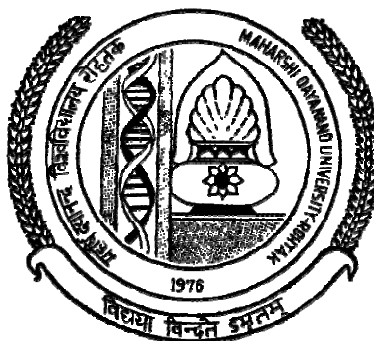


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FINANCIAL MANAGEMENT



DIRECTORATE OF DISTANCE EDUCATION
MAHARSHI DAYANAND UNIVERSITY, ROHTAK
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UNIT -1

Objectives

The objectives of this unit are to

- understand the meaning of financial management, its goal, functions and relationship with other disciplines
- discuss financial planning in terms of meaning, benefits, process and factors affecting it
- explain the concept of time value of money
- to describe concept of cost of capital, cost of various sources of finance and weighted average cost of capital.

Introduction

Role of money and blood is similar in an organization and human body respectively. But money and finance are not same. A currency as long as with a person is money and when he/she lends it to others or invest somewhere it becomes finance. An individual in the capacity to manage three activities in an organization i.e. forecasting money needs, obtaining money and investing money in various productive assets is termed finance manager. That is why finance is called an art and science of managing money. The goal of finance manager is to maximize owners' wealth.

1.1 Approaches to Financial Management

Traditional approach: Under this approach financial management as a discipline focuses primarily on acquiring of funds through different financial sources like equity shares, preference shares debentures and loans.

Modern approach

This approach has widened the scope of financial management by including financing decisions for (raising finance), investment decisions (investment in long term and short term assets) and dividend decisions (how much earning is to be retained in business and how much distributed in the form of dividend).

1.2 Goals of Financial Management

Financial management is concerned with procurement and use of funds. Its basic goal is to use funds in such a manner that the firm's value or income is maximized. There are various alternatives available for investing business funds. Each alternative investment proposal is evaluated minutely before final selection. The basic objective of a firm is to maximize return to the owners. Therefore, the financial manager while taking decisions always keeps forefront economic welfare of owners. There are two basic goals of financial management, namely, Profit maximization and Wealth maximization.

1. Profit Maximization: Earning profit is the prime motive of a firm. Business units always strive for profits for their growth and survival and by doing so, they can serve in the best interest of its

stakeholders. Profit is the favorable difference between revenues and costs over a period of time. If a firm is unable to earn desired profit capital invested is eroded and its survival is challenged. Hence, profit maximization principle of a firm cannot be overlooked. In spite of many criticism it is regarded the basic objective of the firm. But profit maximization principle most of the time is being criticized because of the following reasons :

1. The word profit is having many connotations and does not indicate specific profit. (gross profit, operating profit, net profit, return on assets or capital etc.)
2. This principle ignores the concept of time value of money which is most significant in business decision making.
3. This objective ignores quality of profits/benefits. It does not distinguish between ethical and unethical profits.

2. Wealth maximization:

Wealth maximization refers to maximizing the net wealth of the owners of business. In case of company wealth maximization is possible only when the company pursues such policies and takes such decisions that would increase the market value of its shares. “On account of the above-discussed criticisms/limitations of profit maximization principle, wealth maximization of shareholders is considered an appropriate goal for financial decision making. It is operationally feasible since it satisfies all the three requirements of a suitable operational objective of financial courses of action, namely exactness, quality of benefits and the time value of money. It provides an unambiguous measure of what financial management should seek to maximize in making investment and financing decisions on behalf of the owners. Wealth maximization means maximizing net present value NPV (or wealth) of a course of action to shareholders. NPV can be derived more explicitly by using the following formula

$$W = \frac{cif_1}{(1+r)^1} + \frac{cif_2}{(1+r)^2} + \frac{cif_3}{(1+r)^3} + \frac{cif_n}{(1+r)^n} + \dots - IC_0$$

where W = Net present worth cif_1 , cif_2 , cif_3 cif_n represent the stream of cash inflows (benefits) expected to occur from a course of action that is adopted in period 1 2 3 and n. IC_0 = Initial cash outflow to buy the asset. r = Expected rate of return or appropriate rate of discount. A financial decision that has a positive NPV creates wealth for ordinary shareholders and therefore preferable and vice versa. The wealth will be maximized if this criterion is followed in making financial decisions. From shareholders’ point of view, the wealth created by a corporation through financial decisions or any decision is reflected in the market value of its shares”.

Source: G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page14.

1.3 Finance Functions

Finance function is the key to success of any business. To make the function more effective, a sound organization structure is essential. A sound structure defines who is who, who reports to whom and

functions and responsibilities of each individual. The structure also facilitates allocation of resources to carry out the financial activities. It may be pointed out that finance function cannot be outsourced. “There is no tailor-made structure of finance function. The structure of the organization of financial management vary from firm to firm depending on the factors like the size of the firm, nature of business transactions, type of financing operations, capabilities of financial executives and the philosophy of finance function of the firm. The designation (titles) of financial officer also differs from one organisation to another organisation. The different designations are financial manager, Chief Financial Officer (CFO), Director of Finance, Vice-President Finance and financial controller. He/she reports to the top management (President). The financial Vice President’s key subordinates are the Treasurer and the Controller; who may be appointed under the supervision (Consent) of Vice-President (finance). In big firms, with modern management there may be Vice-President (finance), Director (finance) usually with both Treasurer and Controller reporting to him. He/she exercises his/her functions through his/her two subordinates known as treasurer and controller.

1. Treasurer: The main concern of the treasurer is mainly financing activities and investment activities, including cash management, relationship management with commercial and investment bankers, credit management, portfolio management, inventory management, insurance/risk management, investors relations and dividend disbursement.

2. Controller: On the other hand, the functions of controller are related to the management and control of assets. The main functions include cost accounting, financial accounting, internal audit, financial statement preparation; preparation of budgets, taxation, general ledger (payroll) and data processing.”

Source: G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page17-19.

1.4 Interface of Financial Management with other Disciplines

Financial management has close relationship with economics and accounting. But it is also related with all other functional departments of a firm.

- a) Relationship to Economics:** The roots of finance can be traced from micro and macro economics. **Macro economic** variables create external environment that provides opportunities and threats to the firm and is beyond its control. The understanding of macroeconomic factors like inflation, interest rate, GDP, exchange rate, fiscal policies, monetary policies and their impact on the firm’s operating performance is must for financial manager’s decision making. **Microeconomics** is the firm’s specific internal environment and controllable one. Financial managers use micro-economic theories such as demand and supply relationship, profit maximization, pricing strategies, marginal cost-revenue analysis and opportunity cost analysis for efficient operations of business.
- b) Relationship with Accounting:** Finance and Accounting are the two prime domains of chief finance officer are not separable and generally considered his overlapping activities. Accounting prepares, keep records and reporting data for performance measurement and decision making of the firm whereas financial management is concerned with the maximization of value of the firm based on the analysis of accounting information.

- c) **Relationship with Human Resources:** Human resource management activities commence from recruitment and terminate on retrenchment or retirement. In between come training, development, wage, salary, incentives, promotion/demotion, and provision for other benefits. All these activities cannot be performed without finance.
- d) **Relationship with Production Department:** Production department requires huge investment in fixed assets like equipment and machinery. Hence, production manager and finance manager needs to work closely for efficient and effective capital budgeting decisions.
- e) **Relationship with Marketing:** Two primary activities of the marketing department i.e. selection of distribution channels and promotion policies involves huge expenditure. Therefore finance and marketing managers need to work with co-ordination to maximize value of the firm.

1.5 Types of Financial Decisions

- a) **Investment Decisions :** These are related to investment of funds in fixed/long term assets like land, building, plant, machinery, patent etc (capital budgeting decisions) and short term assets viz. stocks of raw material and finished goods or inventory, receivables(working capital) in the expectation of future benefits in the coming years.
- b) **Financing Decisions:** For investment in project or investment in long term and short term assets firm require funds. Funds can be raised by issuing of equity shares, preference shares, debentures, bonds, long term and short term loans. A finance manager has to select a optimum combination of debt and equity source of finance which maximize the return and minimize the cost. The important thing to decide here is the proportion of various sources of finance in the total fund requirement of the firm.
- c) **Dividend Decisions:** The part of the profit after tax and preference dividend which is distributed among common shareholders by the company is called dividend. It is the reward to equity shareholders for their risky investment in company. A decision regarding whole profits are to be distributed as dividend or retain all these in the business for further expansion/diversification plan or to keep a part of profits in the business and distribute rest among shareholders is called dividend decision.

Inter-relation of Financial Decisions: A finance manager has to take all three i.e. investing, financing and dividend decisions to maximize the wealth of shareholders. All three decisions are complimentary not independent. The relationship of all three financial decisions is mentioned in the following lines:

- The prime goal of all three decisions is wealth maximization of shareholders.
- For an investment proposal, finance manager has to ponder required finance for it (funds available and funds required).
- Dividend decision is effected by financing decision and vice versa. When profits are distributed as dividend, then firm has to raise finance from external sources. But if profits are retained there will be less need of external sources of finance.

From the above discussion it is clear that each financial decision is effected by each other. Therefore, financial managers have to consider the joint impact of all the three decisions and effect of each of the decision on the market value of the firm and its shares.

1.6 Financial planning: Finance manger has to formulate the financial plans. The finance function is primarily concern with the economic procurement and efficient use of funds, which is possible only by a well prepared financial plan. Financial planning is systematic approach to attain economic procurement and utilization of funds. Preparation of the financial plan is the responsibility of financial manager. Financial planning pertains to the function of finance and includes the determination financial objectives, formulating and promulgating financial policy and developing financial procedure.

Objectives of Financial Planning: Financial planning is done to achieve the following two objectives:

1. The main objective of financial planning is that sufficient fund should be available in company for different purposes such as for purchase of long term assets, to meet day-to- day expenses, etc. It ensures timely availability of finance through various long and short term sources of finance.
2. To ensure that firm raises optimum funds at least costs. Excess funding is as bad as shortage of funds. If there is surplus fund it must be invested in the best possible manner as keeping funds idle is a great loss to company.

Benefits of Financial Planning:

1. The financial planning helps to anticipate the accurate and precise requirement of funds. Thus it avoids over-capitalization and under capitalization problem..
2. Financial planning serves as guide to decide debt equity ratio in capital structure.
3. Financial planning guides in allocation of funds for various projects.
4. Financial planning controls the financial activities by comparing with bench mark.
5. All business plans depend upon the soundness of financial planning as it is integral part of the corporate plan.

Process of Financial Planning

1. **Projection of Financial Statements:** Projection of financial statements help to analyze the effects of the operating plan on projected profits and various other plans.
2. **Determinations of Funds Required:** Estimate the needed funds to invest in proposed projects.
3. **Forecast the Availability of Funds:** The required funds may be generated from internal and external sources.
4. **Establish and Maintain Systems of Controls:** Makes sure the basic financial plan is implemented properly.
5. **Develop Procedure:** Procedures should be developed for adjusting the basic plan if the economic forecasts upon which the plan was based do not materialize.

Factors influencing Financial Planning

1. Nature of the industry:

Consideration of nature of the industry is very important in financial planning. Here, nature of industry refers to whether the industry is capital – intensive or labour-intensive. The nature of industry helps to decide the quantum of capital and the sources of procurement. Generally, labour intensive industries require less amount of capital in comparison to the capital intensive industry.

2. Status of Company in Industry:

Status of the company is considered by the investors while investing in equities or debentures. Hence, a financial manager needs to assess his company's status in terms of size, age, goodwill, area of operation and the promoters and management's goodwill, because these affects financial planning. A company, which is having goodwill in the market or public may be able to raise funds easily when compared to firms that are new.

3. Evaluation of Alternative Sources of Finance:

Procurement of needed funds at minimum cost is possible only when there is debt and equity combination. For determination of optimum debt-equity or finance mix, the financial manager needs to evaluate various sources of finance in the light of cost, availability, contractual conditions, limitations etc. before going to formulate the financial planning.

4. Attitude of Management towards Control:

Management's attitude towards control is another factor that should be considered while formulating a financial plan. Any firm or management that is interested in retaining the control, would not like to raise funds by issue of equity shares to the public, if at all they issue, they would purchase a majority of the issues to hold control.

5. Capital Structure:

Construction of capital structure is a part of financial structure. Capital structure should be determined with a combination of debt and equity, but financial manager should try to minimize fixed charge. This is possible only when the firm is able to raise long-term finances by means of equity source.

6. Government Policy: Government policies, financial controls and other statutory provisions should also be taken into consideration while formulation of a firm's financial plan.

1.7 Capitalization

Capitalization of a firm is the layout of its long-term sources of funds. Capitalization means the total value of long term sources of finance of a firm which includes both debt and equity. Sometimes we call it capital structure also. The two theories of Capitalization are

a) Cost Theory: According to this school of thought capitalization is the sum of monetary cost of fixed and long term assets (land and building, plant and machinery etc), the amount of working capital required to operate the business, cost of establishing and promoting company. Cost theory states that if funds raised are sufficient to meet the initial costs and working capital, the company is said to be

adequately capitalized. This theory is significant for new companies as it helps to compute the amount of funds to be raised initially. It cannot be applied to the existing firms because it does not suggest whether the capital invested justifies the earnings or not.

b) Earnings Theory: According to this theory, the true value (capitalization) depends upon the company's earnings. Thus, the capitalization of the company is equal to the capitalized value of its expected profits. To estimate initial capital needs a company has to prepare a projected profit and loss account to estimate of its profit/earnings. After knowing estimated earnings, the financial manager will compare these with the actual earnings of other companies of similar size and business with necessary adjustments. After this, the rate at which other companies in the same industry are earnings on their capital is known. This rate is then applied to the company's estimated earnings for determining its capitalization. For example if a company is capable of making net profit of Rs. 30,000 annually and the rate of earnings is 10%, the capitalization of the company will be 3,00,000 (i.e. $30,000 \times 100/10$).

1.8 Over-Capitalization: A company faces a problem of overcapitalized when the true value of its assets are less than the total capital. Overcapitalization is diagnosed by the earning power of the firm. The signal of overcapitalization is given when the company is earning less than market expectation.

Symptoms of Over-Capitalization

- Earnings of the company fall
- Dividend rates fall
- Fall in the market price of share and investors lose confidence
- Company may go for winding up

Remedies for Over-Capitalization

An over-capitalized company has been rightly compared with a overweight person who is likely to suffer from various diseases unless he takes steps to immediately reduce his weight. Likewise, an over-capitalised company must cut its dead weight before it becomes deep rooted and almost impossible to get rid of. In this regard, various remedial measures are suggested to tackle the problem of overcapitalization such as,

- i) Increasing the efficiency of management
- ii) Reduction of high rate of interest debt.
- iii) Lending institutions are approached for reduction in interest payments
- iv) Internal reconstruction of company initiated through a scheme of capital reduction.
- vi) Negotiation are made to merge overcapitalized company with well managed and profit making companies.

1.9 Under-Capitalization

Under-capitalisation is the reverse phenomenon of over-capitalisation. But under-capitalisation does not mean that the company is having inadequate capital. According to Gersrtenberg, "A company may be

under-capitalised when the rate of profits it is making on the total capital is exceptionally high in relation to the return enjoyed by similarly situated companies in the same industry, or when it has too little capital with which to conduct its business". For example, the capitalisation of a company is Rs. 25 lakhs and the average rate of return of the industry is 10%. But if the company is earning 25% on the capital investment, it is a case of under-capitalisation.

Causes of Under-Capitalisation

- When future earnings are under estimated by promoters at initial stage of formation of company
- Due to change in macro economic variables firm's earnings increased abnormally.
- Total funds requirements are underestimated
- Company maintains a high level of efficiency in its production of goods and services
- When company is conservative in payment of dividends
- When assets are purchased at exceptionally low prices.

Effects of Under-Capitalization

- Competitors are increased/new firm enter in the industry
- Manipulation in the price of share encourages
- More tax burden on company
- Workers demand higher wages
- Consumers under impression that the company charges high prices for its product/service

Remedies: Company should increase its capital by issue of fresh equity shares/bonus shares or increase the par value of shares.

1.10 Time Value of Money

Profit maximization principle is criticized as it ignores the time value of money, magnitude and timings of earnings. A sound financial decision requires bringing cash inflows and outflows together to the same point of time for the purpose of comparison. Comparison of cash inflows and outflows can be meaningful only when these are adjusted for their differences in timing and risk. Firms can maximize wealth only when it is able to recognize the time value of money and risk. So it is imperative to understand the techniques of compounding (future value) and discounting (present value) which is required in almost financial decisions. Concept of time value of money states that money which is received today, is more valuable than money receivable in future. The amount of money that is received early can be further reinvested to earn income in the form of interest. That is why; people prefer to receive money at an earliest. It is also termed as an individual's **time preference for money**. The time preference for money is generally expressed by an interest rate. For example if interest rate is 6% it means that an individual can sacrifice the opportunity of receiving Rs.100 today if he is offered Rs 106 after one year.

Three reasons are responsible for individual's time preference for money:

- **Uncertainty:** Future leads to uncertainty and uncertainty involves risk. When an individual is uncertain about future cash inflows/benefits, obviously he/she would prefer to receive money today instead of future.
- **Current consumption:** It has been observed that majority of people want to spend the present money for buying goods and services to satisfy their current needs.
- **Possibility of investment opportunity:** If an individual receive money today/earlier, he/she reinvest that to earn additional income.

1.11 Techniques of Time Value of Money

1) Compounding Technique: Under compounding technique future value of cash flows is computed by calculating compound interest on the original principal and on interest earned but not withdrawn during investment period. Compound interest is the function of principle, time and interest rate.

a) Compounding Value of a Single Cash Flow: “Compound value or future value of a single cash flow can be calculated by the following formula.

$$CV = Po (1 + I)^n$$

Where,

CV = Compound value, Po = Principal amount, I = Interest per annum, n = Number of years for which compound is done

$(1 + I)^n$ = CVIF I.....n or future value inter factor for interest and 'n' years.”

Source: G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page119-120.

For example Mr X has invested Rs.20,00,000 today with ABC Ltd. for five years, which pay 8 % compound interest. Find the future value of above investment.

Solution: $CV = Po (1 + I)^n$

$$CV_5 = 20,00,000(1+0.08)^5$$

$$= 20,00,000 (1.469)$$

$$CV_5 = \text{Rs. } 29,38,000$$

You can refer the compounding factor (1.469) in Future Value Table of one rupee for 5 years at 8 %.”

Variable Compounding Periods: Compounding of interest may be done once in a year or it may take place for variable periods (like semi-annual, quarterly etc). Following equation is used to compute compound value with variable compound periods:

$$CV_n = Po \left[1 + \frac{I}{M} \right]^{mxn}$$

“CV_n = Compound value at the end of year 'n', Po = Principal amount at the year '0', I = Interest per annum, m = Number of times per year compounding is done n = Maturity period

You have deposited Rs. 40,000 with a company for 10 year at the rate of 6% compound interest and compounding is done half yearly. The compound value of this deposit at the end of 10 years will be:

$$\text{Rs. } 40,000 \left[1 + \frac{0.06}{2}\right]^{2 \times 10} = \text{Rs. } 40,000 [1.86] = \text{Rs. } 72,240$$

Refer compound factor 1.86 of one rupee in Future Value Table for 20 years at 3 % rate of interest

Source: G Sudarshan Reddy, “Financial Management Principles and Practice”2010 page 120.

Calculation of Compound Growth Rate: “Compound growth rate can be calculated with the following formula: Gr: $V_0 (1 + r)^n = V_n$

Where Gr= Growth rate in percentage

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

V₀ = Variable value at the end of year 1

V_n = Variable value (amount) at the end of year 'n'

$$(1 + r)^n = \text{Growth rate}$$

The following information regarding dividend payment from 2001 to 2006 of Rex Ltd are given to calculate compound growth rate of dividend

Year	2001	2002	2003	2004	2005	2006
Dividend per share (Rs.)	21	22	25	26	28	31

Solution: $21(1 + r)^5 = 31$

$$(1 + r)^5 = \frac{31}{21} = 1.476$$

Gr= 8%.

Refer compound/growth rate 8% in Future Value Table for 5 years (total years– one year) till you find closest value to the compound factor 1.476.”

