
     Current Assets                           Current  Liability
        ├──► Cash in Hand                         ├──► Bills Payable
        ├──► Cash at Bank                         ├──► Sundry Creditors
        ├──► Bills Receivable                     ├──► Outstanding Expenses
        ├──► Sundry Debtors                       ├──► Short-term Loans and Advances
        ├──► Shotr-term Loans Advances            ├──► Dividend Payable
        ├──► Inventories                          ├──► Bank Overdraft
        ├──► Prepaid Expenses                     └──► Provision for Taxation
        └──► Accrued Income
```

TYPES OF WORKING CAPITAL

Working Capital may be classified into three important types on the basis of time.
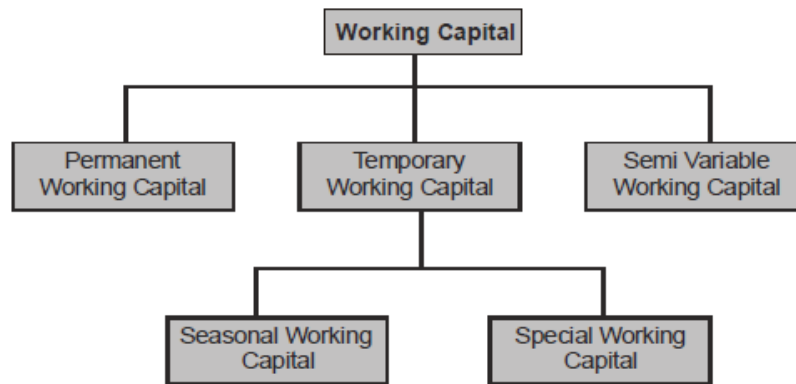

Fig. 10.3 Types of Working Capital

NEEDS OF WORKING CAPITAL

Working Capital is an essential part of the business concern. Every business concern must maintain certain amount of Working Capital for their day-to-day requirements and meet the short-term obligations.

Working Capital is needed for the following purposes.

1. Purchase of raw materials and spares: The basic part of manufacturing process is, raw materials. It should purchase frequently according to the needs of the business concern. Hence, every business concern maintains certain amount as Working Capital to purchase raw materials, components, spares, etc.

2. Payment of wages and salary: The next part of Working Capital is payment of wages and salaries to labour and employees. Periodical payment facilities make employees perfect in their work. So a business concern maintains adequate the amount of working capital to make the payment of wages and salaries.

3. Day-to-day expenses: A business concern has to meet various expenditures regarding the operations at daily basis like fuel, power, office expenses, etc.

4. Provide credit obligations: A business concern responsible to provide credit facilities to the customer and meet the short-term obligation. So the concern must provide adequate Working Capital.

FACTORS DETERMINING WORKING CAPITAL REQUIREMENTS

Working Capital requirements depends upon various factors. There are no set of rules or formula to determine the Working Capital needs of the business concern.
The following are the major factors which are determining the Working Capital requirements.

Nature of business: Working Capital of the business concerns largely depend upon the nature of the business. If the business concerns follow rigid credit policy and sell goods only for cash, they can maintain lesser amount of Working Capital. A transport company maintains lesser amount of Working Capital while a construction company maintains larger amount of Working Capital.

2. Production cycle: Amount of Working Capital depends upon the length of the production cycle. If the production cycle length is small, they need to maintain lesser amount of Working Capital. If it is not, they have to maintain large amount of Working Capital.

3. Business cycle: Business fluctuations lead to cyclical and seasonal changes in the business condition and it will affect the requirements of the Working Capital. In the booming conditions, the Working Capital requirement is larger and in the depression condition, requirement of Working Capital will reduce. Better business results lead to increase the Working Capital requirements.

4. Production policy: It is also one of the factors which affects the Working Capital requirement of the business concern. If the company maintains the continues production policy, there is a need of regular Working Capital. If the production policy of the company depends upon the situation or conditions, Working Capital requirement will depend upon the conditions laid down by the company.

Credit policy: Credit policy of sales and purchase also affect the Working Capital requirements of the business concern. If the company maintains liberal credit policy to collect the payments from its customers, they have to maintain more Working Capital. If the company pays the dues on the last date it will create the cash maintenance in hand and bank.

