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**KARAIKUDI – 630 003**

## **ONLINE PROGRAMMES**

**M.Com.,**

**III SEMESTER**

**205332 - FINANCIAL MANAGEMENT**

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**SYLLABI – BOOK MAPPING TABLE**  
**31032 - FINANCIAL MANAGEMENT**

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<b>UNIT II</b>	<b>Pages 13-23</b>
Goals of Financial Management – Types – Maximization of profit, profitability / wealth / liquidity / solvency – Minimization of risk, cost of capital, dilution of management control etc. – Risk – Return trade off – Maximization and minimization Vs optimization.	
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# **BLOCK I FINANCIAL MANAGEMENT AND ITS SOURCES**

## **UNIT – I FINANCIAL MANAGEMENT**

Financial Management

NOTES

### **1.1 Concept of financial management**

What is meant by financial management? Financial management is management principles and practices applied to finance. Bion. B. Howard and Miller Upton view that financial management is the application of general management functions to the area of financial decision-making. General management functions include planning, execution and control. Financial decision-making includes decisions as to the size of investment, sources of capital, extent of use of different sources of capital extent of retention of profit or dividend payout ratio. Financial management is therefore planning, execution and control investment of money resources, raising of such resources and retention of profit/payment of dividend.

Bion. B. Howard and Miler Upton define financial management as ‘that administrative area or set of administrative functions in an organization which have to do with the management of the flow of cash so that the organization will have the means to carry out its objectives as satisfactorily as possible and at the same time meets its obligations as they become due.’

Joseph Bonneville and Lloyed E. Dewey interpret that financing consists of raising, providing and managing all the money, capital or funds of any kind to be used in connection with the business.

According to James C. Van Horne and John M. Wachowicz, financial management is concerned with acquisition, financing and management of assets with some overall goal in mind.

M.F.M Osborne defines financial management as the ‘process of acquiring and utilizing funds by a business.

Considering all these views, financial management may be defined as that part of management which is concerned mainly with raising funds in the most economic and suitable manner, Using these funds as profitability as possible; planning future operations, and controlling current performances and future developments through financial accounting, cost accounting, budgeting, statistics and other means. Financial management provides the best guide for future resources allocations. It designs and implements certain financial plan, investment plans and value addition plans.

### **1.2 Nature of Financial Management**

Nature of financial management is concerned with its functions, its foals, trade-off with conflicting goals, its indispensability, its systems, its relation with other subsystems in the firm, its environment, its relationship with

*Self-Instructional Material*



other disciplines, the procedural aspects and its equation with other divisions with the organization.

(i) Financial management is an integral part of overall management. Financial considerations are involved in all business decisions. Acquisition, maintenance, removal or replacement of assets, employee compensation sources and costs of different capital, production, marketing, finance and personnel decisions, almost all decisions for that matter have financial implications. So financial management is pervasive throughout the organization.

(ii) The central focus of financial management is valuation of the firm. That is financial decisions are directed at increasing/ maximizing/ optimizing the value of the firm. Fred. J. Weston and Eugene F. Brigham depict the above orientation.

(iii) Financial management essentially involves risk-return trade-off decision in investment involve choosing of types of assets which generate returns accompanied by risks. Generally, higher the risk, higher the returns and vice versa. So, the financial manager has to decide the level of risk the firm can assume and satisfy with the accompanying return. Similarly, cheaper sources of capital have other disadvantages. So to avail the benefit of the low cost funds, the firm has to put up with certain costs, disadvantages or risks, so , risk-return trade off is there throughout. Implies this aspect of financial management also.

(iv) Financial management affects the survival, growth and vitality of the firm. Finance is said to be the life blood of business. It is to business what blood is to us. The amount, type, sources, conditions and cost of finance squarely influence the functioning of the unit.

(v) Finance functions investment, raising of capital, distribution of profit, are performed in all firms—business or non-business, big or small, proprietary or corporate undertakings. Financial management is a concern of every concern.

(vi) Financial management is a subsystem of the business system which has other subsystems like production, marketing, etc. In systems arrangements financial subsystems is to be well-coordinated with others and other subsystems well matched with the financial subsystem.

(vii) Financial management of a business is influenced by the external legal and economic environment. The investor preferences, stock market conditions, legal constraint or using a particular types of funds or investing in a particular type of activity, etc., affect financial decisions of the business. Financial management is, therefore, highly, influenced/ constrained by the external environment.

(viii) Financial management is related to other disciplines like accounting, economics, taxation operations research, mathematics, statistics, etc. It draws heavily from these disciplines. The relationship between financial management and supportive disciplines is depicted in figure 1.2 given below.

(ix) There are some procedural finance functions-like record keeping, credit appraisal and collection, inventory replenishment and issue, etc. These are routinized and are normally delegated to the bottom management.

(x) The nature of finance function is influenced by the special characteristic of the business. In a predominantly technology-oriented business, it is R&D functions which get more dominance; in a consumer fashion product business it is marketing and marketing research which get more priority, and so on. Here, finance assumes a low profile importance. But one should not forget that the strength of a chain depends on its weakest link.

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### 1.3 EVOLUTION OF FINANCIAL MANAGEMENT

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

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

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

Till the early 1950s, financial management was concerned with maintaining the financial chastity of the business. Conservatism, investor/lender related protective covenants / information processing, issue management, etc., were the prime concerns. It was an outsider-looking – in function.