Source: G Sudarshan Reddy, “Financial Management Principles and Practice”2010 page 121.

b) Compound Value of Series of Uneven Cash Flows: Compound value of a series of cash flows can be calculated by the following formula

$$CV_n = P_1(1 + I)^{n-1} + P_2(1 + I)^{n-2} + \dots + P_{n-1}(1 + I) + P_n$$

Where CV_n= Compound value at the end of 'n' year

P₁ = Payment at the end of year 1, P₂ = Payment at the end of year 2

P_n = Payment at the end of year 'n', I = Interest rate

$$CV_n = P_1 (CVIF I.1) + P_2 (CVIF I.2) + \dots + P_n (1+I I.n)$$

Suppose you want to deposit Rs. 5,000, Rs. 10,000, Rs. 15,000, Rs. 20,000 and Rs. 25,000 in your savings bank account in year 1,2,3,4 and 5 respectively. If rate of interest is 6%, the future value of your deposits at the end of 5 years will be”

$$\text{Solution: } CV_n = 5,000(1 + 0.06)^4 + 10,000(1 + 0.06)^3 + 15,000(1 + 0.06)^2 + 20,000(1 + 0.06)^1 + 25,000(1 + 0.06)^0$$

$$CV_5 = 5,000(1.262) + 10,000(1.191) + 15,000(1.124) + 20,000(1.060) + 25,000(1.00)$$

$$= 6,610 + 11,910 + 16,860 + 21,200 + 25,000$$

$$= \text{Rs. } 81,280$$

Source: G Sudarshan Reddy, “Financial Management Principles and Practice”2010 page 121.

c) Compound Value of Annuity (Even Cash Flow)

“Annuity is a series of even cash flows for a specified duration. It involves a regular cash outflow or inflow. For instance like the payment of LIC premium, depositing in a recurring deposit account, and the like. Cash flows may happen either at the end of year or beginning of the year. If cash flows happen at the beginning of the year, it is called as an annuity due, where as when the cash flows happen at the end it is called as a regular or deferred annuity.”

A) Compound Value of Deferred Annuity

For example you are depositing Rs. 500 at the end of every year for 6 years at 6 % interest. The future value of your deposits at the end of 6 years will be:

$$\text{Solution: } CV_n = P_1(1 + I)^{n-1} + P_2(1 + I)^{n-2} + \dots + P_{n-1}(1 + I) + P_n$$

$$CV_6 = 500(1 + 0.06)^5 + 500(1 + 0.06)^4 + 500(1 + 0.06)^3 + 500(1 + 0.06)^2 + 500(1 + 0.06)^1 + 500(1 + 0.06)^0$$

$$= 500(1.338) + 500(1.262) + 500(1.191) + 500(1.124) + 500(1.060) + 500(1.00)$$

$$= 669 + 631 + 595.5 + 562 + 530 + 500$$

$$= \text{Rs. } 3487.5$$

Source: G Sudarshan Reddy, “Financial Management Principles and Practice”2010 page 122.

B) Compound Value of Annuity Due When the cash flows involves at the beginning of the year compound value of annuity is calculated with the following formula:

OR

$$CV_{n1} = P \left[\frac{(1+I)^n - 1}{I} \right] (1+I)$$

$$CV_n = P_1(1+I)^n + P_2(1+I)^{n-1} + \dots + P_n(1+I)^1$$

Suppose you depositing Rs. 2,500 at the beginning of year for 6 years in a saving bank account at 6 % compound interest. The future value of your money at the end of 6 years will be:

Solution: $CV_6 = 2,500 \left[\frac{(1+0.06)^6 - 1}{0.06} \right] (1 + 0.06)$

$$= 2,500 (6.975) (1+0.06)$$

$$= \text{Rs.} 18,483.75$$

Source: G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page 122.

Doubling Period: Doubling period means the time period in which the investment amount will be twice at a given rate of interest. Rules for calculating doubling period

Rule of 72: To get doubling period, 72 is divided by interest rate.

$$\text{Doubling period (DP)} = 72 \div I$$

Where I = Interest rate, (%)

For example in how many years Rs.1500 will be doubled at 10 % rate of interest?

Solution: $DP = 72 \div I = 72 \div 10 = 7.2 \text{ years (approx.)}$

Rule of 69: Rule 69 provide a better accurate doubling period. The formula to calculate doubling period is $DP = 0.35 + 69/I$

Years required Rs.1500 to double at 10 % rate of interest under rule 69

Solution: $0.35 + 69/10 = 7.25 \text{ years}$

II) Discounting Technique: Under discounting technique interest rate is used to discount the future cash flows to find out their present values. The present value of a future cash inflow (or outflow) is the amount of current cash that is of equivalent value to the present value.

a) Present Value of a Single Cash Flow:

Present value can be calculated by the following formula:

$$PV = FV_n \left[\frac{1}{(1+I)^n} \right] \text{ OR } FV_n [PVIF_{I,n}]$$

PV = Present value

FV_n = Future value receivable at the end of 'n' years

I = Interest rate or discounting factor or cost of capital

n = Duration of the cash flow

$PVIF_{I,n}$ = present value interest factors at 'I' interest and for 'n' years

For example the present value of \$ 40,000 receivable after three year at 10% interest rate will be

Solution: $PV = FV_3 \left[\frac{1}{(1+I)} \right]^3$

= \$ 40,000 $[1/1+0.10]^3$

= \$ 40,000 (0.751)

= \$ 30,040

Refer present value factor .751 in PV Table at 3 years for at 10 % rate.

b) Present Value of a Series of Cash Flows: Cash inflow's from the project occurs year after year till its life. These cash inflows may be even or uneven. Separate formulas are used to compute the present value of even and uneven cash inflows

i) Present Value of Uneven Cash Flows

$$PV = \sum_{t=1}^n \frac{CIF_t}{(1+I)^t} \text{ OR } PV = \frac{CIF_1}{(1+I)^1} + \frac{CIF_2}{(1+I)^2} + \dots + \frac{CIF_n}{(1+I)^n}$$

PV = Present value

I = Interest rate or discounting factor or cost of capital

n= Duration of the cash inflows stream

t= Year in which cash inflows are receivable

CIF= Cash inflows

Example

“From the following information, calculate the present value at 10% interest rate.

Year	0	1	2	3	4	5
Cash inflow (Rs.)	2,000	3,000	4,000	5,000	4,500	5,500

Solution: $\frac{2,000}{(1+0.10)^0} + \frac{3,000}{(1+0.10)^1} + \frac{4,000}{(1+0.10)^2} + \frac{5,000}{(1+0.10)^3} + \frac{4,500}{(1+0.10)^4} + \frac{5,500}{(1+0.10)^5}$

= 2,000+ 2,727 + 3,304 + 3,755 + 3,073.5 + 3,415.5

= Rs. 18,275”

Source: G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page 126.

ii) Present Value of Even Cash Flows (Annuity)

$$PVA_n = CIF \left[\frac{(1+I)^n - 1}{I(1+I)^n} \right]$$

PVA = Present value of annuity

I = Interest rate or discounting factor

n = Duration of the annuity

CIF= Cash inflows

Mr. X want to know the present value of \$ 40,000 per annum which he will receive for 6 years. Assume discount is 10 %.

Solution: $PVA_n = CIF_n \left[\frac{(1+I)^n - 1}{I(1+I)^n} \right]$

$$= \$,40000 \times PVIFA_{1,n}$$

$$= \$ 40000 \times 4.355 = \$ 1,74,200$$

Refer Present Value Annuity Table for PVFA 4.355 at 10% for 3 year

Equated Monthly Installment: "A fixed payment amount made by a borrower to a lender at a specified date each calendar month. Equated monthly installments are used to pay off both interest and principal each month, so that over a specified number of years, the loan is fully paid off along with interest."

The formula for EMI (in arrears) $EMI = [P \times R \times (1+R)^N] / [(1+R)^N - 1]$,

Where

P= is the loan amount or principal,

R= is the interest rate per **month** [if the interest rate per annum is 10.5%, then the rate of interest will be $10.5/(12 \times 100) = 0.00875$

N= is the number of monthly installments.

For example, if you borrow Rs.10,000,000 from a bank at 10.5% annual interest for a period of 10 years (i.e., 120 months), then $EMI = 10,000,000 * 0.00875 * (1 + 0.00875)^{120} / ((1 + 0.00875)^{120} - 1) = Rs.134,935$. i.e., you will have to pay Rs. 134,935 for 120 months to repay the entire loan amount. The total amount payable will be $134,935 * 120 = Rs. 16,192,200$ that includes Rs. 6,192,200 as interest toward the loan.

Source: https://en.wikipedia.org/wiki/Equated_monthly_installment

1.12 Cost of Capital

Generally an enterprise arrange finance from owners and creditors. Funds supplied by owners and creditors are called equity and debt respectively and sum of the two termed total capital of business. In other way owners and creditors are supplying funds to business at some cost/expected return. Now the

business has to earn that much profit/return on total capital that it can pay the cost of total capital. Technically cost of capital is the minimum required rate of return needed to justify the use of capital. Cost of capital for a project is the discount rate for calculating the present value of cash flows. It is one type of interest rate (called also as cut-off rate, target rate, hurdle rate and required rate of return) used to discount future cash inflows associated with projects to find out their present values. A firm uses different sources of finance, so firstly the cost of each source of finance is computed separately to find weighted average cost of capital/composite/combined cost of capital.

Cost of Capital Concept: The meaning of cost of capital can be understood from different point of views

- Investors view point: “The measurement of the sacrifice made by the individual for capital formation.”
- Firm's view point: “It is the minimum required rate of return needed to justify the use of capital”.
- Capital Expenditure view point: “The cost of capital is the minimum required rate of return/the cut off rate/hurdle rate/discount rate used to value cash flows”.

Source G Sudarshan Reddy, “Financial Management Principles and Practice” 2010 page 193.

Importance of Cost of Capital

Knowledge of cost of capital is significant for financial decisions. Following paragraphs throw light on the importance of cost of capital:

i) Project/Investment Evaluation: The basic purpose of measuring the cost of capital is its use as a bench mark for evaluating the investment projects. Different discounting techniques of capital budgeting like NPV, IRR and Profitability Index use the cost of capital as discounting rate to evaluate the cost and benefits of investment decisions.

ii) Helpful in Designing Capital Structure: Cost of capital is helpful in formulating a sound and economical capital structure for a firm. By comparing various sources of finance’s specific cost a financial manager select the best and most economical source of finance and succeed in designing a sound and viable capital structure.

iii) A Tool of Financial Performance Appraisal: Cost of capital can be used to evaluate financial performance of management. Financial performance evaluation involves a comparison of actual profitability of the project with the project’s overall cost of capital. .

1.13 Cost of Different Sources of Finance: A company uses different sources of finance like equity shares, preference shares, debentures, long term loans, retained earnings etc. The finance manager has to compute the cost of each source of funds required in the capital formation of a company. Calculation of specific source of finance is discussed below:

A) Cost of Equity: In the balance sheet of a company you find equity capital under the head equity share capital and retained earnings. The cost of equity is same in both the cases as the equity shareholders are fund provider. Retention of earnings involves an opportunity cost. But the company

has to bear the expenses of new issue of equity shares in the name of flotation costs where as there is no such types costs for retained earnings.

i) Cost of Retained Earnings

Retained earnings are that part of net profits that is hold by the firm in the form of reserve and surplus by not distributing as dividends to owners. The opportunity cost of retained earnings is the sacrifice in the form of income by equity shareholders by not investing their share of profit elsewhere. The following formula is applied to compute the cost of retained earning

$$K_{re} = K_e \left(\frac{(1 - T_i)}{(1 - T_b)} \right)$$

Where, K_e = Cost of equity capital [$D \div P$ or $(E/P) + g$]

T_i = Marginal tax rate applicable to the individuals concerned

T_b = Cost of purchase of new securities

D = Expected dividend per share P/NP = Market Price/Net proceeds of equity share

g = Growth rate (%)

For Example “A company paid a dividend of Rs.2 Per share, market price per share is Rs. 20, income tax rate is 60% and brokerage is expected to be 2%. Cost of retained earnings will be”

Solution: $K_{re} = K_e \left(\frac{(1 - T_i)}{(1 - T_b)} \right) \times 100$

$$= \frac{2}{20} \left[\frac{(1 - 0.60)}{(1 - 0.02)} \right] \times 100$$

$$= 0.10 \times 0.408 \times 100 = 4.1 \%$$

Source G Sudarshan Reddy, “ Financial Management Principles and Practice”2010 page 197.

b) The Cost of Issue of Equity Shares (K_e): “The cost of equity capital (K_e) may be defined as the minimum rate of return that a firm must earn on the equity financed portions of an investment project in order to leave unchanged the market price of the shares. The cost of equity is not the out-of-pocket cost of using equity capital as the equity shareholders are not paid dividend at a fixed rate every year.”

(i) Dividend/Price Ratio Method: Common public invest in equity shares in the expectation of dividend and capital appreciation. Under this method cost of equity share is computed on the basis of present value of expected stream of dividend income. The formula is

Cost of Equity Share capital (K_e) = D/P , Where **D**= dividend per share

P = current market price per share. If dividends are expected to grow at a constant growth rate of ‘ g ’ then cost of equity share capital will be $K_e = D/P + g$.

For example the market price of a company's is Rs.300 and it is paying Rs.15 dividend per share. Further it may grow at a rate of 10% per year. The cost of equity capital will be

$$K_e = D/P + g \quad \text{or} \quad \text{Rs.15/Rs.300} + .10 \quad \text{or} = 15\%$$

(ii) Earnings/Price Ratio Method: Under this method two variables earning per share and market price of share are used to compute cost of equity capital. Expected rate of earning is the base for calculation of cost of equity capital whether it is retained or distributed as dividend no matter. Formula for cost of equity capital is $K_e = E/P$

where E = Current earnings per share,

P = Market price per share. If the future earnings per share will grow at a constant growth rate 'g' then cost of equity share capital (K_e) will be

$$K_e = E/P + g.$$

After adjustment of flotation costs (f) formula is further extended i.e.

$$K_e = E / P (1 - f) + g$$

For example Siska Ltd. is planning to issue 200,000 additional new Equity Shares of Rs. 10 each. The estimated floatation cost is 5%. Currently its share is quoted at Rs. 40 and earnings per share are Rs.8 and it may grow 6% per year. Its cost of equity will be: $K_e = E / P (1 - f) + g$

$$K_e = 8/40(1-.05) + .06 \quad \text{or} \quad 0.25 \quad \text{or} \quad 25\%$$

iii) Capital Asset Pricing Model Approach (CAPM) :

William F.Sharpe propounded CAPM approach and suggested the following formula to compute the cost of equity capital considering risk-return relationship

$$K_e = R_f + (R_{mf} - R_f)\beta$$

Where, K_e = Cost of equity capital, R_f = Risk free rate of return (%) β = Beta, market risk coefficient, R_{mf} = Required market return, .

Disha Ltd. provides the following information to compute its cost of equity capital: Risk free rate 8%, Beta equals 1.5 and the return on market portfolio equals 13.5 %.

$$\text{Solution: } K_e = R_f + (R_{mf} - R_f)\beta$$

$$K_e = 8 + (13.5 - 8)1.5 \quad \text{or} \quad 16.25\%$$

B) Cost of Preference Shares: A preference shareholder gets first priority over equity shareholder in payment of dividend and in the payment of capital at the time of winding up of company.

i) Cost of Irredeemable Preference Shares: Preference shares that can be paid only at the winding up of company are called irredeemable preference shares. The cost of these shares is computed by applying the following formula:

K_p (without dividend tax) = D/CMP or NP

K_p (with tax) = $D(1+Dt)/CMP$ or NP

Where, K_p = Cost of preference share

D = Dividend per share

CMP = Current market price per share

NP = Net proceeds

Dt = Tax on preference dividend

ii) Cost of Redeemable Preference Share: These shares are redeemed at end of specified period or their maturity date. The issue and redemption expenses are also considered to find the cost of redeemable preference shares. Formula used to find their cost is:

$$K_p = \frac{D + (f + d + pr - pi)Nm}{(R_v + N_p)/2}$$

where K_p = Cost of preference share N_p = Net proceeds realized f = Flotation cost d = Discount on issue

pr = Premium on redemption pi = Premium on issue

R_v = Redeemable value of preference shares

D = dividend per share

N_m = Maturity period

For example Visa Ltd. planning to issue 200,000, 10% Preference shares of Rs.100 each redeemable after 10 years Expected issue cost is 10% of issue price. Cost of preference share will be

$$K_p = \frac{D + (f + d + pr - pi)/N_m}{(R_v + N_p)/2}$$

$$= \frac{10 + (10 + 0 + 0 - 0)/10}{(100 + 90)/2} \text{ or } = 10 + 1/95 \text{ or } 11.58\%$$

C) Cost of Debt: Borrowed funds are named as debt and includes bonds/debentures and long term loan on the left side of balance sheet of a company. The interest payable on debt is considered as cost of debt capital (K_d). Cost of debt capital is cheaper than the cost of other sources, because interest paid on debt is tax deductible.

i) Cost of Irredeemable Debt

Irredeemable debts are a payable only on the liquidation of company and considered permanent funds. The following formula is used to compute cost of irredeemable debentures, debt or bond.

$$\text{Pre-tax cost} = K_{di} = \frac{I}{P \text{ or } NP}$$

$$\text{Post-tax cost} = K_d = \frac{I(1-t)}{P \text{ or } NP}$$

Where, K_{di} = Pre-tax cost of debentures,

I = Interest,

P = Principle amount or face value

NP = Net sales proceeds, t = Tax rate

For example A company is having 500,000, 12%, Perpetual Debentures of Rs. 100 each. The company falls in 50% tax bracket. The cost of these debentures in both cases will be:

Pre-tax cost

$$K_{di} = \frac{Rs. 12}{100} = 12\%$$

Post-tax cost $K_d = \frac{12(1-0.5)}{100} = 6\%$

ii) Cost of Redeemable Debt The amount of these debentures are payable by company on the expiry/maturity period for which these were issued

$$K_d = \frac{I(1-t) + (f + d + pr - pi) / N_m}{(R_v + N_p) / 2}$$

where K_d = Cost of debenture

I = Interest amount

t = Tax rate

f = Flotation cost

d = Discount on issue

pr = Premium on redemption

pi = Premium on issue

N_p = Net proceeds realized

R_v = Redeemable value of preference shares

N_m = Maturity period

For example Bharat Ltd. wants to issue 15% Debentures at par value of Rs. 100 to raise Rs. 80 lakh for its expansion. The interest is payable annually and the debentures are redeemable at a premium of 2% after 7 years. The cost of issue is 3% and tax rate is 35%. Cost of debenture will be

$$K_d = \frac{I(1-t) + (f + d + pr - pi) / N_m}{(R_v + N_p) / 2} = \frac{15(1 - 0.35) + (3 + 0 + 2 - 0) / 7}{(102 + 97) / 2}$$

$$= \frac{9.75 + .72}{99.50} = 10.47 / 99.50 \text{ or } 10.52\%$$

1.14 Weighted Average Cost of Capital (WACC)

A company to meet its financial requirement raises funds from various sources as discussed in previous paragraphs. The overall/composite cost of all sources of funds is called average cost of capital. When specific cost of each source of fund is combined according to their market value weight or book value weight it is called weighted average cost of capital.

Steps involved in computation in WACC

1. Determine the sources of funds to be raised and their individual proportion/share in the total capital of the firm

2. Compute the of cost of each specific source of funds
3. Assign the weight to various sources of funds according to their book value or market value.
- 4 .Multiply the cost of each source by their respective assigned weight
5. Find the sum of each specific source's cost computed under step 4 to get weighted cost of capital.

Assignment of Weights: The weights to specific funds may be assigned based on the following:

1. **Book values:** The percentage of each source of fund in the total capital of a firm reflected in the balance sheet is called book value weights.

2. **Market value weights:** Under this method, weights are assigned to each source of finance on the basis of their market value. The percentage of market value of each source of fund in the total market capitalization of a firm is called market value weight.

For example Siksha Ltd. has provided following information based on its latest balance sheet to find weighted average cost of capital:

Source of finance	Book Value in Rupees (00,000)	After Tax Cost %
Equity Share Capital	40	11.5
Preference Share Capital	20	8.5
Long term Loans	60	4.0
Retained earnings	80	10.0
Total	200	

Solution:

Computation of weighted average cost of capital based on book value

Source of Finance	Weights	Specific Cost (%)	Weighted Cost
Equity	0.20	11.5	2.3
Preference share	0.10	8.5	.85
Debt	0.30	4.0	1.2
Retained earnings	0.40	10.0	4.0
	1.00		8.35

Self Assessment Questions

1. Discuss the goals of financial management.
2. Distinguish between profit maximization and wealth maximization principle.
3. Explain the approaches to financial management.
4. How investment, financial and dividend decisions are interrelated?
5. What is time value of money? Distinguish compounding and discounting techniques of time value of money.
6. Define cost of capital and discuss the formulae to compute cost of equity, preference shares and bonds.
7. What is financial planning and discuss its significance.
8. Write down the symptoms, causes and remedies of over capitalization and undercapitalization.