6. Growth and expansion: During the growth and expansion of the business concern, Working Capital requirements are higher, because it needs some additional Working Capital and incurs some extra expenses at the initial stages.

7. Availability of raw materials: Major part of the Working Capital requirements are largely depend on the availability of raw materials. Raw materials are the basic components of the production process. If the raw material is not readily available, it leads to production stoppage. So, the concern must maintain adequate raw material; for that purpose, they have to spend some amount of Working Capital.

8. Earning capacity: If the business concern consists of high level of earning capacity, they can generate more Working Capital, with the help of cash from operation. Earning capacity is also one of the factors which determines the Working Capital requirements of the business concern.

Problem

The board of directors of Aravind mills limited request you to prepare a statement showing the working capital requirements for a level of activity of 30,000 units of output for the year. The cost structure for the company's product for the above mentioned activity level is given below.

	Cost per Unit (Rs.)
Raw materials	20
Direct labour	5
Overheads	15
Total	40
Profit	10
Selling price	50

(a) Past experience indicates that raw materials are held in stock, on an average for 2 months.

(b) Work in progress (100% complete in regard to materials and 50% for labour and overheads) will be half a month's production.

(c) Finished goods are in stock on an average for 1 month.

(d) Credit allowed to suppliers: 1 month.

(e) Credit allowed to debtors: 2 months.

(f) A minimum cash balance of Rs 25,000 is expected to be maintained.

Prepare a statement of working capital requirements.

Solution

Output per annum = 30,000 units

Output per annum = 12% of 30,000 =2,500 units

Raw materials p. m. Rs. 20×2500 = 50,000

Labour p. m. Rs. 5×2,500 = 12,500

Overheads p. m. Rs. 15×2,500 = 37,500

1,00,000

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current assets		
Stock of raw materials (2 months) 50,000 x 2		1,00,000
Work-in-progress (1/2 months)		
Raw materials = 50,000 x ½	25,000	
Labour = 12,500 x ½ x 50/100	3,125	
Overheads = 37,500 x ½ x 50/100	9,375	
		37,500
Stock of finished goods (1 month) 1, 00,000 x 1		1,00,000
Debtors (2 month) 1,00,000 x 2		2,00,000
Cash balance required		25,000
		4,62,500
Less: current liability		
Creditors (1 month) 50,000 x 1		50,000
(Working capital required)		4,12,500

Prepare an estimate of working capital requirement from the following informations of a trading concern.

Projected annual sales Rs. 6,50,000

Percentage of net profit on sales 25%

Average credit period allowed to debtors 10 Weeks

Average credit period allowed by creditors 4 Weeks

Average stock holding in terms of sales requirements 8 Weeks

Allow 20% for contingencies

Solution

Statement of Working Capital Requirements

Current Assets		Rs.
Debtors (10 weeks) (at cost) $\dfrac{5,20,000 \times 10}{52}$		1,00,000
Stock (8 weeks) $\dfrac{5,20,000 \times 8}{52}$		80,000
		1,80,000
Less: Current Liability		
Credits (4 weeks) $\dfrac{5,20,000 \times 4}{52}$		40,000
		1,40,000
Add 20% for contingencies		28,000
(Working Capital Required)		**1,68,000**

Working Notes

Sales=Rs. 6,50,000

Profit 25/125 of Rs. 6,50,000= Rs. 1,30,000

Cost of Sales=Rs. 6,50,000–1,30,000=Rs. 5,20,000

As it is a trading concern, cost of sales is assumed to be the purchases.

RECEIVABLE MANAGEMENT

The term receivable is defined as debt owed to the concern by customers arising from sale of goods or services in the ordinary course of business. Receivables are also one of the major parts of the current assets of the business concerns. It arises only due to credit sales to customers, hence, it is also known as Account Receivables or Bills Receivables. Management of account receivable is defined as the process of making decision resulting to the investment of funds in these assets which will result in maximizing the overall return on the investment of the firm.

The objective of receivable management is to promote sales and profit until that point is reached where the return on investment in further funding receivables is less than the cost of funds raised

to finance that additional credit. The costs associated with the extension of credit and accounts receivables are identified
as follows:

A. Collection Cost
B. Capital Cost
C. Administrative Cost
D. Default Cost.

Collection Cost

This cost incurred in collecting the receivables from the customers to whom credit sales have been made.