Suggested Book Readings:

1. Financial Management:- By M Y Khan and P K Jain, Tata McGraw Hill Education Private Limited.
2. Financial Management:- By I M Pandey, Vikas Publishing House PVT. LTD.
3. Financial Management:- By G Sudarsana Reddy, Himalya Publishing House.
4. Financial Management:- By Shashi K Gupta and R K Sharma, Kalyani Publishers

Unit - 2

Objectives

The objectives of this unit are to

- understand the concept of leverage in finance and its types
- cognizant with capital structure, optimal capital structure, factors affecting capital structure and capital structure theories.
- commiserate with dividend policy and dividend theories

Introduction

The word 'Leverage' is a scientific term generally used in physics which means providing extra force/power to lift heavy weight with the help of lever. In other words if leverage force is not applied the accomplishment of certain purpose will be difficult. Concept of leverage is applicable in economic theory also. In finance discipline, the word leverage describes using borrowed funds and other assets by a company to create value for owners. In finance theory two types of leverage are used to increase the value of firm. First one is operating leverage which is concerned with the use of fixed cost assets and second one is financial leverage which occurs when the firm uses of fixed cost source of fund like debentures or bonds. The funds may be raised in the form of equity and debt. Finance manager has to show rationality while deciding the composition of debt and equity capital. Although total earnings of firm have no relationship with capital structure but earning per share is significantly affected by capital structure decisions. Fixed cost debt is used by a firm to increase earnings for common shareholders. Further, finance managers calculate composite leverage by combining both leverages to determine combined effect on earnings of the firm.

2.1 Financial Leverage/Trading on Equity

Financial Leverage: The capacity of a firm to use debt capital to increase earnings per share is called financial leverage. The coefficient of financial leverage measures the effect of a change in operating income on change in earning on equity share. It is computed by the following formulae

Degree of financial Leverage= $\frac{EBIT}{EBT}$ or $\frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}}$

Application of Financial Leverage: Knowledge of financial leverage is helpful to take the following decisions by financial manager:

- Planning of Capital Structure:** A finance manager apply the knowledge of financial leverage to analyze effects of debt on average cost of capital and financial risk while designing the capital structure of the firm i.e. proportion of debt and equity capital.
- Profit Planning:** Financial leverage has a strong bearing on EPS. In the time when the firm's profitability curve is shooting up then use of cheaper debt will enhance the availability of profits for owners. Finance executives use break-even analysis to understand financial leverage and profit planning.

2.2. Operating Leverage: Operating leverage is firm's capacity to use operating costs to increase the effects of changes in sales on its operating profit. When a firm incurs fixed costs in the production of goods/services operating leverage occurs. Higher proportion of fixed cost in total cost leads to higher degree of operating leverage and it invites more business risk. Formulas used to compute degree of operating leverage

a) When data is given for one year only

$$\text{Operating Leverage} = \text{Contribution} \div \text{EBIT (operating profit)}$$

b) When data is given for more than one year and comparison is possible

$$\text{Degree of Operating Leverage} = \text{Percentage change in EBIT} \div \text{Percentage in Sales}$$

Application of Operating Leverage: Business risk of a company is affected by operating leverage. A finance manager uses operating leverage to assess the business risk. When a firm has more share of fixed cost in its total costs of production, the percentage change in profits is more than the percentage change in sales, when sales volume rises high operating leverage is good. Opposite when the sales volume declines, the negative percentage change in profits is larger than the decline in sales then high operating leverage amplifies losses and causes large business risk for a company. Operating leverage serves as a tool to know future profitability of the firm and the level of risk.

2.3. Composite Leverage

The sum of both financial and operating leverage is named as combined/composite leverage. Composite leverage indicates the effect of both fixed costs and fixed financial charges (total risk) on the entire income of the firm. Further high degree of one leverage may be offset against low degree of other leverage and vice-versa.

$$\text{Degree of Composite Leverage} = \% \text{ change in EPS} \div \% \text{ change in Sales}$$

$$\text{Or, Degree of Composite Leverage} = \text{Operating Leverage} \times \text{Financial Leverage}$$

Example: Visaka Ltd. made sales of Rs 80 lakhs with variable costs of Rs. 56 lakhs and fixed cost 16 lakhs. The company issued 10% debentures of Rs 40 lakhs for technology upgradation. Compute all three leverages from above information

Particulars	Rs. (000)
Sales	80,00
Less: Variable Cost	<u>56,00</u>
Contribution	2400
Less: Fixed Cost	<u>1600</u>
EBIT	800
Less: Interest	<u>400</u>
EBT	400

SOLUTION:

$$\begin{aligned} \text{i) Operating Leverage} &= \text{Contribution} \div \text{EBIT} \\ &= 2400/800 = 3 \end{aligned}$$

Interpretation: Operating leverage of 3 indicates that 1% change in sales is likely to result in 3% of change in earnings before interest and tax.

$$\text{ii) Financial Leverage} = \text{EBIT} \div \text{EBT} = 800/400 = 2$$

Interpretation: The financial leverage of 2 indicates that 1% change in EBIT is likely to cause a change of 2% in the net income of the company.

$$\begin{aligned} \text{iii) Combined Leverage} &= \text{Operating leverage} \times \text{Financial leverage} \\ &= 3 \times 2 = 6 \end{aligned}$$

Interpretation: Combined leverage of 6 indicates that 1% change in sales is likely to result in 6% change in net income of the company.

2.4 Capital Structure: Capital structure is that part of financial structure of a company which represents all long-term sources of finance equity shares, preference shares, debentures/ bonds and reserves except all short-term credit. Financial structure includes both long-term as well as short-term sourced of funds by which assets of company are financed. Hence, capital structure is only a part of financial structure of a firm. In simple words capital structure refers to the composition of capitalization i.e. proportion between debt and equity.

Financial Break Even Point (FBEP): It is the point where EBIT and total financial charges (interest and preference dividend) are equal. At this point the earnings per share is zero. FBEP is a financial tool in the hands of manager to design optimal capital structure of a firm. If EBIT is less than FBEP, then EPS will be negative and it gives a signal to reduce debt and preference share capital of the firm. When EBIT is more than FBEP debt and preference share capital may be included in the capital structure.

Point of Indifference: It is that level of EBIT at which EPS remain unchanged irrespective of change in debt-equity mix. The return on capital employed and cost of debt are same at this level of EBIT. It works as breakeven level of EBIT for alternative financial plans. The following equation is used to compute point of indifference:

$$\frac{(X - I_1)(1 - t) - PD}{S_1} = \frac{(X - I_2)(1 - t) - PD}{S_2}$$

Where, X = Equivalency Point or Point of Indifference or Break Even EBIT Level.

I_1 = Interest under alternative financial plan 1.

I_2 = Interest under alternative financial plan 2.

t = Tax Rate

PD = Preference Dividend

S_1 = Number of equity shares or amount of equity share capital under alternative 1.

S_2 = Number of equity shares or amount of equity share capital under alternative 2.

2.5 Optimal Capital Structure: The value of firm is more or less influenced by the capital structure decision i.e. through the cost of capital and financial leverage. The optimum capital structure of a company may be defined that proportion of debt and equity which maximize its value. In layman language Optimal capital structure is the one which minimize its cost and maximize the value of firm/wealth of owners. Thus, finance managers of every firm try to obtain optimal level of capital structure and maintain it. The following points are adhered to try optimal capital structure level:

- i) The firm can use more debt capital if it is cheaper or cost of debts is less than return on capital employed to enhance EPS and market value of firm.
- ii) To take advantage of tax leverage a firm can use borrowed funds as interest is allowed as a deductible expense.
- iii) **Equity shareholders may perceive** financial risk by using more debt capital and that leads to fall in the market price of shares.
- iv) The capital structure should be flexible.

Features of an Ideal Capital Structure

1. **Profitability:** The most profitable capital structure is one that should generate maximum returns to owners without adding additional costs. In other words it should minimize cost of financing and maximize EPS.
2. **Flexibility:** Capital structure must not be rigid rather it ought to be flexible. Changes can be made in the components of capital structure as the situation demands
3. **Conservation:** Conservative capital structure means debt component in the capital structure should not exceed the limit of debt capacity.
4. **Solvency:** Solvency of the firms at risk when excessive debts are raised particularly in down turn of economy. Ratio of borrowed and equity funds be such that firm's solvency is maintained.
5. **Control:** Design of capital structure must not hamper the controlling power of common shareholders.

2.6 Factors Determining Capital Structure

Caring the objective of wealth maximization trade-off among different factors is required to design capital structure of a firm. The following factors are considered while designing optimal capital structure of a company:

1. **Financial leverage:** Inclusion of debt and preference share capital to enhance earnings for owners should done with caution . Financial leverage never be allowed to operate adversely.

2. Growth and Stability of Sales: If the sales curve of a firm indicates stability or growing it can raise more debts because it will not be difficult to such firm to pay interest and repayment of debts. Opposite if the sales curve of a firm is fluctuating or declining, it should avoid debt in its capital structure.

3. Cost of Capital: Overall cost of various sources of funds is called cost of capital. While mulling an idea to form optimal capital structure, every effort be made to minimize overall cost of capital.

4. Risk: The exercise of forming capital structure require assessment business risk and financial risk . A firm should follow balancing approach between the financial risk (arise by debt) and the risk of (non-employment of debt capital) to increase its market value.

5. Cash Flow Ability to Service Debt: A firm can raise more debt in its capital structure if it generates huge and constant cash inflows by its operations in contrast to that has unstable and lesser capacity to generate cash inflows.

6. Nature and Size of a Firm: Nature means firm is public utility or others and size refers small, medium or large. Public utility firms have more borrowed funds in their total capital because of stable, constant cash inflows/earnings contrast to others with fluctuating earnings/cash inflows rely mainly on equity capital. Small companies mainly depend upon equity finance comparing to large which have ways to raise debt on soft terms.

7. Control: Raising new equity capital dilutes the control of the existing shareholders. Debt financing is better option not to disturb the controlling power of common shareholders.

8. Economic Cycles: Economic cycles have strong impact on capital structure at a given point of time. In a depressed and pessimistic cycle debt financing is only the choice for company whereas in boom period, better response comes from equity investors.

9. Corporate Tax Rate: Employing more debt capital is better option when corporate taxes are levied at high rate, as interest is allowed as deductible expense and cost of raising debt is deductible in the year in which it is incurred.

2.7 Theories of Capital Structure

Financial wizards propounded principles and approaches on the basis of their research the effect of cost of capital on the value of the firm. Durand, Ezra, Solomon, Modigliani and Miller are chiefly propounders theories of capital structure. These are clubbed in the following four groups

1. Net Income Approach (Relevant)
2. Net Operating Income Approach. (Irrelevant)
3. The Traditional Approach (Neutral)
4. Modigliani and Miller Approach (Irrelevant)

1. Net Income Approach. According to this perspective by employing more debt funds, cost of capital decreases and value of firm increases. In support of above statement it assumptions are:

- (i) The cost of equity is more than the cost borrowed funds and cost of debt and equity remains constant.

ii) Non existence of corporate taxes.

(ii) By employing debt, equity investor's perception regarding financial risk unchanged.

The following figure reflects the effect of leverage on cost of capital as per Net Income approach:

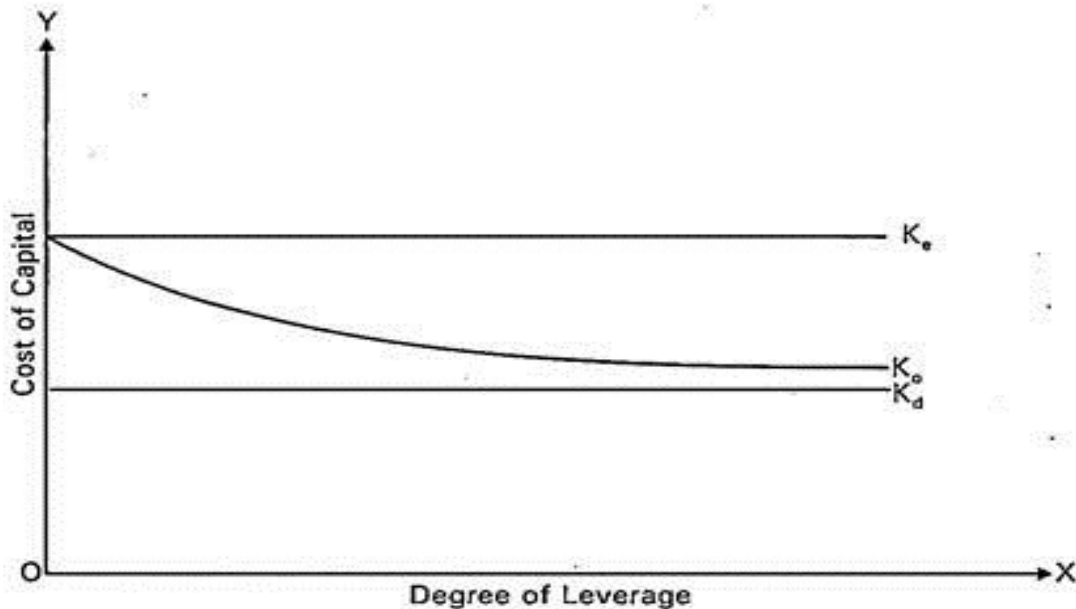


Fig. The effect of leverage on the cost of capital under NI Approach.

The following equation is used to derive market value of firm as per NI approach

$V = S + D$ Where, V stands for total market value of a firm, S stands for market value of equity capital and D stands for market value of debt

Suppose a company has expected EBIT of Rs.100,000. Cost of equity capital is 8% and it has Rs. 6% debentures of Rs.5,00,000. The value of firm as per NI theory is computed as:

$$\text{EBIT} = 1,00,000$$

$$\text{Interest on debentures or cost of debentures} = (5,00,000 \times 0.6) = 30,000$$

$$\text{Residue Income of equity shareholders, EBIT minus Interest} = \text{Rs } 70,000$$

$$\text{Market value of equity (Rs. } 70,000 / .08) = 8,75,000$$

$$\text{Market value of debentures (Rs. } 30,000 / .06) = 5,00,000$$

$$V = S + D \quad 13,75,000 = 8,75,000 + 5,00,000$$

$$\text{Overall cost of capital } K_o = \text{EBIT} / V = 100,000 / 13,75,000 = 0.072 = 7.2\%$$

2. Net Operating Income Approach. This approach is just opposite to the net income approach. It states that cost of capital and market value of firm remain unchanged irrespective of change in debt equity ratio in the capital structure of a firm. It rejects the idea of optimal capital structure. Assumptions of this approach are:

- (i) The value of the firm as a whole is maximize by the market.
- (ii) Cost of debt and overall cost of capital remain constant.
- (iii) Market value of equity is residue and there are no corporate tax exists.
- iv) The use of debt increase the risk perception of equity investors, thereby cost of equity increases
- v) The whole cheap debt advantage is offset by the increased cost of equity.

The following figure reflects the effect of leverage on the overall cost of capital as per NOI theory:

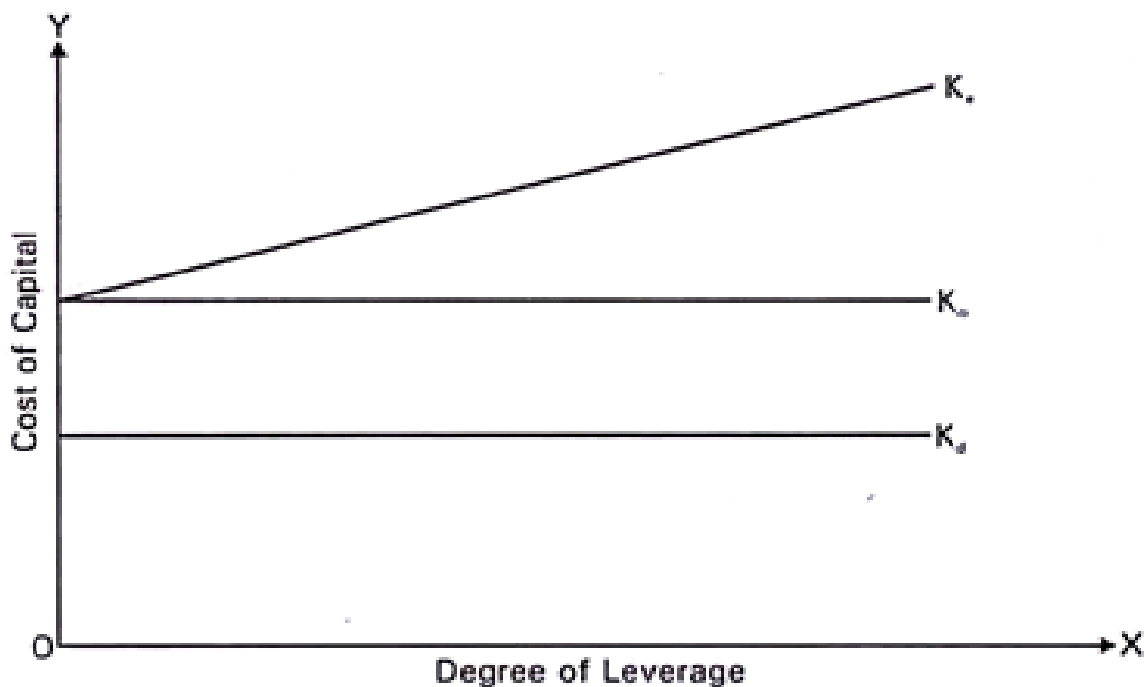


Fig. The effect of leverage on the cost of capital under NOI Approach.

The value of a firm according to NOI theory is computed as:

$$V = \frac{EBIT}{K_O} \quad \text{Where, } V \text{ stands for value of firm, EBIT stands for net operating income, } K_O \text{ stands for overall cost of capital}$$

The market value of equity, which is residue is derived by deducting the market value of debt from the total market value of the firm.

$$\text{Cost of equity } (K_e) = \frac{\text{Earnings after Interest and Before Tax}}{\text{Market Value Of Firm} - \text{Market Value of Debt}}$$

Example: A company expects EBIT of ₹1,00,000. It has borrowed ₹5,00,000, at 6% interest. Its overall cost of capital is 10%. The value of the firm and cost of equity as per NOI theory is computed as

EBIT = 1,00,000

Overall cost of capital = 10%

Market Value of the firm (V) = EBIT/overall cost of capital

= 1,00,000 /10% = ₹10,00,000

Total Market Value of Equity = Market Value of firm **minus** Market Value of Debentures

=10,00,000-500,000=Rs 5,00,000

$$\text{Equity capitalization } (K_e) = \frac{\text{Earnings after Interest and Before Tax}}{\text{Market Value Of Firm} - \text{Market Value of Debt}}$$

=70000/500000=.14 or 14%

3. The Traditional Approach. According to this theory initial use of cheap debt increases the value of the firm and decreases the cost of capital but beyond a certain level of employing debt the cost of equity increases by perceived financial risk of common shareholders. Thus the advantage of cheaper debt at this level of capital structure is offset by increased cost of equity. After this there comes a stage, when the increased cost of equity cannot be offset by the advantage of low-cost debt consequently, cost of capital rise and value of firm comes down. The traditional approach of capital structure is reflected by the following figure:

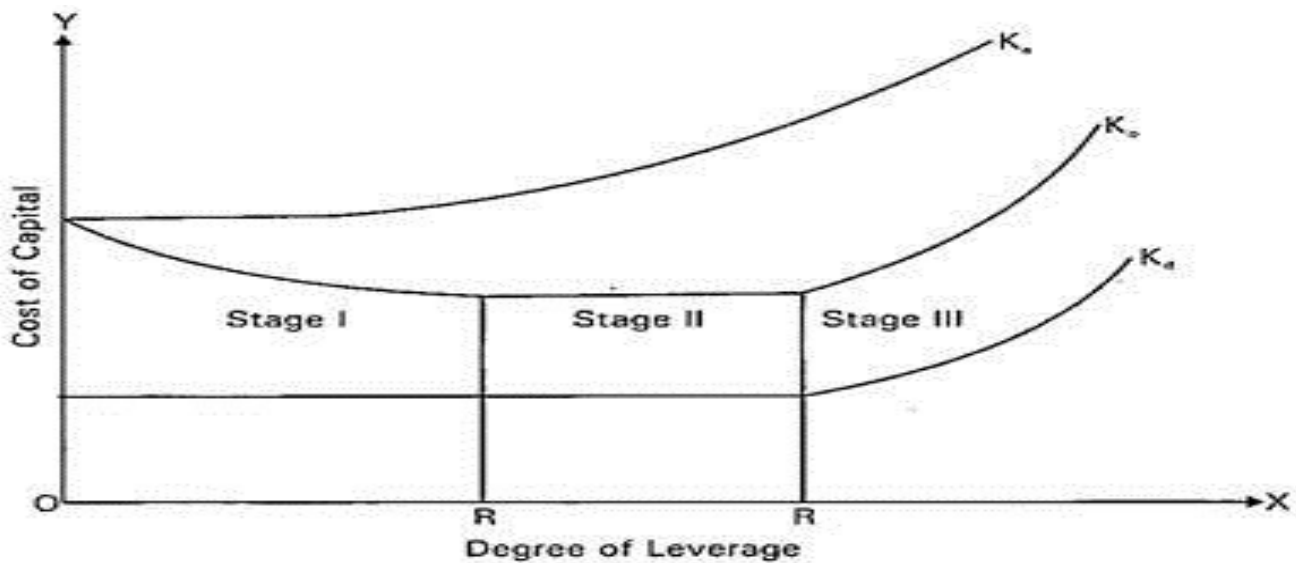


Fig. Traditional Approach.