Capital Cost

This is the cost on the use of additional capital to support credit sales which alternatively could have been employed elsewhere.

Administrative Cost

This is an additional administrative cost for maintaining account receivable in the form of alaries to the staff kept for maintaining accounting records relating to customers, cost of investigation etc.

Default Cost

Default costs are the over dues that cannot be recovered. Business concern may not be able to recover the over dues because of the inability of the customers.

Factors Considering the Receivable Size

Receivables size of the business concern depends upon various factors. Some of the important factors are as follows:

1.Sales Level

Sales level is one of the important factors which determines the size of receivable of the firm. If the firm wants to increase the sales level, they have to liberalise their credit policy and terms and conditions. When the firms maintain more sales, there will be a possibility of large size of receivable.

2. Credit Policy

Credit policy is the determination of credit standards and analysis. It may vary from firm to firm or even some times product to product in the same industry. Liberal credit policy leads to increase the sales volume and also increases the size of receivable. Stringent credit policy reduces the size of the receivable.

3. Credit Terms

Credit terms specify the repayment terms required of credit receivables, depend upon the credit terms, size of the receivables may increase or decrease. Hence, credit term is one of the factors which affects the size of receivable.

4. Credit Period

It is the time for which trade credit is extended to customer in the case of credit sales. Normally it is expressed in terms of 'Net days'.

5. Cash Discount

Cash discount is the incentive to the customers to make early payment of the due date. A special discount will be provided to the customer for his payment before the due date.

6. Management of Receivable

It is also one of the factors which affects the size of receivable in the firm. When the management
involves systematic approaches to the receivable, the firm can reduce the size of receivable.

V.S.M. Ltd. is engaged in large scale retail business. From the following informations you are required to forecast their working capital requirements.

Projected Annual Sales Rs. 130 lakhs
Percentage of net profit on cost of sales 25%
Average credit period allowed to debtors 8 weeks.
Average credit period allowed by creditors 4 weeks.
Average stock carrying 8 weeks (in terms of sales requirements).
Add : 10% to computed figures to allow for contingencies

Solution

Sales 1,30,00,000
Gross profit 25% of sales 32,50,000
Cost of goods sold 97,50,000

Statement showing working capital

Particulars	Rs.
Current Assets	
(i) Debtors (97,50,000 x $\frac{8}{52}$)	15,00,000
(ii) Stock (97,50,000 x $\frac{8}{52}$)	15,00,000
Total current assets	30,00,000
(−) Current Liabilities	
Creditors (97,50,000 x $\frac{4}{52}$)	7,50,000
Net working capital	22,50,000
Add: Contingencies 10%	2,25,000
Net Working Capital Required	24,75,000

CASH MANAGEMENT

Business concern needs cash to make payments for acquisition of resources and services for the normal conduct of business. Cash is one of the important and key parts of the current assets. Cash is the money which a business concern can disburse immediately without any restriction. The term cash includes coins, currency, cheques held by the business concern and balance in its bank accounts. Management of cash consists of cash inflow and outflows, cash flow within the concern and cash balance held by the concern etc.

Motives for Holding Cash

1. **Transaction motive**

It is a motive for holding cash or near cash to meet routine cash requirements to finance transaction in the normal course of business. Cash is needed to make purchases of raw materials, pay expenses, taxes, dividends etc.

2. **Precautionary motive**

It is the motive for holding cash or near cash as a cushion to meet unexpected contingencies. Cash is needed to meet the unexpected situation like, floods strikes etc.

3. **Speculative motive**

It is the motive for holding cash to quickly take advantage of opportunities typically outside the normal course of business. Certain amount of cash is needed to meet an opportunity to purchase raw materials at a reduced price or make purchase at favorable prices.

4. **Compensating motive**

It is a motive for holding cash to compensate banks for providing certain services or loans. Banks provide variety of services to the business concern, such as clearance of cheque, transfer of funds etc.

Cash Management Techniques

Managing cash flow constitutes two important parts:

A. Speedy Cash Collections.

B. Slowing Disbursements.

Speedy Cash Collections

Business concern must concentrate in the field of Speedy Cash Collections from customers. For that, the concern prepares systematic plan and refined techniques. These techniques aim at, the customer who should be encouraged to pay as quickly as possible and the payment from customer without delay. Speedy Cash Collection business concern applies some of the important techniques as follows:

Prompt Payment by Customers

Business concern should encourage the customer to pay promptly with the help of offering discounts, special offer etc. It helps to reduce the delaying payment of customers and the firm can avoid delays from the customers. The firms may use some of the techniques for prompt payments like billing devices, self address cover with stamp etc.

Early Conversion of Payments into Cash

Business concern should take careful action regarding the quick conversion of the payment into cash. For this purpose, the firms may use some of the techniques like postal float, processing float, bank float and deposit float.

Concentration Banking

It is a collection procedure in which payments are made to regionally dispersed collection centers, and deposited in local banks for quick clearing. It is a system of decentralized billing and multiple collection points.

Lock Box System

It is a collection procedure in which payers send their payment or cheques to a nearby post box that is cleared by the firm's bank. Several times that the bank deposit the cheque in the firms account. Under the lock box system, business concerns hire a post office lock box at important collection centers where the customers remit payments. The local banks are authorized to open the box and pick up the remittances received from the customers. As a result, there is some extra savings in mailing time compared to concentration bank.

Slowing Disbursement

An effective cash management is not only in the part of speedy collection of its cash and receivables but also it should concentrate to slowing their disbursement of cash to the customers or suppliers. Slowing disbursement of cash is not the meaning of delaying the payment or avoiding the payment. Slowing disbursement of cash is possible with the help of the following methods:

1. **Avoiding the early payment of cash**

The firm should pay its payable only on the last day of the payment. If the firm avoids early payment of cash, the firm can retain the cash with it and that can be used for other purpose.

2. **Centralised disbursement system**

Decentralized collection system will provide the speedy cash collections. Hence centralized disbursement of cash system takes time for collection from our accounts as well as we can pay on the date.

Cash Management Models

Cash management models analyse methods which provide certain framework as to how the cash management is conducted in the firm. Cash management models are the development of the theoretical concepts into analytical approaches with the mathematical applications. There are three cash management models which are very popular in the field of finance.

Baumol model

The basic objective of the Baumol model is to determine the minimum cost amount of cash conversion and the lost opportunity cost. It is a model that provides for cost efficient transactional balances and assumes that the demand for cash can be predicated with certainty and determines the optimal conversion size. Total conversion cost per period can be calculated with the help of the following formula:

$$t = \frac{Tb}{C}$$

where,
T = Total transaction cash needs for the period
b = Cost per conversion
C = Value of marketable securities
Opportunity cost can be calculated with the help of the following formula;

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

where,

i = interest rate earned

$C/2$ = Average cash balance

Optimal cash conversion can be calculated with the help of the following formula

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

where,

C = Optimal conversion amount

b = Cost of conversion into cash per lot or transaction

T = Projected cash requirement

i = interest rate earned

\

Miller-Orr model

This model was suggested by Miller Orr. This model is to determine the optimum cash balance level which minimises the cost of management of cash. Miller-Orr Model can be calculated with the help of the following formula;

$$C = \frac{bE\,(N)}{t} + iE\,(M)$$

where,

C = Total cost of cash management

b = fixed cost per conversion

E(M) = expected average daily cash balance

E (N) = expected number of conversion

t = Number of days in the period

i = lost opportunity cost

3. Orgler's model

Orgler model provides for integration of cash management with production and other aspects of the business concern. Multiple linear programming is used to determine the optimal cash management. Orgler's model is formulated, based on the set of objectives of the firm and specifing the set of constrains of the firm.

Problem

A Company expects to have Rs. 37500 cash in hand on 1st April, and requires you to prepare an estimate of cash position during the three months.

April, May and June the following information is supplied to you:

Month	Sales Rs.	Purchases Rs.	Wages Rs.	Factory Expenses Rs.	Office Expenses Rs.	Selling Expenses Rs.