Example: A company's (EBIT) is ₹8,00,000. It has ₹20 lakhs of 10% debt outstanding. Its cost of equity is 15%. The company is considering increasing its debt by raising additionally ₹10 lakhs and

utilizing these funds to retire the amount of equity. However, due to increased financial risk, the cost of entire debt is likely to increase 12% and the cost of equity 18%. Calculate the market value of the company using traditional model.

Computation of Market Value of the Company

	Present ₹20 lakhs Debt @ 10%	Proposed ₹30 lakhs Debt @12%
Net Operating Income (EBIT)	8,00,000	8,00,000
Less: Interest on Debt	<u>2,00,000</u>	<u>3,60,000</u>
Earnings available to equity shareholders	<u>6,00,000</u>	<u>4,40,000</u>
Equity capitalization rate	15%	18%
Market Value of Shares (Earnings/Cost of Equity)	40,00,000	24,44,444
Market Value of Debt	<u>20,00,000</u>	<u>30,00,000</u>
Market Value of Firm	₹60,00,000	₹54,44,444

4. Modigliani and Miller Approach. M&M hypothesis is identical with the Net Operating Income approach if taxes are ignored. However, when corporate taxes are assumed to exist, their hypothesis is similar to the Net Income Approach.

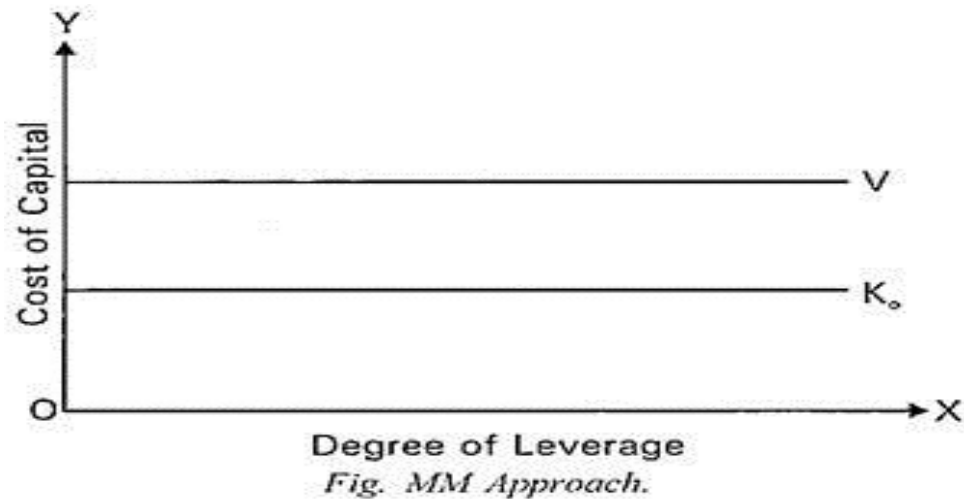
(a) **In the Absence of Taxes. (Theory of Irrelevance)** “The theory proves that the cost of capital is not affected by changes in the capital structure or says that the debt-equity mix is irrelevant in the determination of the total value of a firm. The reason argued is that though debt is cheaper to equity, with increased use of debt as a source of finance, the cost of equity increases. This increase in cost of equity offsets the advantage of the low cost of debt. Thus, although the financial leverage affects the cost of equity, the overall cost of capital remains constant. The theory emphasizes the fact that a firm's operating income is a determinant of its total value. The theory further propounds that beyond a certain limit of debt, the cost of debt increases (due to increased financial risk) but the cost of equity falls thereby again balancing the two costs. In the opinion of Modigliani & Miller, two identical firms in all respects except their capital structure cannot have different market values or cost of capital because of arbitrage process. In case two identical firms except for their capital structure have different market values or cost of capital, arbitrage will take place and the investors will engage in ‘personal leverage’ (i.e. they will buy equity of the other company in preference to the company having lesser value) as against the ‘corporate leverage’; and this will again render the two firms to have the same total value.”

The M&M approach is based upon the following assumptions:

- (i) Absence of corporate tax, transaction cost.
- (ii) Presence of perfect market and investors are rational and free to buy or sell securities.
- (iii) Hundred percent dividend pay out
- (iv) Investors can borrow on the same terms on which a firm can borrow without restrictions.

(v) EBIT is not affected by the use of debt

MM approach in the absence of taxes, i.e the theory of irrelevance of financing mix has been presented in the following figure.



Source: <http://www.shareyouressays.com/4-important-theories-of-capital-structure-explained>

Example: The following information is available regarding S Ltd. company:

It is an all equity firm but it can borrow at 10% constantly any amount. Funds raised by borrowings will be used to retire equity capital. Expected EBIT = 30 lakhs. Its equity capitalization rate is 14 %. Company borrows Rs. 2 crores. Using MM Model without corporate taxes:

- a) Compute firm's total market value and market value of equity;
- b) Compute firm's leverage cost of equity.

Solution

(a) Firm's Total Market Value:

$$V = \text{EBIT} / k_e = 30,00,000 / .14 = \text{Rs } 21,428,571$$

(b) Firm's Market Value of Equity:

$$S = V - D = 21,428,571 - 200,00,000 = \text{Rs. } 14,28,571$$

(c) Firm's Leverage Cost of Equity :

$$\begin{aligned} &= \text{Cost of Equity} + (\text{Cost of Equity} - \text{Cost of Debt}) \\ &= 14\% + (14\% - 10\%) \\ &= 18\% \end{aligned}$$

Source <http://sdeuoc.ac.in/Financial%20Management.pdf>

(b) When Corporate Taxes exists (Theory of Relevance): The second version of M M approach recognize the concept of optimal capital structure and states that employment of debt will create value for the firm and reduce the cost of capital as interest on debt is allowable expenses for corporate tax purpose. Value of debt employing firm would exceed that of the non debt employing firm by an amount equal to an amount of debt (debt employing firm) multiplied by the tax rate. Formulas for computing firm's value as per this approach are:

$$\text{Value of non employing debt (unlevered Firm) } V_U = \frac{EBIT}{K_0}(1 - t)$$

$$\text{Value of debt employing firm (levered Firm): } V_L = V_U + Dt$$

t= Tax rate

D = Debt of levered firm

Example: L and U firms are identical but U does not use any debt, while L has Rs. 1,00,000 5% Debentures in its balance sheet. Both firms have an EBIT of Rs.50,000 and their equity capitalization rate is 10%. Corporate tax rate is 50%. Calculate the value of the firms using M & M approach.

Solution: The market value of firm U (unlevered firm) which does not use any debt

$$V = EBIT \div K_0(1-t) = 50,000 / .10 \times (1-.50) = \text{Rs.}250,000$$

The market value of Firm L(levered) which has debentures of Rs. 1,00,000

$$V_L = V_U + D_T$$

$$= 250,000 + 0.5 \times 1,00,000$$

$$= 250,000 + 50,000 = \text{Rs.} 300,000.$$

Arbitrage Process under MM Approach: In above example the market value levered firm is higher than the market value of unlevered. As per M & M theory, this situation will change because of the arbitrage process. The investors of 'L' earning high rate of return will sell their shares and invest the same in company 'U'. Further, 'U' does not use any debt, perceived financial risk will be less, investors will borrow additional funds equivalent to their proportionate share in firm 'L's debt at the same rate of interest and invest the borrowed funds also in company 'U'. The arbitrage process will continue till the prices of shares of company 'L' falls and that of company 'U' rise so as to make the market value of the two firms same. Investors who switch their holdings from 'L' to 'U' benefited by arbitrage process.

2.8 Dividend Decisions

Dividend is that part of net profits which is divided among common shareholders of company. Dividend is one type of reward to the equity shareholders for risky investments. On one hand ordinary shareholders want maximum part of profits in the form of dividend but on the other hand, firm requires these profits for growth and expansion. If a company pays out its maximum profits as dividend, then for further financial requirements it has to depend on external resources of finance such raising new debts/equity shares etc. The firm's decision to pay all profits as dividends or not to pay at all or some portion

of profit be retained in the business and leftover be distributed as dividends are covered under dividend decisions. Dividend policy of a firm decides what proportion of total net earnings be retained/plough back in the firm and what proportion be distributed as dividend to the equity shareholders. Dividend decision affects the value of the firm. Payment of dividends depends on firm's investment and financing decision.

Dividend Decisions and Valuation of Firms: The impacts of dividend decisions on the value of firm have drawn the attention of researchers in the past. On the basis of results of their research two conflicting views were formed namely, dividend payment affects the value of firm, dividend payout have no impact on the value of firm. We will discuss above views under the head, the relevance and irrelevance theory of dividend.

1. Relevance Theory of Dividend: The advocates of this theory (Myron Gordon, Jone Linter, James Walter and Richardson) hold that the value of the firm is affected considerably by its dividend policy. Accordingly high payment of dividend increases the value of firm while low dividend payment decreases firm's value. Two prime relevancy theories of dividend propounded by Walter and Gordon are explained below:

(i) Walter Approach: Prof. Walter's model support the view that dividend decisions/policy of a company affects its value. "The model is based on the relationship of 'r' internal rate of return/return on investment and 'k' cost of capital/required rate of return. According to Walter, If $r > k$ the firm should retain the entire earnings. Such firms are termed as growth firms and the optimum pay-out would be zero in their case. This would maximize the value of shares/firm. Where $r < k$ the firm would distribute its earnings. Such firms are termed as decline firm/ having no opportunity for profitable investment. The firms should distribute the entire earnings as dividend. In case of normal firms where $r = k$. For such firms, there is no optimum dividend payout and the value of the firm would not change with the change in dividend rate".

Assumption of Walter's Model

- i) Retained earnings are the only source for investments. No use external sources of funds.
- ii) The internal rate of return (r) and the cost of capital (k) of the firm are constant
- iii) Beginning earnings and dividends never change while determining the value.
- iv) The firm has perpetual life.

Walter's equation to derive market price of a share:

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

Where,

P = Market price per share

D = Dividend per share

r = Internal rate of return

E = Earnings per share

k = Cost of capital

Example: Z Ltd provides the following information to know the impact of dividend payout on the market price of share:

Capitalization rate = 9%

EPS = Rs. 20

Rate of return = 7%

Dividend payout ratio: Case A= 40%, Case B= 20%

SOLUTION:

Case A: D/P ratio = 40%

EPS =Rs. 20 then

DPS = Rs.8

$$P = 8 + (.07/.09)(20-8) \div .09$$

$$= \text{Rs. } 111.70$$

Case B:

D/P ratio = 25%

EPS = Rs. 20

then DPS = Rs. 5

$$P = 5 + (.07/.09)(20-5) \div .09$$

$$= \text{Rs. } 134.60$$

Criticism of Walter's Model: Walter's attracts criticisms because of wrong assumptions i.e. financing through retained earnings only, constant rate of return and cost of capital. These assumptions do not hold good.

(ii) Gordon's Approach: As per Gordon model a firm's share price is dependent on its dividend payout ratio. The model is also based on the relationship of 'r' return on investment and 'k' cost of capital. "Accordingly when $r > k$, the share price decreases with decrease in the retention ratio or increase in dividend payout ratio. Thus optimal dividend payout ratio is zero for growing firm. If $r = k$, the share price remain unaffected with decrease in retention ratio or increase in dividend payout ratio. Thus, for a normal firm there is no optimum dividend payout. When $r < k$, the share price increases with decrease in retention ratio and increase in dividend payout ratio. Thus, the optimum payout ratio is hundred percent for declining firm." For share valuation he has applied dividend capitalization approach with following assumptions:

- i) The firm has only equity in its capital structure.
- ii) Return on investment remains constant.
- iii) The retention ratio is constant.
- iv) Growth rate of the firm constant.
- iv) The cost of capital remains constant and it is more than growth rate
- v) Absence of corporate taxes.

Gordon's share valuation formula is:

$$P = \frac{E(1-b)}{k-b.r}$$

Where,

P= Price of shares

E= Earnings per share

b= Retention ratio

k = Cost of equity capital

b.r =Growth rate X rate of return on investment of an all-equity firm.

Example: John Ltd. provides the following information to compute the market price of share as per Gordon model

Capitalization rate = 15%

EPS = Rs. 10

Return on investment = 14%

Retention ratio: Case A= 40% Case B= 60%

Case A $P = \frac{E(1-b)}{k-b.r} = \frac{10(1-.40)}{.15-.40 \times .14} = \text{Rs. } 39.94$

Case B $= \frac{10(1-.60)}{.15-.60 \times .14} = \text{Rs. } 26.58$

Source: Financial Management Principles and Practice by G Sudarshan Reddy 2010 page 684-685

2. Irrelevance Theory of Dividend : Modigliani and Miller have expressed the theory of irrelevance in most comprehensive manner. According to them firm's value depend on its earning power and its investment policy. Market price of share or value of the firm is not affected by dividend decisions. As observed by M.M. "Under conditions of perfect capital markets, 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 the shares."

Assumptions of MM Hypothesis:

- i) Existence of perfect capital markets and information are available free of cost.
- ii) There are no taxes, no floatation and transaction costs.
- iii) Investors are rational and no investor is can effect the market price of shares.

The Argument of MM: MM hypothesis states that the increase in the value of firm by payment of dividends is nullify exactly by falling in the market price of shares because of external financing costs, consequently there is no change in the value of firm/wealth of owners. Suppose, a firm with ample expansion programs, distributes all its profits among owners, then obviously it has to arrange additional funds from external sources for them. It will result into either increase in number of equity shares or payment of interest charges, consequently earnings per share will decline in future. Thus whatever increase in the market price of share on account of dividend payment is off set completely by the fall in

the market price of shares due to decline in expected future earnings per share. Mathematically the market price of a share in the beginning period is equal to the present value of dividends paid at the end of the period plus the market price of the share at the end of the period. This is explained by the following equation:

$$P_0 = \frac{D_1 + P_1}{1 + K_e}$$

P_0 - Market price per share at the beginning of the period

D_1 - Dividend to be received at the end of the period.

P_1 - Market price per share at the end of the period.

K_e - Cost of equity capital

The value of P, can be derived by the above equation as under:

$$P_1 = P_0 (1 + k_e) - D_1$$

Example: Rakshak Ltd. has outstanding shares of 50,000 selling at Rs.200 each. The company is expecting to pay a dividend of Rs. 5 per share at the end of the current financial year. The company's expected net earnings are ₹500,000 and its capitalization rate is 10%. The new proposed investment requires Rs.10, 00,000. Prove that the payment of dividend does not affect the value of the firm according to MM approach

SOLUTION:

1. Value of the firm when dividends are paid:

i. Price per share at the end of year 1:

$$P_0 = 1/(1 + k_e) \times (D_1 + P_1)$$

$$200 = 1/(1 + 0.10) \times (5 + P_1)$$

$$P_1 = \text{Rs. } 215$$

ii. Amount required to be raised from the issue of new shares:

$$\Delta n P_1 = I - (E - nD_1)$$

$$= 1000,000 - (500,000 - 250,000)$$

$$= \text{Rs. } 750,000$$

iii. Number of additional shares to be issued:

$$\Delta n = 750,000 / 215 = 3488.3720 \text{ shares}$$

iv. Value of the firm:

$$= \frac{(50,000 + 3488.3720) (215) - 1000,000 + 500,000}{(1 + 0.10)}$$

$$(1 + 0.10)$$

$$= \text{Rs. } 11,000,000$$

2. Value of the firm when dividends are not paid:

- i. Price per share at the end of year 1:

$$P_0 = 1/(1 + k_e) \times (D_1 + P_1)$$

$$200 = 1/(1 + 0.10) \times (0 + P_1)$$

$$P_1 = 220$$

- ii. Amount required to be raised from the issue of new shares:

$$= ₹1000,000 - (₹500,000 - 0) = ₹500,000$$

- iii. Number of additional shares to be issued:

$$= ₹500,000/220 = ₹2272.7273 \text{ shares (unrounded)}$$

- iv. Value of the firm:

$$\frac{(50,000 + 2272.7273) (220) - 1000,000 + 500,000}{(1 + 0.10)}$$

$$= \text{Rs. } 11,045,454$$

Criticism of MM Approach

MM hypothesis has been criticized on account of various unrealistic assumptions like presence of perfect capital market, absence of tax, floatation costs, transaction cost etc.

2.9 Determinants of Dividend Policy: The policy relating to payment of dividend and retention of profits vary from one company to other and changes from time to time. The following are the factors which influence the dividend policy of a firm:

1. **Legal Restrictions.** Dividend decisions are taken by following the guidelines prescribed by Companies Act. For example payment of dividend can be made only out profits after providing depreciation. .

2. **Shareholder's Preference for Dividend:** Declarations of payment of dividends depend on the discretion of Board of Directors. Albeit, the directors consider the choices of shareholders i.e whether they want their share of profit in form of dividend or capital appreciation on it.

3. **Nature of Industry.** Nature of industry also influences the dividend decisions of a firm. Certain industries produce such type goods/services whose demand is steady irrespective of any phase of business cycle. Firms operating in such industry expect regular and stable earnings and can follow a constant/liberal dividend policy. On the other hand, if the company belongs to an industry whose products/services demand affected by phases of trade cycle the earnings of such firm will be unstable and uncertain, in this case firm will follow conservative dividend policy.

4. **Age of the Company:** Dividend policy of an enterprise is also influenced by whether it is newly established or well established. A newly established firm has to retain all or substantial part of profits for its financing needs while older companies which have huge amount of reserves and surplus can follow liberal dividend policy.

6. Financial Needs of Company: Future financial requirements of the company are also considered while designing that dividend policy. The board of directors has to strike a balance between desire of shareholders to receive dividend and company's financial needs for future growth. If a company has highly profitable investment opportunities it can retain the earnings. Opposite when profitable investment opportunities do not exist then the company may distribute dividends.

7. Taxation Policy. Dividend policy of a company is also influenced by taxation policy of the state in which it operate. A high or low rate of corporate tax has strong bearing on net profits of company (after tax) and thereby its dividend decisions. Further, when shareholders have to pay higher rate of tax on dividend income they may not be interested in dividend and prefer company should retain earnings.

10. Control Objectives: A liberal dividend policy sometimes may dilute control of the existing shareholders. More dividend payment may compel the company to raise funds to meet its future finance requirement by issue of new equity shares. By doing so control of existing shareholders will be diluted if they are unable to invest in new shares. Moreover, issue of new shares will increase number of outstanding shares and consequently earnings per share will be less. To maintain control of the existing shareholders over company, low dividend payout policy is suitable

11. Requirements of Institutional Investors: Institutional investors such as financial institutions, banks, insurance companies, mutual funds etc. also have bearings on dividend decisions of a firm. These investors have agreements with company to make regular payment of dividends on equity shares.

13. Liquidity of Firm: A firm may have huge profits to declare dividends, but it faces difficulties to pay dividends because of insufficient liquid resources. In such situations a company is compelled to declare stock-dividend/ issue of bonus shares to the existing shareholders.

2.10 Types of Dividend Policy

1. Regular Dividend Policy

Payment of dividend at the usual rate is termed as regular dividend. Even if the company makes a loss, the shareholders will still be paid a dividend under the policy. The investors such as retired persons, prefer this policy. A regular dividend policy offers many advantages to company like creates confidence amongst the shareholders, stabilizes the market value of shares etc. Regular dividend policy suits only to those firms with long standing and stable earnings. A company desirous to follow this policy pay dividend regularly at a lower rate.

2. Stable Dividend Policy

Stable dividend policy implies payment of certain minimum amount of dividend regularly. A stable dividend policy may be followed in any three forms:

a) Constant Dividend Per Share. A company that follows this policy will pay a fixed amount per share as dividend. A policy of constant dividend per share is most suitable to concerns whose earnings are expected to remain stable over a number of years.

b) Constant Pay Out Ratio. Constant pay-out ratio means payment of a fixed percentage of profits as dividends every year. The amount of dividend in such a policy is directly proportionate to the earnings of the company. The policy is suitable to such companies which are not confident enough in getting stable earnings.

c) Stable Dividend Per Share plus Extra Dividend: A company may pay constant low dividend per share plus an additional dividend in the years of prosperity. This type of policy suits to a company which always maintains minimum level of earnings and over the minimum level, earnings fluctuate.

2.11 Forms of Dividend: Generally companies pay dividends in the form of cash. But cash form of dividends may take place only when the cash is available with the company. Sometimes companies have earned large amount of profit but it faces cash crunch in such situation firm may declare dividend in the form of scrip, bond, stock dividend. Dividends are classified on the basis of payment in which they are paid:

(a) Cash Dividend: A company which has earned huge amount of profits and sufficient liquidity may pay dividends in cash form. The shareholders have the liberty to invest the cash received in the form of dividend in any manner. It is the most popular practice to pay dividends provided company has adequate liquid resources at its disposal.

(b) Scrip or Bond Dividend: When a company faces short term liquidity crunch/insufficient funds to pay dividends in cash, it may issue promissory notes or bonds for amounts of dividend to equity shareholders. The prime objective of scrip dividend is to delay the immediate payment of cash.

(c) Stock Dividend: Stock dividend means the issue of new equity shares/ bonus shares for the amount of dividend to the existing shareholders. This practice is also adopted when a company does not liquid assets to pay cash dividend. Stock dividend amounts to capitalization of profits by distribution them among shareholders without affecting the cash position of the firm. Declaration of stock dividend will increase the paid up capital and reduce the retention of earnings. Paying dividend in the form of bonus shares/stock dividend requires compliance of legal provisions of capital market regulator and company laws.

BONUS ISSUE (STOCK DIVIDEND vs. STOCK SPLIT

Stock dividend means the issue of bonus shares to the existing shareholders of the company. It amounts to capitalization of earnings and distribution of profits among the existing shareholders without changing the cash position of the firm. Stock split on the other hand, means reducing the par value of the shares by increasing the number of shares proportionately viz. a share of 100 may be split into 10 shares of R. 10 each Thus, the two terms are quite different from each other. The effect of bonus issue is that it amounts to reduction in the amount of profits and reserves, whereas, stock split does not affect the accumulated profits at all. Further in bonus issues, the par value of the stock remains unchanged, whereas, it is reduced in case of stock split, However, in both the cases, the book value per share, earnings per share and the market price per share declines. That is why a stock dividend is considered very much like a stock split. The distinction between the two is of technical nature. A stock dividend is

reflected in the balance sheet by way of transfer from retained earnings to equity capital whereas a split is shown as a reduction in par value of each share, Although, it is generally said that neither an investor nor the company gains anything from stock dividend or stock split, yet there may be a positive effect of informational content of bonus/split announcement.

Self Assessment Questions

1. Explain financial and operating leverage and their application by firms
2. What is optimal capital structure. Discuss the relevant and irrelevant capital structure theories.
3. Discuss the factors affecting the dividend policy of a firm.
4. Briefly discuss the factors that affect capital structure determination.
5. What is MM Hypothesis? Give operational justification for MM Hypothesis regarding capital structure decisions.
6. Write notes on: Forms of dividend, Financial breakeven point, Combine leverage.
7. From the following information of DEXI Ltd. determine equity share price of as per Walter model:-
Earning per share Rs. 10,
Dividend per share Rs. 6
Cost of equity capital 15%,
Required rate of return 20%
8. A firm has Rs. 40 lacs sales, variable cost is 70% of sales and fixed cost is Rs. 8 lacs. Firm has debt of Rs. 20 lacs at 10% . Compute financial, operating and combined leverage.

Suggested Book Readings:

1. Financial Management:- By M Y Khan and P K Jain, Tata McGraw Hill Education Private Limited.
2. Financial Management:- By I M Pandey, Vikas Publishing House PVT. LTD.
3. Financial Management:- By G Sudarsana Reddy, Himalya Publishing House.
4. Financial Management:- By Shashi K Gupta and R K Sharma, Kalyani Publishers

UNIT – 3

Capital Budgeting

Objectives

The objectives of this unit are to

- understand the concept, nature and process of capital budgeting
- explain the different techniques of capital budgeting and their comparison
- commiserate the risk factor in capital budgeting techniques
- to discuss capital rationing, its approaches and steps involved in it

Introduction

Modern corporate organizations formulate strategic planning to undertake programmes/projects and allocate appropriate resources to them over the next coming years. These programmes/projects are related to establishment, expansion, diversification, and acquisition etc. of business which require huge capital expenditure but generate revenues over a long period of time in future. Such types of decisions are evaluated in terms of their costs and benefits. Capital budgeting techniques are used as tool to help financial managers in taking such types of decisions. Capital budgeting is the process of identifying, analysing and selecting investment projects whose returns will be realized in coming years. It involves the planning of expenditures on long terms assets, the returns from which will be received in future time periods. Capital budgeting is a current outlay or a series of outlays of funds in return for an anticipated flow of future benefits. It is a decision making process to evaluate the purchase of major long term/fixed assets or acquisition of some existing business. Thus capital budgeting may be defined as the firm's decisions to invest its current funds most effectively in long term activities in anticipation of cash inflows/future benefits over a series of years.

3.1 Importance of Capital Budgeting Decisions

Capital budgeting decisions have immense importance for a business. These decisions may be responsible for make or mar the enterprise as there is commitment of large funds and the decisions are generally irreversible. The flowing features of capital budgeting make these decisions so much crucial and significant for financial management:

1. Involvement of Risk and Uncertainties

The capital budgeting decisions require huge amount of cash outflow in present period but return in from of cash inflows will be only in future period. Thus the chance of success of these types of decisions are totally depends on the correct forecasting of future scenario. The future always has uncertainties and there is no tool or technique is available so that it can be estimated accurately and correctly. The estimating of future cash inflows, the cut off rate (cost of capital) and life of the project make these decisions risky.

2. **Impact on Present and Future profitability**

Capital budgeting decisions have a significant effect on the profitability of business concern. These decisions not only affect the present earning of the firm but also the profit making capacity of the firm long time period. The future growth and profitability of the firm depends upon the investment decisions taken today. A rational capital expenditure decision enhances the firm's profitability where as irrational approach may harm and hamper the growth and profitability of firm.

3. **Long term Investment of Huge funds**

These decisions require huge amount of scarce financial resources in fixed assets for long period. If valuable resources of the firm blocked in unprofitable projects it will results heavy loss of capital and revenues

4. **Irreversible in Nature.**

Long term investment decisions once taken, cannot be easily reversed. If it become unavoidable to reverse these decisions, it is not possible without incurring huge loss to the firm.

5. **Corporate Image.**

Capital budgeting decisions affect the profitability of the firm which is reflected in the market price of share. So the image of the firm is affected by the success or failure of capital budgeting decisions.

3.2 Complexities Involved in Capital Budgeting decisions: Following three factors makes the capital budgeting decisions complicate:

1. **Measurement problem:** Evaluation of a project requires identifying and measuring its costs and benefits of that project, which are difficult since they involve tedious calculations and lengthy process. Majority of the replacement or expansion programmes have an impact on some other activities of the company or have some intangible consequences.
2. **Uncertainty:** Selection or rejection of a capital expenditure project depends on expected costs and benefits in the future. Future is uncertain, if any one try to predict the future it will be childish or foolish. Hence, it is very difficult to predict the future cash inflows.
3. **Temporal spread:** The costs and benefits which are associated with a particular capital expenditure project is spread out over a long period of time say 5-10 years or 10-15 years depend upon the type of projects. The temporal spread creates some problems in estimating discount rates for conversion of the future cash inflows in present values and establishing equivalences.

3.3 Phases/Process of Capital Budgeting/Capital Expenditure

The Capital Budgeting Decisions are complex decisions require investment of huge amount in anticipation of future earnings for long period of time. The dynamic business environment, micro and macro economic variables create uncertainties for future period. So it is not so easy task to choose a project or investment proposal in present which will increase the wealth of shareholders in future. The process of selecting an investment proposal (capital budgeting decision) requires sequential steps discussed below:

1. **Identifying of Investment Opportunities:** The process of capital budgeting decisions starts with the identification and generating a proposal for investments. There could be various reasons for an

entrepreneur to take up investments proposal. It may be manufacturing new product, addition of a new product line or expanding the existing one or reduce the costs of outputs. It involves a careful study from many different angles of investment proposals/opportunities available in different sectors of an economy.

2. **Evaluation of Investment Proposals:** This step involves gathering, summarizing, analyzing, and evaluating relevant information about various investment alternatives which are considered for inclusion in capital budgeting process in terms of their costs and benefits and risk and return by applying mathematical and statistical tools viz. time value of money, averages, deviation etc
3. **Selection of Investment Proposal:** After evaluation of projects as mentioned in step No. 2 all investment alternatives are scanned by arranging them on the basis of return and risk in descending/ascending order for selecting the best which maximize the wealth of shareholders.
4. **Financing the Selected Project:** Once the proposal has been finalized, the different alternatives for raising or acquiring funds (use any one or mix of several source of funds such as equity share, preference shares, term loan, debentures or accumulated profits) have to be explored by the finance team. This is called preparing the capital budget.
5. **Execution or Implementation of Project:** Under this step accountability and responsibilities for implementing the proposals, completion of the project within a given time frame and cost limits are decided to avoid unnecessary delay and cost over runs. Principles of responsibility accounting and use of net work technique (PERT, CPM) are useful tool for implementation of project.
6. **Reviews of the Project:** The final stage of capital budgeting involves comparison of the actual performance of the project with the set standards periodically. The unfavorable results are identified and corrective measures are taken for completion of the project smoothly in time.

3.4 Techniques of Evaluating Investment Proposals

The investment evaluation techniques play a vital role in evaluating a project. Profitability of a firm will increase if the proposal is profitable and vice-versa. Selection of a profitable project will help to maximize value of the firm through the maximization of profits. A wide range of criteria has been suggested to judge the worthiness of investment alternatives by financial wizards. Evaluation techniques are divided in to two broad categories: 1) **Traditional Techniques or Non Discounting methods** (Average rate of return method, Payback period method) 2) **Discounting Techniques** (Net present value method, Profitability index method, Internal rate of return method)

(i) Accounting Rate of Return (ARR)

This technique is also known as average of return, return on investment method. In this method accounting profit after depreciation and taxes are computed and then average accounting profits are divided by Average Investment for computing average rate of return. This average rate of return is compared with pre-determined or target ARR. If it is more than or equal to target ARR, then the project is accepted otherwise rejected. If more than one project is given, and one of them is to be selected, then the project having highest ARR is accepted. This method covers the whole life of the project but the time value of money is ignored. The profit whether it is earned today or in later years is given equally weight.

Merits of ARR Method

The average rate of return method is simple and popular because it is easy to understand the calculations and profitability of a project is computed for whole life.

Limitations:

- (1) **It ignores the time value of money**, the time value of money concept strongly advocates that the amount of money received today is more valuable than the same amount of money receivable in future. So the project resulting higher amount of profit in earlier years should be preferred over the others. But the ARR method ignores the time value of money.
- (2) **Ambiguous**: The concepts of investment and earnings used for computations of ARR are not uniform. The concept of average investment is much more ambiguous. Some people compute it as initial cost plus salvage value and then divide it by two, while others compute it as initial cost minus salvage value and then divide it by two. Also it uses accounting profits after depreciation and taxes in ARR calculations. But the cash inflows after taxes are more acceptable in comparison of accounting profit.
- (3) **Determination of pre-determined ARR is very difficult**: For accepting or rejecting a project the computed ARR is compared with the predetermined ARR. But how to determine pre-determined rate, it is a very difficult task. There is no universal criterion for a pre-determined sufficient for the project.
- (4) **Based on Book value**: In ARR calculations the book values shown in balance sheets are used which neither reflect the values of assets in terms of their earning ability nor their market values.

Example: Moon Ltd. has a project costs ₹60,000 and has a scrap value of ₹12,000. Its stream of income before depreciation and taxes (EBDT) during its 5 years life are ₹12,000; ₹14,400; ₹16,800; ₹19,200 and ₹24,000. Assuming tax rate at 50% and depreciation on straight line basis, calculate the average rate of return for the project.

Solutions:

Initial cost of Project = ₹ 60,000

Salvage Value after 5 years = ₹ 12,000

$$\begin{aligned} \text{Annual Depreciation (Straight Line Method)} &= \frac{\text{Cost} - \text{Salvage Value}}{\text{Life}} \\ &= \frac{60,000 - 12,000}{5} = ₹ 9,600 \end{aligned}$$

$$\text{Average investment} = \frac{\text{Cost} + \text{Salvage Value}}{2} = \frac{60,000 + 12,000}{2} = ₹ 36,000$$

CALCULATION OF AVERAGE INCOME AFTER DEPRECIATION & TAXES

Years	1 Rs.	2 Rs.	3 Rs.	4 Rs.	5 Rs.
Income before Depreciation & Taxes	12,000	14,400	16,800	19,200	24,000
Less: Depreciation	9,600	9,600	9,600	9,600	9,600
Earning Before Tax (EBT)	2,400	4,800	7,200	9,600	14,400
Less: Tax @ 50%	1,200	2,400	3,600	4,800	7,200
Earning After Tax (EAT)	1,200	2,400	3,600	4,800	7,200

$$\begin{aligned} \text{Average Profit after Depreciation \& Taxes} &= \frac{1,200 + 2,400 + 3,600 + 4,800 + 7,200}{5} \\ &= \frac{19,200}{5} = ₹3,840 \end{aligned}$$

$$\text{Now, ARR} = \frac{\text{Average Profit after Depreciation \& Taxes}}{\text{Average Investment}} \times 100 = \frac{3,840}{36,000} \times 100 = 6.40\%$$

This above average rate of return 6.40% is compared with pre-determined or target ARR. If it is \geq to target ARR, then the project is accepted otherwise rejected. If more than one project is given, and one of them is to be selected, then the project having highest ARR is accepted.

(ii) Pay Back Period Method: The payback period is defined as the number of years required to recover the investment on a project. This method calculates the number of years required to pay back the original investment. It does not consider the whole life of project and total profitability during its economic life. Pay back is based on cash flows criterion. Here cash flows after taxed but before depreciation are used. For decision making computed payback period is compared with the predetermined payback. If computed payback period is less than the pre-determined payback period, the project would be accepted in opposite situation it would be rejected. When many projects are under consideration, they may be ranked according to the length of payback period. The projects having the shorter payback period will be selected. The payback period can be calculated in two different situations:

- i) When yearly cash inflows are equal.
- ii) When annual cash inflows are unequal. In case of unequal cash inflows, the payback period is calculated by adding up the cash inflows till the time they become equal to the original investment. In case the investment is recovered in between a year, it can be presumed that during the year there will be even flow of cash and the payback period is calculated on proportionate basis.

Merits:

- (1) This method is very simple to apply and easy to understand.

- (2) It prefers the recovery of investment as early as possible. Longer periods may not yield profits because of greater uncertainty.
- (3) It is helpful in solving liquidity problems by early recovery of funds
- (4) The early cost recovery practices protect a firm against risk of Obsolescence.

Limitations

- (1) It does not consider whole life of project.
- (2) It does not consider the profitability of project..
- (3) It ignores time value of money.
- (4) It ignores salvage value of projects.
- (5) It ignores the rate of return on investment.

Example: A machine will cost ₹80,000 initially. It will also need a working capital of ₹ 20,000 at the zero period. The yearly profits before tax are expected to be ₹ 15,000 p.a. The machine has a life of 8 years and depreciation has been provided on straight line basis. The tax rate is 40%. Calculate the payback period for the machine. If the company has a policy of accepting only those projects which can be recouped in 5 years or less, should the company invest in this machine?

SOLUTION: Total Initial Investment = Cost of Machine + Working Capital
 $= 80,000 + 20,000 = ₹ 1,00,000$

	₹
Profit before Taxes	15,000
Less: Tax @ 40%	6,000
Profit after Tax	9,000
Add: Depreciation	
$\frac{\text{Cost} - \text{Salvage Value}}{\text{Life}} = \frac{80,000}{8}$	10,000
Yearly Cash Flows after Tax before Depreciation (CFAT)	19,000

Now Pay Back Period = $\frac{\text{Total Initial Investment}}{\text{Annual CFAT}}$
 $= \frac{1,00,000}{19,000} = 5.26$ years or 5 years and 3 months

The computed payback period 5 years and 3 months is greater than pre set period 5 years hence the project is rejected.

2) Discounting Methods: Under discounting techniques all projected cash inflows and outflows for an investment proposal are discounted to their present value by applying an interest rate. All discounting techniques are based on the time value of money, which states that a rupee received now is worth more than a rupee received in future. Money in hand can be invested to earn an income. To apply discounting methods for evaluating investment projects the assumption is often made that cash inflows from project occur at the end of accounting period. Three discounting cash flow methods are used in capital budgeting based on time value of money techniques are explained below:

a) Net Present Value: For computing NPV of the project all the cash outflows and cash inflows are estimated for full project life. Then present value of cash inflows and cash outflows are computed by multiplying each of them by their respective present value factors. The present value factors are computed on the basis of cut off rate and time of receiving cash inflows of the project. NPV is found by subtracting total present value of cash outflows from the total present value of cash inflows. If NPV is positive the project is accepted. On the other hand negative NPV indicate the project is unprofitable hence rejected. If more than one project is under consideration, the project having higher NPV is ranked higher and preferred.

Decision rule: Accept $NPV > 0$, Reject $NPV < 0$ Consider $NPV = 0$

Merits: This method consider the whole life of the project, salvage value, and time value and also based on Cash flows rather that accounting profit, hence it is a complete method and is used the most in capital budgeting decisions motivated by the objectives of wealth maximization of shareholders.

Limitations

1. Deciding the appropriate discount rate is a difficult task.
2. Not suitable if projects with unequal initial investment are compared. When projects involve different amount of investment, the method may not provide satisfactory answers. This technique selects the project having highest NPV but it ignores the initial cash outlays.
3. It ignores the life of project. In case of unequal lives of the project the method may give misleading results. So if two projects having economic life of 5 years and 10 years but NPV of both are same i.e. Rs 50,000 this technique ranks them equally but again it is not fair. In actual practice the company may select a project which has a shorter economic life even if its NPV is smaller.

Example: Y Ltd. is planning a machine for ₹ 1,40,000 which is likely to emanate following earning in next five years:

Years	1	2	3	4	5
Earnings (₹)	50,000	55,000	60,000	62,000	65,000

The machine will require additional working capital of ₹ 15,000. It will also require installation charges of ₹ 10,000. The machine will be depreciated on SLM basis and has salvage value of ₹ 25,000. The company is subject to tax at the rate of 50%. Should the machine be purchased if the cost of capital is 10%. Evaluate the project applying NPV method.

Solution:

Computation of cash flows:	₹
Cost of Machine	1,40,000
Add: Installation charges	10,000
Add: Additional working capital requirement	<u>15,000</u>
	<u>1,65,000</u>

Depreciation under SLM Method = $\frac{\text{Cost} - \text{Salvage Value}}{\text{Life of Asset}}$

$$= \frac{1,50,000 - 25,000}{5} = ₹ 25,000$$

COMPUTATION OF CFAT

Years	Earning	EBT Earning– Depreciation (₹ 25,000)	=	EAT EBT (1–0.5) Tax Rate 50%	=	CFAT EAT + 25,000 (Depreciation)	P.V. Factor at 10%	P.V. of CFAT
1	50,000	25,000		12,500		37,500	0.909	34,087
2	55,000	30,000		15,000		40,000	0.826	33,040
3	60,000	35,000		17,500		42,500	0.751	31,918
4	62,000	37,000		18,500		43,500	0.683	29,710
5	65,000	40,000		20,000		45,000	0.621	<u>27,945</u>
								<u>1,56,700</u>

Terminal Cash Inflows:

Salvage Value = 25,000

Recovery (Releasing) of Working Capital = $\frac{15,000}{40,000}$

Present Value of Terminal Cash Inflows = $(40,000 \times 0.621) = ₹ 24,840$

Gross Present Value of Cash Inflows = $1,56,700 + 24,840 = ₹ 1,81,540$

NPV = $₹ 1,81,540 - 1,65,000 = ₹ 16,540$

Since NPV is Positive, Y Ltd. should purchase the above plant.

2) Profitability Index: This method is also known as benefit cost ratio or desirability factor method. It computes the relationship between present value of cash inflows and the present value of cash outflows. The only difference between NPV and PI is that NPV is computed by subtracting cash outflows from P.V. of cash inflows while PI is computed by dividing present value of cash inflows by present value of cash outflows. The proposal is accepted if the profitability index is more than one and is rejected in case it is less than one. If PI coefficient = 1 then the project may be accepted only on the basis of non-financial considerations. If more than one project is under consideration, the project having higher PI should be selected. This method measures the present value of returns per rupee invested. A major drawback of NPV method was that it does not give satisfactory results while evaluating the projects requiring different initial investments. PI method provides a solution to this problem. Hence NPV method is considered good when the initial investment in various projects is same, whereas PI method is adopted when the initial cost of different projects are different.

Decision rule:

Accept $PI > 1$, Reject $PI < 1$ Consider $PI = 1$

The profitability index method is discounting cash flows based technique like NPV method. It has following merits and limitations:

Merits: This method is having all merits of NPV method and most suitable in situation of capital rationing. Further when two projects requires different cash outlays PI method is more reliable

Limitations:

1. Like other DCF methods, it also involves difficult calculations.
2. Sometimes it is unable to make full utilisation of capital funds available. If selection is made on the basis of PI Method. Some Capital remains untitled.