Feb	75,000	45,000	9,000	7,500	6,000	4,500
March	84,000	48,000	9,750	8,250	6,000	4,500
April	90,000	52,500	10,500	9,000	6,000	5,250
May	1,20,000	60,000	13,500	11,250	6,000	6,570
June	1,35,000	60,000	14,250	14,000	7,000	7,000

Other Information:

(i) Period of credit allowed suppliers 2 months.

(ii) 20% of sales for cash and period of credit allowed to customers for credit is one month.

(iii) Delay in payment of all expenses:1 month.

(iv) Income tax of Rs. 57,500 is due to be paid on June 15th.

(v) The company is to pay dividend to shareholders and bonus to workers of Rs. 15,000 and Rs. 22,500 respectively in the month of April.

(vi) A plant has been ordered to be received and paid in May. It will cost Rs. 1,20,000.

Cash Budgets of April, May, June

Particulars	April	May	June
Opening Balance b/d	37,500	10,950	
Sales (i) Cash 20%	18,000	24,000	27,000
(ii) Credit sales	67,200	72,000	96,000
(One month)			
Total Receipts (A)	**1,22,700**	**1,06,950**	**1,23,000**
Payments :			
Purchase	45,000	48,000	52,500
Wages	10,500	13,500	14,250
Factory Expenses	8,250	9,000	11,250
Office Expenses	6,000	6,000	6,000
Selling Expenses	4,500	5,250	6,570
Income Tax	–	–	57,500
Dividend to Shareholders	15,000	–	–
Bonus to workers	22,500	–	–
Plant Cost	–	1,20,000	–
Total Payments (B)	1,11,750	2,01,750	1,48,070
Balance c/d (A-B)	10,950	(–)94,800	(–)25,070
Bank Overdraft	–	(+)94,800	(+)25,070

Assumed that the company has arranged overdraft facility.

INVENTORY MANAGEMENT

Introduction

Inventories constitute the most significant part of current assets of the business concern. It is also essential for smooth running of the business activities.

A proper planning of purchasing of raw material, handling, storing and recording is to be considered as a part of inventory management. Inventory management means, management of raw materials and related items. Inventory management considers what to purchase, how to purchase, how much to purchase, from where to purchase, where to store and when to use for production etc.

Meaning

The dictionary meaning of the inventory is stock of goods or a list of goods. In accounting language, inventory means stock of finished goods. In a manufacturing point of view, inventory includes, raw material, work in process, stores, etc.

Kinds of Inventories

Inventories can be classified into five major categories.

A. Raw Material

It is basic and important part of inventories. These are goods which have not yet been committed to production in a manufacturing business concern.

B. Work in Progress

These include those materials which have been committed to production process but have not yet been completed.

C. Consumables

These are the materials which are needed to smooth running of the manufacturing process.

D. Finished Goods

These are the final output of the production process of the business concern. It is ready for consumers.

E. Spares

It is also a part of inventories, which includes small spares and parts.

Objectives of Inventory Management

Inventory occupy 30–80% of the total current assets of the business concern. It is also very essential part not only in the field of Financial Management but also it is closely associated with production management. Hence, in any working capital decision regarding the inventories, it will affect both financial and production function of the concern. Hence, efficient management of inventories is an essential part of any kind of manufacturing process concern.

The major objectives of the inventory management are as follows:
• To efficient and smooth production process.
• To maintain optimum inventory to maximize the profitability.
• To meet the seasonal demand of the products.
• To avoid price increase in future.
• To ensure the level and site of inventories required.
• To plan when to purchase and where to purchase
• To avoid both over stock and under stock of inventory.

Techniques of Inventory Management

Inventory management consists of effective control and administration of inventories. Inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and at the same time prevent unnecessary investment in inventories. It needs the following important techniques.

Inventory management techniques may be classified into various types:

Stock Level

Stock level is the level of stock which is maintained by the business concern at all times. Therefore, the business concern must maintain optimum level of stock to smooth running of the business process. Different level of stock can be determined based on the volume of the stock.

Minimum Level

The business concern must maintain minimum level of stock at all times. If the stocks are less than the minimum level, then the work will stop due to shortage of material.

Re-order Level

Re-ordering level is fixed between minimum level and maximum level. Re-order level is the level when the business concern makes fresh order at this level. Re-order level=maximum consumption × maximum Re-order period.