Example: From the following information, calculate the net present value (NPV) and profitability index (PI) of two projects and suggest which of the two projects should be accepted assuming a discount rate of 10%.

	Project A	Project B
	₹	₹
Initial Investment	30,000	40,000
Scrap Value	2,000	3,000
Estimated Life	5 Year	5 Year

The profits before depreciation and after taxes (CFAT) as follows:

Year:	1	2	3	4	5
Project A (₹)	7,000	12,000	12,000	5,000	4,000
Project B (₹)	22,000	12,000	7,000	5,000	4,000

SOLUTION: CALCULATION OF PRESENT VALUE OF CASH FLOWS

Years	Cash Inflows		P.V. Factor at 10%	Present Value of Cash Flows	
	Project A	Project B		Project A Initial Outlay ₹ 30,000	Project B Initial Outlay ₹ 40,000
1	7,000	22,000	0.909	6,363	19,998
2	12,000	12,000	0.826	9,912	9,912
3	12,000	7,000	0.751	9,012	5,257
4	5,000	5,000	0.683	3,415	3,415
5	4,000	4,000	0.621	2,484	2,484
Terminal Cash Inflows:					
Salvage Value					
	Project A:	2,000	0.621	1,242	---
	Project B:	3,000	0.621	---	1,863
Gross Present Value of Cash Inflows				32,428	42,929
Less: Cash Outflows				30,000	40,000
NPV				2,428	2,929

Profitability Index (PI) = PV of cash inflows ÷ PV of cash outflows

Project A: $32,428/30,000 = 1.081$

Project B: $42,929/40,000 = 1.073$

Suggestion:

a) According to NPV method Project B seems more profitable as NPV is greater than Project A. But we can see that it requires higher cash outlays in comparison of Project A.

b) If Cash Outlays are differ and capital available is limited, PI technique provides more reliable results. The PI is higher in case of Project A, hence we should select Project A.

c) Internal Rate of Return: IRR is the rate at which the sum of discounted cash inflows is equal to the sum of discounted cash outflows. In other words if cash flows of a project are discounted at IRR, its NPV will be equal to zero. This rate is also known as break even rate of project, time adjusted rate of return, marginal efficiency of capital, marginal productivity of capital and yield on investment.

IRR method is similar to NPV method. But there is a basic difference between these two methods. In NPV method the discount rate or cut off rate used to discount cash flows is generally the cost of capital.

It is a predetermined rate so cash inflows and outflows are not considered while determining this rate. On the other hand IRR is determined entirely by cash inflows of the project. Hence IRR is usually the rate of return that a project earns. It is the discount rate at which the present value of cash inflows is equal to the present value of cash outflows. So at this rate NPV of the project is Zero.

Decision rule:

Accept $IRR > \text{Cost of Capital}$, Reject $IRR < \text{Cost of Capital}$, Consider $IRR = \text{Cost of Capital}$

Merits:

1. It is discounted cash flow technique and considers the time value of money.
2. It considers the expected benefits over the entire economic life of the project.
3. IRR method does not use the concept of required rate of return which is very difficult to compute in appropriate manner. It itself determines discount rate.
4. Project having different degrees of risk can be easily compared.

Demerits:

1. Finding of IRR involves tedious calculations.
2. The rate may not be realistic if very high since reinvestment of cash flows may not be possible at such a high rate.
3. Under this method it is assumed that all cash inflows of project are reinvested at IRR rate. This assumption is not valid since the cash inflows may be used for other purposes such as dividend distribution or debt repayment.

Computation of IRR of a Project: The IRR of a project is computed by applying the following formulae

$$IRR = L + \frac{(P1 - Q)}{(P1 - P2)} \times D$$

L- Lower discount rate

P1 - Present value of cash inflows at lower rate.

P2 - Present value of cash inflows at higher rate.

Q- Actual investment

D- Difference in Discount rate

i) When CFAT for each year are same (even)

Example: A project costs ₹ 60,000 and is expected to generate cash inflows of ₹ 12,500 each year over its life of 8 years. Calculate IRR of the project, if the cost of capital for the firm is 10% (cut off rate), should this project be accepted or not?

SOLUTION: Cash Outlays = ₹ 60,000

Cash inflows per year = ₹ 12,500

Economic life = 8 year

Here the cash inflows for each year are same. Hence the IRR can be computed in following steps:

Step-1: In this step we compute 'F' which may be called 'factor to be located' or 'fake payback period'. It can be computed by dividing each out flows with annual cash flows.

$$F = \frac{\text{Initial Cash Outlays}}{\text{Annual CFAT}} = \frac{60,000}{12,500} = 4.8$$

Step-2: In this step by using present value of annuity table, we locate the closest figures to 'F' (Here F= 4.8) against the row of number of year of the project. We will take two closest figures to 'F' (=4.8) one is more than 'F' and other one less than 'F'. Here these two closes figures are 4.968 and 4.799 in columns of 12% and 13% respectively.

The rates computed above will be used as first discount rate and second discount rate and corresponding figure will be annuity factor.

Here: First Discount rate is 12% and its annuity factor is 4.968

Second Discount rate is 13% and its annuity factor is 4.799

Step-3: Now compute NPV of project by using both discount rates:

Annual CFAT	Annuity Factor		Present Value of Cash	
	1-8 year		Inflows	
(1-8 year)	12%	13%	12%	13%
₹12,500	4.968	4.799	62,100	59,987
Less Cash Outflows			60,000	60,000
NPV			2,100	(13)

Step-4: Now IRR can be computed with the help of this formula: $IRR = L + \frac{(P1-Q)}{(P1-p2)} \times D$

$$IRR = 12 + \frac{(62100-60000)}{(62100-59987)} \times 1$$

$$= 12.99 \text{ or nearly } 13\%$$

Suggestion: Here the cost of capital of the project is 10% and IRR (13%) is higher than the cut off rate. So the project should be accepted.

(i) When CFAT for each year are not same (uneven)

Example:	Initial Investment	₹ 2,77,000
	Life of the Asset	4 years
	Cost of Capital	12%

Estimated net Annual cash Flows:

	₹
1 st year	60,000
2 nd year	80,000
3 rd year	120,000
4 th year	60,000
5 th year	40,000

Calculate internal rate of return.

Solution :

Step-1: Compute 'F' (Factor to be located or fake payback period) by dividing initial cash outlays with average CFAT.

Here Average CFAT = $360000/5=72000$ Fake Payback Period, $F = 277000/72000= 3.847$

Step-2: Now Using PVAF table we find the fake payback period of 3.847 lies between 10% (3.790) and 8% (3.993) in the line of 5 years.

Year	CFAT (Rs)	DF 10%	DF8%	Present Value at 10%(Rs)	Present Value at 8%
1	60000	.909	.926	54540	55560
2	80000	.826	.857	66080	68560
3	120000	.751	.794	90120	95280
4	60000	.683	.735	40990	44100
5	40000	.621	.681	24840	27240
Total Present Values				276570	290740

$$\text{IRR} = L + \frac{(P1 - Q)}{(P1 - p2)} \times D$$

$$\text{IRR} = 8 + 2(290740 - 277000) \div (290740 - 276570)$$

$$\text{IRR} = 8 + 2(13740) \div (14170)$$

$$\text{IRR} = 8 + 1.938 = 9.94\%$$

Suggestion: IRR 9.94% is less than cost of capital 12%. Hence the project is rejected.

Relationships Between the Internal Rate of Return, Net Present Value and the Cost of Capital

If	Then	Capital Budgeting Decision
NPV < 0	IRR < Cost of Capital	Reject the investment from the cash flow perspective. Other factors could be important.
NPV = 0	IRR = Cost of Capital	Provides the minimum return. Probably reject from the cash flow perspective. Others factors could be important.
NPV > 0	IRR > Cost of Capital	Screen in for further analysis. Other investments may provide better returns and capital should be rationed, i.e., go to the most profitable projects. Others factors could be important.

[https://maaw.info/IRR NPV and Cost of Capital. htm](https://maaw.info/IRR%20NPV%20and%20Cost%20of%20Capital.htm)

3.5 Risk Analysis in Capital Budgeting

Risk refers to the variations in the forecasts. With reference to capital budgeting decisions it refers to the variations in the actual returns arising from a project in its economic life in relation to the estimated return as forecast at the time of initial investment. Degree of risk is more when greater is the variation between estimated returns and actual returns and vice versa. Risk arises because of uncertainty but there is clear demarcation in uncertainty and risk. Uncertainty exist when decision maker is not in position to assign probabilities to the various outcomes (Example: cash inflows or earnings of project) due to lack of historical data whereas risk exists only when a decision maker is in position to assign probabilities to various outcomes. Risk is measured precisely by statistical techniques, namely, Standard Deviation and Coefficient of variation.

While analysing the different techniques of capital budgeting, generally, no consideration is given towards two important elements of investment analysis, namely, risk and uncertainty. Under capital budgeting decisions, the total present value of all the future cash inflows of a particular project are compared with the present value of all the cash outflows. In case, the total present value of all the future cash inflows of a particular project exceeds the present value of net cash outflows, it is assumed that the project is profitable. While estimating the future cash flows, it is generally assumed that future conditions will remain unchanged and no substantial change will take place in the coming period. But this assumption never holds correct. In reality, the future is always uncertain and no-one can predict future correctly. In case, the future have been certain, any of the methods of capital budgeting can be

applied successfully and correct results can be achieved, consequently, the whole process would have been quite smooth and simple. There is always a lot of possibility of diversity in the prediction due to various risks and uncertainties of investment proposals. The cash inflows from the project in coming years will never be almost same as predicted by capital budgeting technique because of potential changes in the economic, social, political, and legal environment. If the cash flows related with a particular proposal are ascertained with certainty NPV, IRR or any other technique can be applied for the evaluation of the proposal. But practically cash flows can't be ascertained with certainty, so to refine the capital budgeting technique all the elements of risk and uncertainty must be given weight age to avoid misleading results. While evaluating investment proposals, it is not always necessary that the risk and uncertainty level of different alternative proposals is same. There may be quite diversities in the level of uncertainty. Hence, risk factor must be taken into consideration whole evaluating capital budgeting proposals.

3.6 Types and Sources of Risks in Capital Budgeting

1. **Project specific risk:** It is the risk that arises due to estimation of errors in earnings and cash flows or some factors that are specific to the project like quality of management etc.
2. **Competition Risk:** This risk arises out of actions of competitors that affect the company's estimated earnings and cash flow of the project in hand. Although a good project analyst always takes into consideration the actions of competitors, but sometimes the actual actions of the competitors may differ from their projected actions.
3. **Industry Specific Risk:** Here the firm's earnings and cash flows are affected due to the industry specific factors like unexpected changes in Technology, legal framework, consumer behaviour natural calamities etc.
4. **International Risk:** Risk of this type arises only in international/foreign projects whose earnings and cash flows affected due to the unexpected exchange rate risk or political risk.
5. **Market risk:** Market risk affects the earnings and cash flows all projects due to unexpected changes macro economic variables like GDP growth rate, interest rate and inflation.

3.7 Incorporation of Risk in Capital Budgeting: There are two methods to incorporate risk into capital budgeting: i) Risk-Adjusted Discount Rate Approach ii) Certainty Equivalent Approach

i) Risk-Adjusted Discount Rate (RADR) Approach: RADR is the rate of return that must be earned on a given project to compensate the firm's owners adequately. In other words it is the discount rate that is used to convert future cash inflows into present value. It is equal to risk free rate plus risk premium for investing in a project which is risky in character. It allows for both time preference and risk preference. Firms use different RADR for different types of capital budgeting. For new and high risky project high RADR, for medium risk project like expansion medium RADR and for less risky project like replacement low RADR is used.

Decision rule:

If NPV method is used Accept $NPV > 0$, Reject $NPV < 0$ Consider $NPV = 0$:

If IRR method is used Accept $IRR > RADR$, Reject $IRR < RADR$, Consider $IRR = RADR$

MERITS:

1. It takes into consideration the time value of money and clearly explains the risk of the project, taking into consideration the discount rate as a result of the risk of the proposal.
2. Risk-adjusted discount rate technique helps in finding out the estimated future assets to be created by the risky project

DEMERITS:

The technique of risk-adjusted discount rate also suffers from the following defects:

1. There is no universally accepted method of calculating the required risk premium rate which is necessary for the application of this technique.
2. This technique does not adjust the future cash flows which is quite risky and uncertain. This drawback can be corrected by the application of probability distribution of cash flows.

Example: A project is required to invest Rs 3,00,000 has the following expected returns over its estimated life of 6 years.

Years	1	2	3	4	5
Cash Flow After Tax (000) Rs	60	60	100	120	80

Risk free rate of return 7%. But the decision makers are interested to add 3% as risk premium for the project. You are required to calculate NPV using RADR approach and suggest whether the project is acceptable or not.

Years	Cash Flow After Tax (Rs 000)	Discounting Factor (10%)	Present Values (Rs 000)
1	60	.909	54.54
2	60	.826	49.56
3	100	.751	75.1
4	120	.683	81.96
5	80	.650	52
Total Present Value minus cash out flow			313.16 -300
NPV			13.16

Suggestion: Project is acceptable since its NPV Rs. 13160 is greater than zero

ii) Certainty Equivalent Approach: To remove the drawbacks of the

risk-adjusted discount rate, the technique of certainty equivalent is evolved. It incorporates risk of a project by adjusting the expected cash flows, instead of adjusting discount rate. This approach removes the problems of calculating risk adjusted discount rate, by assigning arbitrary premium for a given level of risk. Estimated cash flows can be converted in certain cash flows.

Process to be applied:

- (i) Estimation of future cash flows of the project
- (ii) Calculation of certainty equivalent factor for various years. This factor depicts that proportion of future cash flows for which the finance management will get prepared to accept the exchange for future cash flows.
- (iii) The estimate cash flows of different years as calculated under step 1 are multiplied with respective certainty equivalents and resultant figure would be certainty equivalent cash flow.

MERITS:

1. It is easy to calculate.
2. This technique involves risk after adjusting those cash flows which are risky.
3. This technique is considered better than the time discount rate technique since it adjusts the cash flows in place of adjusting the discount rate which seems more logical.

DEMERITS:

1. Cash flows involve risk; hence, it is necessary to adjust these cash flows. This requirement is over and above the discount rate. But certainty equivalent approach involves the determination of OE factors which is a boring exercise.
2. There are practical difficulties in its application. Despite all these drawbacks, the certainty equivalent technique is considered theoretically better than the risk-adjusted discount rate technique.

Example: Vishu has asked you to analyze two mutually exclusive projects. You use certainty equivalents (α_t) approach to evaluate these projects. From the following information pertaining to these projects, advice Vishu as to which project should be taken up by him:

Year	Proposal X		Proposal Y	
	Cash Flow (₹)	α_t	Cash Flow (₹)	α_t
0	(40,000)	1.00	(30,000)	1.00
1	20,000	0.90	15,000	0.95
2	18,000	0.80	12,000	0.80
3	12,000	0.80	10,000	0.75
4	10,000	0.60	5,000	0.70

The risk-free borrowing and lending rate is **8%**.

Solution: X Project

Year	CFAT (₹)	at	Adjusted CFAT(₹)	PV factor @8%	Total PV (₹)
0	(40,000)	1.00	(40,000)	1.000	(40,000)
1	20,000	0.90	18,000	0.9260	16,668.00
2	18,000	0.80	14,400	0.8573	12,345.12
3	12,000	0.80	9,600	0.7938	7,620.48
4	10,000	0.60	6,000	0.7350	<u>4,410.00</u>
					41043.60

Total NPV(Rs) Proposal X = 41043.60-40000=1,043.60

Y Project

Year	CFAT (₹)	at	Adjusted CFAT(₹)	PV factor @8%	Total PV (₹)
0	(30,000)	1.00	(30,000)	1.000	(30,000)
1	15,000	0.95	14,250	0.9260	13,195.50
2	12,000	0.80	9,600	0.8573	8,230.08
3	10,000	0.75	7,500	0.7938	5,953.50
4	8,000	0.70	5,600	0.7350	<u>4,116.00</u>
					31495.08

Total NPV(Rs) Proposal Y = 31,495.08-30000=1495.08

NPV being higher for Proposal Y, this should be preferred and accepted.

3.8 Decision Tree Approach

Chronologically available alternative decisions at different proposals may be known as a decision tree. The estimated cash flows are multiplied with the expectation of the probability of happening of events. Thereafter, values of all the probable events are aggregated. Decision tree approach is a technique to evaluate any risky investment proposal which is used when decisions are sequentially taken and the present decision is effected by the past decisions or present decisions effect the future decisions of the firm. Acceptance or rejection decisions are taken in several situations for the evaluation of projects in capital budgeting. Despite of taking decisions once only, decisions are taken in different positions and in certain parts. There may be more than one alternative in decisions are taken in different positions and in

certain parts. There may be more than one alternative in each and every situation and the firm has to decide every time which alternative must be selected in a particular situation. This decision represents in the form of a picture of a tree and indicates about the quantum of all probable decisions, probability and inters relationship. Steps to be taken in Decisions Tree Approach:

1. The project is divided into clearly defined situations. In some situation, the action is quite simple.
2. In each situation, a list is prepared for possible outcomes. On the basis of available information, the probability of every outcome in each situation is specified. This activity becomes complicated on the increase of more situations.
3. The effect of every outcome on estimated cash flow from the project is specified.
4. In every situation of decision tree, an evaluation of optimum activity is specified.
5. In the very first situation, the estimation of optimum activity is undertaken with the consideration of estimated cash flows of the total projects and potential outcomes of cash flows.

3.9 Capital Rationing: Capital rationing implies such a condition under which a business concern has limited available funds for new investments and many profitable and financially viable proposals exist, but they can't be taken up due to insufficiency of funds. Capital rationing refers to the choice of investment proposal under financial constraints in terms of a given size of capital expenditure budget. The objective of capital rationing is to select the combination of projects that would maximize the total NPV. The project selection under the capital rationing involves two stages i) Identification of the acceptable projects ii) Selection of the combination of projects. The acceptability of projects can be based either on profitability index or IRR

Objectives of capital rationing

- a) To make the maximum use of resources available for investment.
- b) Selection of the combination of projects that will yield maximum NPV by using the available resources.

Approaches to Capital Rationing: Capital rationing can be of two types: i) Hard rationing and ii) Soft rationing. **Hard Rationing:** refers to the situation when a business firm cannot raise required finance to execute all potential available profitable investment projects. **The soft rationing** is internal to the firms that the different divisions/units of a firm are allocated fixed amount of capital budget each year. Soft rationing is primarily used as a means of control on the capital spending of divisional managers. It does not imply that the firm, as a whole has paucity of funds. In other words the firm can raise required funds if it so desire. The fault of soft rationing is that the firm eventually is deprived of the profitable investment projects (in case divisions happen to have such projects). As a result the imposition of soft rationing is in conflict with the basic goal of the firm of maximization of wealth/value.

3.10 Capital Budgeting Under Capital Rationing:

- i) Projects have to be ranked in the order of NPV, profitability index or internal rate of return.

ii) Taking into consideration the objective of maximising the worth of the enterprise and adopting the descending order of profitability of project, go on selecting till the budgetary allocation totally exhausted.

i) Capital Rationing for Divisible Projects: The method of selecting investment project under capital rationing depends upon whether the project is divisible or indivisible. A divisible project can be accepted or rejected in part or whole and indivisible project can be accepted or rejected entirety.

Example: A company has **Rs.14** crores for its investment disposal. It has evaluated below mentioned options with positive NPV. All these investments proposals are divisible. You are required to advise the management which investment proposal be selected.

Investment Proposals	Initial Outlays(Rs. Crores)	NPV (Rs. Crores)	Profitability Index
A	6	1.2	1.2
B	4	1	1.25
C	5	3	1.6
D	12	3.6	1.3

Solution:

Ranking of Projects in Descending Order of Profitability Index

Ranking of Investment Proposals	Initial Outlays(Rs. Crores)	NPV (Rs. Crores)	Profitability Index
C 1	5	3	1.6
D 2	12	3.6	1.3
B 3	4	1	1.25
A 4	6	1.2	1.2

Suggestions: Accept Investment Proposal C in full and D in part (Rs. 9 crore) as it will maximize the NPV

2. Capital Rationing of Mutually Exclusive Project: Mutually-exclusive projects refer to a set of projects out of which only one project can be selected for investment. One project from mutually exclusive projects excludes all other projects from consideration. A decision to undertake the projects depend upon their NPV. If the NPV/PI of one project is greater than the NPV/PI of the other project, accept the project with the higher NPV/PI.

Example: A firm has Rs. 2.5 lakhs for capital expenditure in a particular year. The profitability index (PI) of eight mutually exclusive investment proposals is provided to you for rendering advice to accept the projects.

Projects	Initial Outlay (in Rs. '000)	Profitability Index (PI)
P ₁	25	1.12
P ₂	40	1.20
P ₃	50	1.15
P ₄	70	1.30
P ₅	60	1.25
P ₆	20	0.98
P ₇	30	1.19
P ₈	20	0.95

Solution: The basis of selection of the projects in given example is profitability under PI method and rank is assigned accordingly, subject to maximum utilization of available funds:

Projects	Initial Outlay Rs.	Profitability Index (PI)	Rank
P ₄	70,000	1.30	1
P ₅	60,000	1.25	2
P ₂	40,000	1.20	3
P ₇	30,000	1.19	4
P ₃	50,000	1.15	5
	<u>2,50,000</u>		
P ₁	25,000	1.12	6
	<u>2,75,000</u>		

Suggestion: It is clear from the descending order of PI index that the first projects should be selected as the optimum mix since they will completely utilize the available funds amounting to Rs. 2,50,000. Projects P₆ and P₈ are not included in above as their PI is less than unity, hence, are to be rejected.

Self Assessment Questions

1. Briefly discuss the techniques of capital budgeting with their merits and limitations.
2. Compare and contrast NPV with IRR.
3. Describe the traditional techniques of capital budgeting evaluation.
4. Write notes on:- Profitability index, capital rationing Payback period, Risk adjusted discount rate, Certainty equivalent approach, Decision tree analysis.
5. What is capital rationing? Explain the various approaches to capital rationing.
6. Distinguish between capital budgeting and capital rationing.
7. Why capital budgeting decisions are crucial?

Suggested Book Readings:

1. Financial Management:- By M Y Khan and P K Jain, Tata McGraw Hill Education Private Limited.
2. Financial Management:- By I M Pandey, Vikas Publishing House PVT. LTD.
3. Financial Management:- By G Sudarsana Reddy, Himalya Publishing House.
4. Financial Management:- By Shashi K Gupta and R K Sharma, Kalyani Publishers

UNIT – 4

Corporate Restructuring

Objectives

The objectives of this unit are to

- commiserate the concept of corporate restructuring and reasons behind it.
- discuss the different types of corporate restructuring strategy
- high light the reasons of cancellation of paid up capital and corporate failures

Introduction: Changing economic environment within and across borders has led to change in the ways of conducting business. Due to competitive environment and enhanced standards of performance, companies have been experimenting with the policies, programs, products, processes and structure of the organization. Many firms have to adopt divestment strategies such as splitting the ownerships, cutting the jobs, selling off or shutting down the unprofitable segments. Further, the pace of change in global business environment is such that restructuring has become the buzzword in corporate circles. Survival and growth of business is not possible without profit. To maximize the profits, a firm can either adopt internal restructuring or external restructuring. Internal restructuring may include new products, change in manufacturing process and expansion of existing product lines. External restructuring may include mergers, demergers, amalgamations, absorptions, takeovers, consolidation and acquisitions. A firm has to continuously evaluate its capital portfolio, product mix, assets management and ownership to achieve to goals of wealth maximization and profit maximization.

4.1 Meaning: Corporate restructuring refers to the changes in ownership, assets mix, business mix and alliance with a view to achieve enhancement in shareholder value. It is a corporate management term referring to the act of reorganizing or partially dismantling a company for the purpose of enhancing efficiency and profitability. It may involve ownership restructuring (involve mergers and acquisitions, leveraged buyouts, buyback of shares, spin off, joint ventures and strategic alliance), business restructuring (diversification into new business, outsourcing, divestment, brand acquisitions etc.) and assets restructuring (sale and lease back of assets, securitization of debts, receivable factoring). In layman language, restructuring means replacing the older ways of doing business with the new ideas. It sometimes involves shutting down some segments of the company or severe staff reduction. Restructuring is often done as takeover by another firm or part of a bankruptcy particularly a leveraged buyout by a private equity firm. It includes a set of activities to bring about a significant change in its organizational structure and internal functioning that expand or contract a firm's operations or substantially modify its financial structure. Different forms of restructuring are mergers, takeovers, business alliances, buyouts, demergers, slump sales, equity carve outs, going private, leverage buyouts (LBOs) and performance improvement initiatives.

4.2 Motives behind Corporate Restructuring: The basic motive of corporate restructuring is to enhance the shareholder value/market value of share/value of the firm. Motives of restructuring are explained in the following paragraphs:

- 1. Profit/Wealth Maximization:** Wealth maximization is the basic objective of financial management. Due to dynamic business environment firms may not be able to generate constant profits throughout their lives so they need change in business strategies. Higher earnings and the creation of corporate value are the basic goals of corporate restructuring. To create corporate value, a firm largely depends on its ability to generate adequate cash. Hence, corporate restructuring aims at maximizing firm's profits.
- 2. Focus on Core Competence:** Core competencies are the combination of resources, processes and skills that distinguish a firm from its competitors and help its sustainability in the competitive environment. A business firm must identify, nurture, and develop its core competencies for lasting competitive advantage. Corporate restructuring serves as a tool to leverage core competencies, the best way to increase the value of firm.
- 3. Divestiture and Business Alliances:** Sometimes companies have to shut down those segments which are not competitive and incurring losses so that it can concentrate on its core activities. It can be achieved through strategic alliances or joint ventures etc.
- 4.** Firms reorganize their capital structure to improve their financial health and increase the shareholders value.
- 5.** A key factor for driving restructuring is reorganization of ownership within the promoter group, either due to family settlement, or exit of a joint venture partner.
- 6.** One of the motives of restructuring is improved management. Firms generally suffer due to inefficient management. Hence they opt for change in higher level management.
- 7.** Redesigning the business process for cost reduction and downsizing of workforce can be exercised through corporate restructuring.

4.3 Merger and Acquisition: Firms to survive and grow in present cut throat competition mergers and acquisitions is the only way out. Under merger, two companies lose their legal entities and create a new company or combine with each other under the legal entity of one of the current companies. They agree to integrate their operations on a relatively co-equal basis. The shareholders of the companies under merger decide to pool their resources under a common entity. Hence two or more companies combine into a single unit and lose their individual identities. Acquisitions are those mergers where one company obtains majority shares of another company by acquiring effective control over assets or management of another company. Thus in acquisition, two or more companies may remain independent, separate legal entity, but there may be change in control of companies. Mergers and acquisitions are the part of expansion strategy of an organization. It results in high growth and broadening the scope of business in terms of customers, functions, technology and overall performance. Many terms like merger,

amalgamation, takeover or consolidation are used interchangeably to explain corporate restructuring. Mergers per se, may either be horizontal mergers, vertical mergers or conglomerate mergers.

i) Horizontal Mergers: It is the merger of two or more companies operating the same product line or services within the same industry and at the same stage of production. Such companies are usually direct competitors. The main advantage of this merger is to eliminate competition, increase in market share, revenues and profits.

ii) Vertical Mergers: Under Vertical merger two or more firms combine which operate at different stages of production or distribution. For instance combining of a TV manufacturing company with TV marketing company. A vertical merger may take the form of forward or backward merger. The benefits of this type of merger are lower buying cost of materials, lower distribution cost, creating barriers to entry for new entrants etc.

iii) Conglomerate Merger: Under conglomerate merger two or more companies combine together which have been operating in completely different industries regardless of the stage of production. The main advantage of such mergers is diversification among the different industries hence, reduced risks.

iv) Concentric Mergers: Under concentric merger, firms under merger serve the same customers but with different products and services. Such companies usually offer the complementary products to the same customer base. For example, if a company that produces DVDs merges with a company that produces DVD players. These kinds of mergers offer opportunities for businesses to venture into other areas of the industry reduce risk and provide access to resources and markets unavailable previously.

Acquisition: The term acquisition is used in place of takeover. Acquisition is referred to describe the acquisition of ownership of rights in assets of another company. In the eyes of law after acquisition both acquirer and acquired companies maintain their separate existence. An acquisition is done keeping in mind the following:

i) Value Creating – Value creating means acquisition of a company by another company with the objective to improve its performance in terms of sales and profit.

ii) Consolidating – This is where a company acquires another company to eliminate competition.

iii) Accelerating – It refers to acquisition of a smaller company by larger company with the intention to use its greater resources to accelerate market access for the products of smaller company.

iv) Resource Resources – This kind of acquisition is done to acquire technologies, resources, intellectual property, skills or market position. Acquiring the resources is more cost effective than developing them.

4.4 Styles of Merger

There are many methods through which an acquiring company can initiate merger proceedings. Hence, the merger may also be classified on the basis of the **procedure** adopted or the style of the proceedings by the acquiring firm.

1. **Negotiated Merger:** It is also referred as friendly merger. For such merger, negotiation is executed for the merger plan by the manager, owners of the merging firms. The acquiring firm directly converse with the management of the target firm and gets first hand information about the expectations of the target firm. If both the firms agree the plan of merger, the proposal for merger is put before both the firms/companies for finalization.
2. **Tender Offer:** Tender offer involves bidding for the acquisition of controlling interest in the target firm by acquiring firm through purchase of shares of the target firm. The acquiring firm directly interacts with the shareholders of the target firm and requests them to sell their holdings at a fixed price. The proposed price is kept more than the current market rate so that the shareholders may attract to sell heir holding of shares.
Under tender offer, there is no need to seek prior approval from the management of the target accompany by the acquiring company. The offer is kept open for fixed period of time.
3. **Hostile Take-over Bid:** The acquiring company tries to obtain controlling interest in the target company without the knowledge and approval of the management of the target company and purchases the shares of the target company in bulk through stock exchange. This type of action by acquiring company is named as 'raid'.
4. **Arrangement Mergers:** This type of merger is generally through the Board of Industrial and Financial Reconstruction under the revival package to merge sick companies with other stronger companies. These merger plans are executed target negotiations with the lead bank and both Target Company and acquiring company are also consulted. Such mergers are generally encouraged and the lead bank initiates the proceedings and sets the terms and conditions for the merger.

4.5 Benefits of Merger: The combination of two or more companies brings fruitful results such as increased profitability, cost reduction and optimum utilization of resources. Following are the benefits of merger:-

a) Synergy: Synergy means $2+2=5$, the achievements of working together. Two firms with different complementary skills can create more value due to synergy effect, achieving the higher value than the sum of their individual value. Mergers or acquisitions mainly increase the effective value. For example, company A has various profitable investment opportunities, while Company B has huge financial resources. Hence combination of these two companies brings synergy effect by using huge financial resources to reap the profitable investment opportunities. Eventually increasing the profitability and enhancing the value. The merger is only beneficial if the combined value of the firm is greater than the individual values of the firms.

The value of AB Ltd. > the value of A Ltd. + the value of B Ltd.

b) Economies of Scale: It means reduction in unit cost a result of huge production. Production at large scale becomes possible if two or more companies combine. The economies of scale can be achieved due to optimum utilization of production capacities, research & development facilities, distribution networks, engineering services, etc. Horizontal mergers are the best examples to bring the economies of scale.

c) Economies of Scope: Under economies of scope, cost reduction is achieved by sharing the resources between the firms. Resources may be shared as manufacturing facilities, advertising campaigns, distribution channels and R&D cost etc.

d) Fast Growth: Merger enables fast growth as compared to internal expansion as the amalgamating firms can enter new markets instantly with the use of pre established plants and product lines. On the other hand, internal expansion takes quite long time to penetrate new markets, establish R&D, develop new product, and setting up a totally new administration.

e) Tax Benefits: Certain mergers help firms to utilize the tax benefits. Unabsorbed depreciation and accumulated losses of a loss making firm can be used to set off the taxable gains of the profit making firm with the help of merger.

f) Removal of Competition: Merger helps in removal of competition or sometimes formation of monopoly. When the competition between the rival firms becomes so intensive that forces the firms to price cutting and ultimately lower profits, merger is a good solution.

g) Diversification of Risk: Conglomerate merger is done to reduce the risk by diversification and thereby helps in stabilizing overall corporate income, which usually fluctuates due to change in economic, seasonal and product life cycle.

h) Managerial Effectiveness: Merger can benefit those companies which face managerial inadequacies. Such companies may combine with other companies with superior management to gain the congruence between the interests of management and the shareholders.

4.6 Valuation Methods in Mergers and Acquisitions Price and value are two different terms. Price refers to the amount paid to obtain goods /services or acquiring for running business, it doesn't necessarily reflect the value of that particular goods/service or acquired business all the time. Price may be higher or lower than the value of particular goods/services or business. There happens to be a significant difference between the value of a firm and the price paid for it. Hence, determination of the firm's value should be more important and realistic. The more accurate and realistic the valuation is, the more accurate can be the price to be paid for it. There are various methods of business valuation, which can be used according to suitability. For example, if a company has low return on investment, but possesses high-value permanent assets in its balance sheet, then such assets considered more important than its rate of return in the valuation process. Following are the three majorly used methods for business valuation

a) Traditional Approach: Under this approach value of a business is determined by using the value of assets presented by the books of accounts i.e. Balance Sheet. Methods of traditional approach ignore the intangible assets such as technical know-how, patents, brand names, and management competence while valuing the business. Balance sheet-based methods mainly consist liquidation value, book value, adjusted book value, and replacement-cost value.

Book Value: It is calculated by deducting all the debts from the value of total assets presented in the balance sheet. Main reason for non suitability of this method in case of merger/ acquisition is, it uses book value instead of current market value. Another reason for non suitability is non inclusion of

intangible assets. This method can still be used in those organizations where the difference between the book values and the current market value is very small.

Adjusted Book Value: This method eliminates the drawbacks of book value method. The adjusted book value is calculated by using the current market values of the assets on the balance sheet date, and considering the values of the intangible assets as well.

Replacement-cost Value: Under this method, the value of the firm is calculated by using the replacement cost of the assets i.e. the costs of obtaining similar assets from the market. This method is also not very much suitable for mergers and acquisitions as it doesn't consider intangible assets.

Liquidation Value: The liquidation value is calculated by deducting the value of debts from the selling amount of assets in the market. It represents the lowest value that an organization can have. The liquidation value doesn't have any significance in mergers and acquisitions except in extraordinary situations. This method of valuation has significance in case of buying a business which has been making financial loss.

b) Income Statement and Market-Based Approach: Under this approach balance sheet data is not used, rather the value of the firm is determined by using income statement and market data.

Market Price: Under this approach market value of the firm is computed by using the market price of its shares. The market price of the shares depend on various inside and outside factors. Thus, the market price of the share may be higher or lower than its the real value. This method has various drawbacks such as it doesn't reflect the realistic value of the firm if the shares of the firm are not traded actively in the market. Political and Economic conditions can impact the market price of the shares highly resulting in higher or lower value for the company. The market prices are generally not consistent. They can change abnormally after the merger is announced.

Price/Earning Ratio: P/E ratio is the commonly used method in M&As particularly in the valuation of non-public companies, as it is easy to apply. The P/E ratio of similar company within the same sector listed in the stock exchange can be used for those non-public companies where the market price of shares cannot be ascertained. Here we use the reference of the P/E of another company. Under this approach, the current or future values of the firm are multiplied by the P/E ratio of the reference company. If there are no similar companies found, the P/E ratio of the sector can be used, as a more practical approach. Using the P/E of a similar company or the sector is not a suitable approach for M&As as it is based on the current or past values of the firms. However, it is accepted as an applicable and practical method where there is insufficient information about the firm with high uncertainty about the future.

c) Discounted Free Cash Flows (DFCF) Approach: Each company under merger should be valued separately to ascertain the synergy effect. Each company prepares Performa Income Statements to determine future free cash flows. The value of the firm is estimated by discounting the FCF with the weighted average cost of capital (WACC). It is relatively easy for companies to estimate their pre merger future free cash flows by using past data. However, it becomes more difficult to estimate future free cash flows for the combined firms after the M&A. Post merger FCFs can be calculated as follows:

FCF = EBIT (1-t) + Depreciation and Non-cash expenses – Capital expenditures for fixed assets. – Increase in net working capital

t= marginal tax rate

After calculating post merger FCFs, next step is to determine the discount rate by which free cash flows are discounted. Most commonly weighted average cost of capital (WACC) is used as discount rate. The costs of debt and equity to find the weighted average cost of capital are based on the desired capital structure post merger. After calculation of the post merger FCFs and the WACC, the discounted value of cash flows is determined. This value is happens to be higher than the total discounted values of the individual companies. If the above said value is lesser than the total values of individual companies, the merger doesn't create any effect in economic terms.

4.7 Leveraged Buy-Out: The term **Leveraged** refers to significant utilization of debt for financing the transaction and **Buyout** refers access of substantial control over equity of the target company. A leveraged buyout is the term used in case of acquisition where the acquirer company uses significant amount of borrowed money to meet the cost of acquisition. Here the assets of the targeted company are used as collateral for the loans along with the assets of the acquiring company. The outsider's money is used because of lack of cash to expand one's capability to make larger acquisitions. Typically LBOs require the setup of an acquisition vehicle which is jointly funded by a financial investor (outsider lender) and the management of the target company. The assets of the company to be acquired are usually taken as collateral for the debt. The target company goes private after a LBO. Generally, there is a debt-equity ratio of 90% and 10% in LBO. Due to this high debt ratio, normally, the bonds issued in buy-out are not kept in investment grade but they are called Junk Bonds. Hence, under LBO, an outsider financial investor (e.g. private equity fund) puts into a smaller value of equity (as compared to the total purchase price) and remaining consideration is paid by using leverage (debt or other non-equity sources of financing).

Let us understand the concept of a leveraged buyout with a simple example –

Suppose XYZ Corp. wants to buy ABC Corp without investing a lot of capital. The value of ABC Corp. is USD 2000.00. XYZ Corp. invests USD 200.00 of its own equity & remaining USD 1800.00 it borrows at an interest rate of 5% per year.

Particulars	Figures	Figures	Figures	Figures
Equity	\$200	\$200	\$200	\$200
Debt	\$1,800	\$1,800	\$1,800	\$1,800
Total Investment	\$2,000	\$2,000	\$2,000	\$2,000

Return Earned on Investment	10%	6%	5%	4%
Total Return	\$200	\$120	\$100	\$80
Interest(5% on \$1,800)	\$90	\$90	\$90	\$90
Return on Equity	\$110	\$30	\$10	(\$10)
Return on Equity (%)	55	15	5	(-5%)

In the first year of operations, XYZ Corp earns USD 200.00 (10%) from the cash flow of ABC Corp. Now the total value of ABC Corp. is USD 2200.00. XYZ Corp. repays its interest on debt i.e. USD 90.00 (5% of USD 1800.00). As you can see the company is paying interest of USD 90 to the financial institutions for its investment of USD 1800. Thus XYZ is left with USD 110.00 (USD 200.00 – 90.00) available for equity shareholders. XYZ Corp earns USD 110 on its original investment of USD 200.00. Thus, XYZ earned a 55% return on equity on this transaction. Now let's consider how much return XYZ Corp. would have earned had it financed the entire transaction by equity. To acquire ABC Corp, XYZ Corp. has to invest USD 2000.00. In the next one year, XYZ Corp. earned USD 200.00 from the cash flow of ABC Corp. Thus its total return = $(200/2000) * 100 = 10\%$. Thus we can clearly see that the returns on leveraged buyout are much higher than a regular transaction. This example shows a very good return on equity because there is a positive effect of leverage here. This depends on the return on investment i.e. 10% here. If this return reduces to 4%, the return on equity will be negative. How? Amount left for equity shareholders is \$80 (4% on 2000) less \$90 (Interest) i.e. – \$10 or -5%. If this return reduces to 5%, the return on equity will be minimal. How? Amount left for equity shareholders is \$100 (5% on 2000) less \$90 (Interest) i.e. \$10 or 5%. If this return reduces to 6%, the return on equity will be average. How? Amount left for equity shareholders is \$120 (6% on 2000) less \$90 (Interest) i.e. \$30 or 15%.

4.8 Buyout Process

1. Purchase Price and Amount of Debt and Equity

The first step in a leveraged buyout is to determine a purchase price for the target company. This is a valuation of the company based on various internal and external factors of the target company. Once the purchase price is fixed the buyer must decide what percentage of equity & what percentage of the debt will he use to carry out the acquisition.

2. Listing Sources of Finance & Types of Debts Available

We already know that two types of finances are used to fund a leveraged buyout – equity & debt. We also know the source of equity, but there are various types of debt available to the buyer. These sources include bank debt, bonds, commercial papers, etc. The acquiring company must decide on what type of debt it wants to exercise depending on interest rates, repayment terms, etc.

3. Build Projections

The acquiring company must build a future balance sheet & income statement projections for the target company. This will help to determine the rate of return from the investment. The buyer must have an approximation for revenue growth, income & expense percentage, net income margin, etc. The buyer can go one step further & compare their own projection calculations with that of equity researchers to account for any discrepancy.