Maximum Level

It is the maximum limit of the quantity of inventories, the business concern must maintain. If the quantity exceeds maximum level limit then it will be overstocking.

Maximum level = Re-order level + Re-order quantity
– (Minimum consumption × Minimum delivery period)

Danger Level

It is the level below the minimum level. It leads to stoppage of the production process. Danger level=Average consumption × Maximum re-order period for
emergency purchase

Average Stock Level

It is calculated such as,
Average stock level= Minimum stock level + ½ of re-order quantity

Safety Stock

Safety stock implies extra inventories that can be drawn down when actual lead time and/ or usage rates are greater than expected. Safety stocks are determined by opportunity cost and carrying cost of inventories. If the business concerns maintain low level of safety stock, it will lead to larger opportunity cost and the larger quantity of safety stock involves
higher carrying costs.

Economic Order Quantity (EOQ)

EOQ refers to the level of inventory at which the total cost of inventory comprising ordering cost and carrying cost. Determining an optimum level involves two types of cost such as ordering cost and carrying cost. The EOQ is that inventory level that minimizes the total of ordering of carrying cost.

EOQ can be calculated with the help of the mathematical formula:

$$EOQ = \sqrt{2ab/c}$$

Where,

a = Annual usage of inventories (units)
b = Buying cost per order
c = Carrying cost per unit

Exercise 1

(a) Find out the economic order quantity and the number of orders per year from the following information:

Annual consumption: 36,000 units

Purchase price per units: Rs. 54

Ordering cost per order: Rs. 150

Inventory carrying cost is 20% of the average inventory.

$$\text{Inventory} = \sqrt{\frac{2AO}{C}}$$

$$A = 36,000 \text{ units}$$
$$O = \text{Rs. } 150$$
$$C = 20\% \text{ of } 54 \times 10 \times 8$$
$$\sqrt{2 \times 36,000 \times 150} = 1,000 \text{ units}$$
$$EOQ = 1,000 \text{ units}$$

Exercise 2

From the following information calculate, (1) Re-order level (2) Maximum level (3) Minimum level (4) Average level Normal usage: 100 units per week Maximum usage: 150 units per week Minimum usage: 50 units per week Re-order quantity (EOQ) 500: units Log in time: 5 to 7 weeks

Solution

(1) Re-order Level

= Maximum consumption × Maximum Re-order period

= 150 × 7 = 1050 units

(2) Maximum Level

= Re-order level + Re-order quantity

−(Minimum consumption × Minimum delivery period)

= 1050 + 500 − (50 × 5) = 1300 units

(3) Minimum Level

= Re-order level − (Normal consumption × Normal delivery period)

= 1050 − (100 × 6) = 450 units

(4) Average Level

$$= \frac{\text{Maximum level} + \text{Minimum level}}{2}$$

$$= \frac{1300 + 450}{2} = 875 \text{ units.}$$

VED Analysis

This technique is ideally suited for spare parts in the inventory management like ABC analysis. Inventories are classified into three categories on the basis of usage of the inventories.
V = Vital item of inventories
E = Essential item of inventories
D = Desirable item of inventories

HML Analysis

Under this analysis, inventories are classified into three categories on the basis of the value of the inventories.