4. Calculating Cash flow & Cash Available for Cash Repayment

Further after building projections it is necessary to calculate cash flows. There are various different cash flows such as free cash flow to equity, free cash flow to the firm, unlevered free cash flow, etc. Our motive to calculate cash flow is to calculate cash available for repayment. We will get that by the following formula –

$$\text{Cash Available for Debt Repayment} = \text{Beginning Cash} + \text{FCF} - \text{Minimum Cash Balance}$$

Where,

$$\text{FCF (Free Cash Flow)} = \text{Cash Flow from Operations} - \text{Capital Expenditure} \& \text{ Minimum Balance}$$

Minimum Balance = Least amount of cash that a company needs to continue operating, paying employees, and paying for standard expenses.

5. Analysis Payment Structure: Every type of debt comes with a repayment structure, which says how much debt is payable at what time. Some of this repayment is mandatory while some is optional. The acquiring company should be sure that it can adhere to at least all the mandatory repayments in a timely manner. The projections and estimates are very useful in analyzing this debt repayment structure as well.

6. Exit: As we already know that most of the time leverage buyout is a method of earning a good return on investment for a private equity firm. Thus it is necessary that the acquiring firm has an exit strategy in place. The acquiring firm at least has some assumptions about how & when it will exit. A typical exit assumption can be taken as the company being sold after 6 years at the same implied EBITDA multiple at which it was purchased. The basic understanding is that upon exit the acquiring firm will repay all the debt obligations of the target company as a part of the owner's obligation. But it also gets all the company's remaining cash at the end of the period as an owner.

7. Calculating IRR on initial Investment

The purpose of building a leveraged buyout model (LBO) is to calculate returns and determine if the LBO deal is attractive or not. The acquiring company looks at IRR to determine the attractiveness of an

LBO. Thus in the final step, the buyer derives an IRR from all the estimates of future projections and related research.

$$\text{IRR} = (\text{Cash Flows}) / (1+r)^i$$

Where:

Cash flows= cash flows in the time period

r= Discount rate

i= Time period

4.8.1 Characteristics of a Good Leveraged Buyout (LBO): The prime motive behind a leveraged buyout is to use the cash of the target firm to pay back the debt applied for acquiring the target firm as soon as possible. A leveraged buyout (LBO) can have the following characteristics based on the main purpose:

- 1. Steady and Predictable Cash Flow** – LBO ensures a steady and predictable cash flow to repay the interest for the debt taken. Steady and predictable cash flows make it easier to get a loan because there is a lesser risk of nonpayment of interest.
- 2. Enterprise Value/EBITDA Multiple** - The Enterprise Value (EV)/EBITDA indicates the pattern as when and how easily the cash flows will be able to cover the purchase price. Enterprise Value refers to the total value of the firm i.e. long term debt plus market capitalization (equity).
- 3. Large Amount of Tangible Assets for Loan Collateral** – Loan collateral consists of long term assets such as land and Building, plant & equipment etc. as well as short term assets such as cash inventory and other current assets. These tangible assets/loan collaterals make it easy to get a low-interest financing. Availability of easy and low-interest financing helps the acquiring firm easy repayment of the loans.
- 4. Potential for Expense Reduction** – Management efficiency of the acquiring firm plays a greater role in reduction of expenses post LBO. Reduction in expenses enables to free up cash and helps in quick repayment of the debt. Private firms that are targets for LBO often have greater chance for reduction in expenses because of efficient management.
- 5. Minimal Future Capital Requirements** – Under LBO, the acquirer doesn't need larger capital requirements in future to run the company. All it needs is to repay the debt.
- 6. Clean Balance Sheet with Little Debt** - Less debt means less obligations to pay off. This makes the deal less risky and enables excess cash to utilize for leveraged buyout.
- 8. Strong Market position** - A stalwart position in market ensures that the target company is not going to be destructed after the leveraged buyout. Such strong position makes cash flows less risky.
- 9. Divestible Assets** - Divestible assets provide additional cushion to the acquirer to raise cash to pay off the debt more quickly particularly if the cash flows are endangered.

10. Viable Exit Strategy - The theme of leverage buyout aims getting good return on the equity investment by selling the company after a few years of the LBO. In the absent of viable exit plan LBO is probably not going to work.

4.8.2 Management Buy-Out: An MBO is a type of a leveraged buyout. It is a transaction in which a combination of equity and debt is used to purchase a company by the management. Further, the target Company's cash flow is collateral to secure and repay the debt. Since management hardly has the funds to buy the target company, hence they need to take debt to finance the buyout. In simple words, a management buyout (MBO) is a transaction where the management pools resources to acquire completely or partly, business managed by them. MBOs can be performed with any size business in any industry. It can be used for monetizing the owner's stake in a business or divesting a particular department from the core business. In some cases an MBO takes over a company from publicly-traded to private one.

Motives behind MBO: Following can be the reasons or motives on the part of buyer and seller behind MBO:-

1. It provides peace of mind to the owner/seller who wants to retire or cash out their position passing the company to known or trusted group.
2. MBO provides strategic advantages to the owner in terms of reducing the risk of disclosure of his confidential information, because the deal is done between the management and the owner without involvement of any third party.
3. MBOs can be a fascinating tool to go private by public Ltd. companies/corporations by executing a long-term turnaround strategy (selling or divesting a non core segment which is also unattractive for the shareholders).
4. Management pursuing MBO can earn direct financial rewards for their hard work and efforts by growing the value of the business. They feel more confident about using their experience and expertise to grow the business they bought by improving its operations. Therefore, by investing in the company they ultimately invest in themselves.
5. MBO is a quickest, easiest and less risky way of taking over the ownership of the company by its management. In an MBO, the buyers already have an inside look and in depth knowledge of the asset and other resources of the business which reduces the risk inherent in the investment.
6. Other Stakeholders such as customers, lenders, suppliers and the employees also get benefitted from an MBO. Because they don't have to deal with the new people, existing management stays in place which makes it comfortable for the other stakeholders to operate with the company.

Steps in MBO Execution: Process of MBO is not a short term procedure. First of all, the management needs to gain the trust and build the credibility with the existing owners of the company. It can be achieved over time by putting lots of efforts in improving the business and communicating the results to the owners in a transparent, straightforward and consistent manner. The next step is to assess the

opportunity and plotting a proper plan to purchase the asset. Opportunity can be identified by analyzing a number of events such as:-

1. Retirement of the existing owner with no successors of the business.
2. Desire of the management team to become the owners of the business.
3. Business is underperforming. But the current strategy employed by the owners is different from the management.

Below are given sequential steps of MBO process commencing from Employees and terminating on Owners for easy understanding:

Employees → Establish credibility with owners → **Opportunity to purchase the business you work** → Assess the opportunity and risk → **Assess the commitment required** → Write a business plan → **Negotiate the terms of sale** → Raise finance → **Complete due diligence** → Close deal → **Owners**

4.9 Financial Reconstruction

In the cases of merger, take-over and integration, etc., of corporate restructuring, the potential receiver firm has to deal with the management or shareholders of other firm/firms. On the other hand, the function of financial reorganization is an internal function executed with the consent of all the stakeholders. This is the simpler and easier form of corporate reorganization to be followed.

Meaning of Financial Reconstruction: Financial restructuring includes rearrangement of financial structure of the company in order to make its finances more balanced. A company shouldn't be either undercapitalized or overcapitalized. Financial restructuring can be done by various methods such as reduction in Capital, buyback of shares, reorganization/ consolidation of capital, subdivision, further issue of shares etc. Financial restructuring becomes compulsory on the occurrence of any of the following situations:

- (i) Requirement of huge working capital to reach desired level of production or services so that the market demand can be fulfilled.
- (ii) Inability of the company to meet its current commitments.
- (iii) When the company is not given further credit by the suppliers (e.g. consumables, raw materials, bought-out components etc.) and the job workers etc.
- (iv) Inability of the company to operate on optimum production capacity due to lack of liquid funds.

4.9.1 Objectives of Financial Reconstruction: To free the company from acute financial crisis and to enhance its efficiency, the financial reconstruction is urgently required. To control situations like over-capitalization, increase in the burden of fixed liabilities, lack of additional capital, fall in the earning capacity, default in capital cover, etc., the last resort is financial reorganization. Otherwise the company may have to close its business. The following are the main objectives of reorganization:

1. To avoid the damaging situation of over-capitalization and keep the company safe and secured under adverse and non-favorable conditions

2. To arrange for additional capital, by incorporating certain changes in the capital structure of the company,
3. To reduce the fixed expenses by converting debentures into equity shares
4. By writhing off the losses of past years and increase the earning capacity and its creditability and goodwill
5. To make cash position of the company sound to pay its liabilities and to distribute dividends.

Schemes of Financial Restructuring: Corporate financial restructuring refers to substantial changes in the financial structure, business portfolio, Control/ownership etc of the company. It is done to increase the value of the firm, i.e., equity or debt restructuring. Simplest form of financial restructuring is internal reconstruction, under which, the liabilities of the company are reduced by negotiation with various stakeholders such as creditor, banks, debenture holders, financial institutions, and shareholders etc. It deals with raising the funds for new projects by restructuring the capital base.

1) **Debt Restructuring:** It mainly involves extension in payment terms, variation in conditions and reduction in debt to make it less expensive. It is a negotiation procedure done mainly with vendors, creditors and bankers. It means reorganizing the whole debt capital of the company. It impacts the balance sheet of the company by reshuffling the items of debt obligation. Debt capital includes short term borrowings and secured/unsecured long term borrowings.

- It helps improving the liquidity position of a sick company and increases its cash flows by restructuring its long-term secured borrowing. On the other hand, it reduces the cost of capital for a healthy company.
- Long-term unsecured borrowings can be restructured in form of private loans, public deposits and privately placed unsecured debentures or bonds.
- Short term borrowings such as inter-corporate deposits clean bills & clean overdraft etc are generally not considered for restructuring rather, these can be renegotiated with new terms.
- Debt-equity swap is the best method of corporate debt restructuring. In this method, specified shareholders are given right to exchange their stock with debt such as bonds on a predetermined value within the company.

2) **Equity Restructuring:** It refers to reorganization of the equity capital. Shareholders capital and the reserves appearing in the balance sheet are reshuffled with the view of increasing overall market value of the firm's common stock. It involves changing the distribution pattern of firm's residual cash flows among the shareholders. Restructuring preference and equity capital is a complex process as it involves various legal compliances. Forms of equity restructuring:

- Alteration of share capital
- Reduction of share capital
- Buy-back of shares

a) Alteration of Share Capital. According to section 61 of the Companies Act, 2013 “A limited company having a share capital derives its power to alter its share capital through its articles of association. As per the section the company may alter its memorandum in its general meeting to: increase its authorised share capital by such amount as it thinks expedient, consolidate and divide all or any of its share capital into shares of a larger amount than its existing shares, convert all or any of its fully paid-up shares into stock, and reconvert that stock into fully paid-up shares of any denomination, sub-divide its shares, or any of them, into shares of smaller amount than is fixed by the memorandum, cancel shares which, at the date of the passing of the resolution in that behalf, have not been taken or agreed to be taken by any person, and diminish the amount of its share capital by the amount of the shares so cancelled. The cancellation of shares shall not be deemed to be a reduction of share capital. If a company increases its capital beyond the amount of authorised capital, it shall increase its authorised capital by the amount of new shares”

ii) Reduction/Cancellation of paid up of Share Capital: Reduction of share capital means reduction of issued, subscribed and paid up share capital both equity and preference of a company. Capital reduction commonly takes place with pay out or without payout or selective for a certain class of shares with or without payout subject to the fulfillment of conditions prescribed by laws

Examples: i) The shares of face value of Rs 125 each of which Rs 100 paid, the company may reduce them to Rs 100 fully paid-up shares and thus relieve the shareholders from liability on the uncalled capital of Rs 25 per share.

ii) The shares of face value of Rs 100 each fully paid-up is represented by Rs. 75 worth of assets. In such a case, reduction of share capital may be effected by cancelling Rs. 25 per share and writing off similar amount of shares.

iii) The shares of face value of Rs 100 each fully paid-up reduced to face value of Rs. 75 each by paying back Rs. 25 per share

Objectives of Capital Reduction/Cancellation

1. To remove bloat of balance sheet arising from accumulated losses funded through share capital/share premium. Setting of accumulated losses against share capital/reserves leads to right size of balance sheet.

2. To refund the surplus funds to the shareholders either by reducing the face value or by cancelling some shares.

c) Buy Back: “According to Section 68(1) of the Companies Act, 2013, a company whether public or private, may purchase its own shares or other specified securities (hereinafter referred to as “buy-back”) out of: (i) its free reserves; or (ii) the securities premium account; or (iii) the proceeds of any shares or other specified securities”

Share Split : A stock split is restructuring the share capital of a company by increasing or decreasing total number of outstanding shares without changing proportionate ownership of existing shareholders and total amount of share capital. There is no change in the balance sheet of company except the total

number of outstanding shares. For example when the company announces that it will go for a 2-for-1 split of its equity stock. It has 2,000 outstanding equity shares of Rs. 50 per share before a 2:1 split. After stock split it will have 4,000 outstanding equity shares Rs. 25 per share. Although the number of outstanding shares changed from 2000 to 4000 and stock prices changed from Rs. 50 to Rs.25, the market capitalization remained constant Rs 100,000.

Need for Stock Splits. A share split is usually carried out when the price of share have reached at such a high level or above the price levels of similar corporations in same industry. The basic purpose of share split is to make shares affordable to small investors without changing the underlying value of the company. There are several reasons companies consider while carrying out this corporate action: -

a) Affordability and Liquidity – When the share price is such a high level that it cannot be popularly traded among normal investors except HNI or institutional investors and because of this the trading volume decrease and investors move away. The management declares a stock split to make it affordable and liquid.

b) Psychological Effect – As explained in para a) Splitting of the stock is done to brings the share price down at attractive trading level without change in the total underlying value that is purely psychological effect to lure new investors

c) Performance Indicator - Companies generally adopt the action to split their shares as symbol that its stock has attained a certain desired level of success and is a faster growing firm.

d) Broadening of Shareholder Base - Stock split is done to broaden shareholder base and make a wider number of people to own the shares.

4.10 Corporate Failure - The term corporate failure means discontinuation of company's operations leading to inability to reap sufficient profit or revenue to pay the business expenses whatsoever reasons. Corporate failure may happen due to poor management, incompetence, and bad marketing strategies etc. In a global competitive business world, corporate failure occurs because of non adaptability of changes. The financial trends reflect the symptoms of corporate failures which are inter-related to on another. First of all a company faces a downfall in its earnings, which is reflected in the profitability ratios, such as profit margin, return on capital employed, return on investment etc. The ill effects of corporate failure are unemployment, increasing the level of poverty, depriving creditors of their legitimate earnings intensifying the crime rate and reduction in the volume of tax earnings for government. In simple language corporate failure destabilize the economic system.

Causes of Failure of Corporate Enterprises: Corporate failure could be caused by number of factors, such as:

1 Inefficient and Ineffective Board: The root cause of corporate failures is the lack of efficient and efficient board of directors team. Lack of skills, experience in core area of business riddled with conflict of interest, repeated fiduciary failure, absence of corporate strategic planning etc on the part of top management led to many corporate failure within country and outside.

2. Societal Factors: Products and services offered by firm may be rejected over a period of time by its customers whatsoever reasons. Simply when a firm has tough times selling its products in domestic market will look for distant markets which will lead to higher marketing costs and inability to sell its products.

3. Economic Turbulent: Economic instability or down turn in the economy caused financial distress to many firms in the past globally resulted corporate failure.

4. State Policy: Many a time government policies act against the operations of business. In such situations firms have no other way to avoid bankruptcy.

Effects of Corporate Failure 1) Unemployment level are increased. 2) Living standard falls 3) Resources are not employed 4) Criminal and unethical activities are increased 5) Level of Non-performing assets mounted in the balance sheets of bank 6) Instability in financial markets.

4.11 Liquidation: “As per Section 2(94A) of the Companies Act, 2013, winding up means winding up under this Act or liquidation under the Insolvency and Bankruptcy Code, 2016. Winding up is a means by which the dissolution of a company is brought about and its assets are realised and applied in the payment of its debts. After satisfaction of the debts, the remaining balance, if any, is paid back to the members in proportion to the contribution made by them to the capital of the company.” “The liquidation or winding up of a company is the process whereby its life is ended and its property is administered for the benefit of its creditors and members. An Administrator, called a liquidator, is appointed and he takes control of the company, collects its assets, pays its debts and finally distributes any surplus among the members in accordance with their rights.” Winding up ultimately leads to the dissolution of the company. During winding up process_ the legal entity of the company remains and it can sue and be sued in a court of law.

Modes of Winding Up of a Company: A company may be wound up in any of the following two ways:

1. Compulsory Winding Up of a Company: “Winding up a company by an order of the Tribunal is known as compulsory winding up. Section 271 of Companies Act, 2013 provides for circumstances in which a company may be wound up by Tribunal.

- a) When the company has, by special resolution, resolved that the company be wound up by the Tribunal;
- b) If the company has acted against the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality;
- c) When on an application made by the Registrar or any other person authorised by the Central Government by notification under this Act, the Tribunal is of the opinion that the affairs of the company have been conducted in a fraudulent manner or the company was formed for fraudulent and unlawful purpose.
- d) If the company has made a default in filing with the Registrar its financial statements or annual returns for immediately preceding five consecutive financial years; or
- e) When Tribunal is of the opinion that it is just and equitable that the company should be wound up.”

Petition for Winding Up: “A petition for compulsory winding up of a company may be filed in the Tribunal by any of the following persons.

i. Petition by the Company - A company can file a petition to the Tribunal for its winding up when the members of the company have resolved by passing a Special Resolution to wind up the affairs of the company. Managing Director or the directors cannot file such a petition on their own account unless they do it on behalf of the company and with the proper authority of the members in the General Meeting.

ii. Petition by the Contributories - A contributory shall be entitled to present a petition for the winding up of the company, notwithstanding that he may be the holder of fully paid-up shares or that the company may have no assets at all, or may have no surplus assets left for distribution among the holders after the satisfaction of its liabilities. It is no more required of a contributory making petition to have tangible interest in the assets of the company

iii. Petition by the Registrar - Registrar may with the previous sanction of the Central Government make petition to the Tribunal for the winding up the company only in the following cases:

- (a) If the company has made a default in filing with the Registrar its financial statements or annual returns for immediately preceding five consecutive financial years;
- (b) If the company has acted against the interests of the sovereignty and integrity of India the security of the State friendly relations with foreign States, public order, decency or morality;
- (c) If on an application made by the Registrar or any other person authorised by the Central Government by notification under this Act, the Tribunal is of the opinion that the affairs of the company have been conducted in a fraudulent manner or the company was formed for fraudulent and unlawful purpose or the persons concerned in the formation or management of its affairs have been guilty of fraud, misfeasance or misconduct in connection therewith and that it is proper that the company be wound up.

iv. Petition by the Central Government or a State Government on the ground that company has acted against the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality.

v. Any person authorised by the Central Government in that behalf.”

2. Liquidation under Insolvency and Bankruptcy Code 2016: “The Insolvency and Bankruptcy Code, 2016 relates to re-organisation and insolvency resolution of companies, partnership firms and individuals in a time bound manner. The Insolvency and Bankruptcy Code, 2016 applies to matters relating to the insolvency and liquidation of a company where the minimum amount of the default is Rs. 1 lakh (may be increased up to Rs.1 Crore by the Government, by notification). The Code lays down following two stages:

1) Insolvency Resolution Process -

It is the stage during which financial creditors assess whether the debtor's business is viable to continue and the options for its re-organisation and re-structuring are suggested;

2) Liquidation: and in case the insolvency resolution process fails, the liquidation process shall commence in which the assets of the company are realized to pay off the creditors.”

Modes of Dissolution: Dissolution of a company may be brought about in any of the following ways:

1. Through transfer of a company's undertaking to another under a scheme of reconstruction or amalgamation. In such a case, the transfer or company will be dissolved by an order of the Tribunal without being wound up.
2. Through the winding up of the company, wherein assets of the company are realized and applied towards the payment of its liabilities. The surplus, if any is distributed to the members of the company, in accordance with their rights.

Self Assessment Questions

1. Explain the term corporate restructuring. Highlight the different types of corporate restructuring plans.
2. What is financial reconstruction? Discuss the objectives of financial reconstruction.
3. Who can file the petition for winding up of accompany?
4. Discuss the motives behind MBO and its execution procedure.
5. Write notes on:- LBO, vertical and horizontal merger, Share split, Insolvency and Bankruptcy code 2016.
6. Explain the features of good LBO.

Suggested Book Readings:

1. Financial Management:- By M Y Khan and P K Jain, Tata McGraw Hill Education Private Limited.
2. Financial Management:- By I M Pandey, Vikas Publishing House PVT. LTD.
3. Financial Management:- By G Sudarsana Reddy, Himalya Publishing House.
4. Financial Management:- By Shashi K Gupta and R K Sharma, Kalyani Publishers