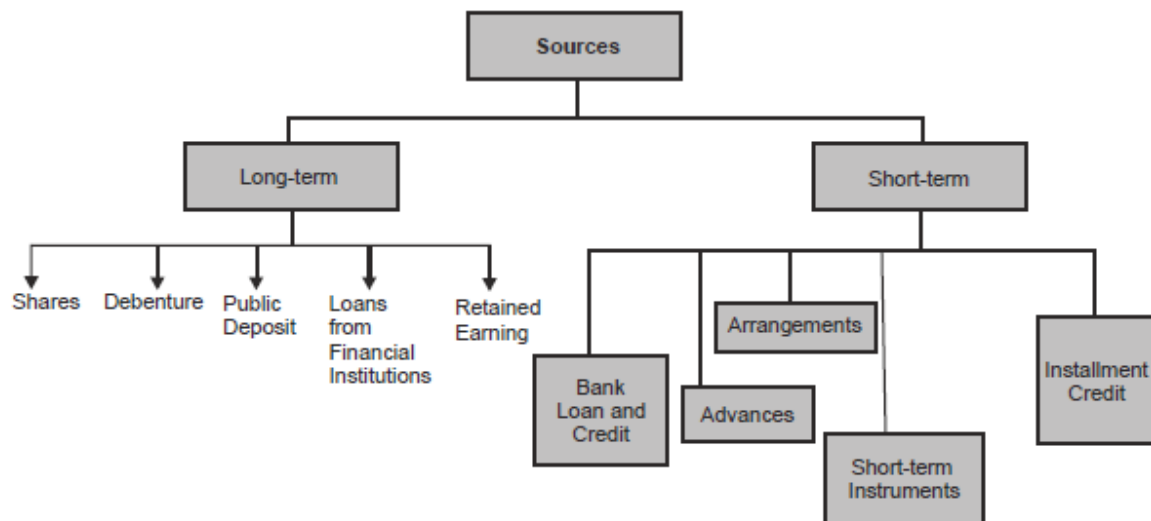H = High value of inventories
M = Medium value of inventories
L = Low value of inventories

WORKING CAPITAL FINANCE

Working Capital requirement can be normalized from short-term and long-term sources. Each source will have both merits and limitations up to certain extract. Uses of Working Capital may be differing from stage to stage.

There are many sources for financing of working capital. There are both external and internal sources. The external sources are both short-term and long-term. Trade credit, commercial banks, finance companies, indigenous bankers, public deposits, advances from customers, accrual accounts, loans and advances from directors and group companies etc., are external short-term

sources. Companies can also issue debentures and invite public deposits for working capital which are external long-term sources. Equity funds may also be used for working capital.

Commercial Paper:

Commercial paper is a short-term unsecured obligation with a maturity ranging from 2 to 270 days, issued by companies to investors with temporarily idle cash. **It can be issued only if the company possesses a very high credit rating.** So, the interest rate is less than that of a bank-loan. Commercial paper is usually sold at a discount with the interest immediately deducted from the face of the note by the creditor and the company pays the full face value upon maturity. But it can also be issued in interest-bearing form. It may be issued through a dealer or directly placed to an institutional investor.

The benefits of commercial paper are that no security is required, the interest rate is typically less than required by banks or finance companies, and the commercial paper dealer often offers financial advice. The drawbacks are that commercial paper can be issued only by large, financially sound companies and that its dealings are impersonal.

Trade credit and terms:

Trade credit is a short-term credit facility extended by suppliers of raw materials and other suppliers in the normal course of business. It is a common and important source of financing. Either open account credit or acceptance credit may be adopted. In the former as per business custom credit is extended to the buyer, the buyer is not signing any debt instrument as such. The invoice is the basic document. In the acceptance credit system, a bill of exchange is drawn on the buyer who accepts and returns the same. The bill of exchange evidences the debt. Trade credit is an informal and readily available credit facility. It is unsecured. It is also flexible in the sense that advance retirement or extension of credit period can be negotiated.

But trade credit may be costlier as the supplier may inflate the price to account for the loss of interest for delayed payments, although this method of credit does not involve explicit interest charge. If the company has liquidity difficulties, it may be able to stretch accounts payable; however the company will be required to give up any cash discount offered and accept a lower credit rating.

Bank Credit

Bank credit is one of the most important sources for financing of current assets. **Various forms of bank credit include cash credit/overdrafts, bills purchased/discounted, short-term loans, letter of credit, straight loans, hypothecation loans, pledge loans, mortgage loans etc.** Even though other institutions such as savings and loan associations and credit unions provide banking

services, most banking activities are conducted by commercial banks. They allow the company to operate with minimal cash and still be confident of planning activities even in uncertain conditions. Commercial banks favor short-term loans since they like to get their money back within one year.

Factoring

Factoring provides resources to finance receivables as well as facilitates the collection of receivables. **Factoring involves the outright sale of receivables at a discount to a factor to obtain funds.** Customers are notified of the arrangement. The factor provides more services than is the case with pledging.

Functions of a Factor:

1. Financing facility/trade debts
2. Maintenance and administration of sales ledger
3. Collection facility(of accounts receivables)
4. Assumption of credit risk ◆ credit control and restriction and
5. Provision of advisory services.