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

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

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

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

The 1990s saw the era of financial globalization. Capital moved west to east, north to south and so on. So, global financial management, global investment management, foreign exchange risk management, etc., became more important topics.

In the late 1990s, and 2000s, corporate governance has got pre-eminence and financial disclosure and related norms have become great concerns of financial management. The dawn of the 21<sup>st</sup> Century is heralding a new era of financial management with cyber support.

The development till the mid-1950 are branded as classical financial management. This dealt with cash management, cash flow management, raising capital, debt-equity norms, issue management, solvency management and the like. The developments since the mid-1950s and up to the 1980s are branded as modern financial management. The emphasis was on asset management, Portfolio approach, capital asset pricing model, financial signalling, efficient market hypothesis and so on. The developments since the 1990s may be called post- modern financial management with a great degree of global financial integration, net support finances, and so on.

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#### **1.4 SIGNIFICANCE OF FINANCIAL MANAGEMENT**

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Financial management is a very important function of overall business management the reason are laid down here.

(i) Financial management covers a very large spectrum of activities of a business, True, whatever a business does has a financial implication. Hence, its pervasiveness and significance. Finance knowledge is a must for all irrespective of position, place, portfolio and what not.

(ii) Financial management influences the profitability or return on investment of a business. The choice of capital investment decisively affect the profitability of n undertaking.

(iii) Financial management affects the solvency position of a business. Solvency refers to the ability to service debts paying interest and repaying principle as these become due. Profitability and nature of debts –both concern of financial management-govern the solvency aspect. Hence the significance of financial management.

(iv) Financial management affect the liquidity position of a business. Liquidity refers to the ability to repay short-term loans. Efficient cash management, cash flow management and management of relations with the banker influence the level of liquidity. All these factors are aspects of financial management.

(v) Financial management affects cost of capital. Able financial managers find and use less cost sources, which in turn contributes to profitability . In using fixed cost instrument of capital, the efficacy of sound financial management would be known well . Variable cost instruments of capital are the order of the day. Finance savvy persons go for such instruments.

(vi) Financial management, if well steered, can ward off difficulties, such as restrictive covenants imposed by lenders of capital, inflexibility in capital structure, dilution of management control on the affairs of the business, and so on .Failure to do so has landed many firms in difficulties and a financial mess.

(vii) Good financial management enables a business to command capital resources flowing into the business. There is always capital available at attractive terms if business finance is handled well. Even overseas capital can be easily mobilized if sound financial management is ensured.

(viii) Market value of the business can be increased through efficient and effective financial management . As share and stock are quoted at high prices, more funds, when needed, can be mobilized easily either through public and / or rights offers.

(ix) Efficient financial management is necessary for the survival , growth, expansion and diversification of a business.

(x) Financial management significantly influences the business's credit rating, employee commitment, suppliers' confidence, customers' patronage and the like .

(xi) Financial management is an exercise in optimizing costs given revenues or optimizing revenues, or optimizing revenues given costs. This is vital to ensure purposeful *resource* allocation.

(xii) Today, financial management has global dimensions with opportunity to mop up resources and put up investment across borders. Global trend in finance is better learn by all.

The significance of financial management can be well appreciated if one considers the analogy. Finance is like blood . Financial management is like the blood circulation system. without financial management ,a business cannot survive.

### 1.5 FINANCIAL FUNCTIONS

Financial functions simply refers to functions of financial management.

The functions of financial management are divergent. Several classifications are used. Here are presented the functions of financial management as noted by eminent authors . Figure 1.3 gives the details.

Authors	1	2	3	4
Robert w. Johnson	Financial Planning and control	Raising of Funds	Investing Funds	Meeting Special problems
Grunwald Nemmars	Investment Of funds	Providing Liquid assets	Generating Earnings	Maximizing Market Value of the Firm
Van home & Wachowicz	Investment function	Financial function	Financial function	
Earnest W. Walker	Financial planning	Financial coordination	Function Control	
F.J.Weston & E.F.Brigham	Financial Planning and control	Fixed asset and working capital management	Capital Structure decisions	Individual Financing episodes

FIG. 1.3: Function of financial management

The above figure presents the functions of financial management, or finance functions, as perceived by the different authors. Let us look at them in a more analytical way. Finance functions have two dimensions – managerial and operative. The managerial finance functions include planning, Organization , direction, coordination and control of the operative functions. The operative functions include investment function, financing function and dividend function. We have a matrix of functions as given in figure 1.4.s

Operative Functions	Managerial Functions				
	Planning	Organizing	Direction	Coordination	Control
Investment and asset	Size and				

management	types					
Financing and liability management	Structure and cost					
Dividend payout management and internal financing	Impact on value and liquidity					

### FIG. 1.4: Matrix of Financial Functions

Each one of operative functions has got to be planned, organized, directed, coordinated and controlled. Investment function is concerned with the asset to be acquired. Fixed and current assets are needed. Commitment of funds in them is dealt by investment function. Financing function is concerned with the capital sources to be tapped. Equity and debt funds are available. The mix of them is dealt by financing function. The investment function deals with the 'asset side' of the balance sheet and financing function with the 'liabilities side' of the balance sheet. Dividend function deals with how much of the profit is to be distributed as dividend and how much is to be retained. Evidently, each of the operative functions involves a host of dimensions as to size, variety, proportions, timing, sourcing and so on requiring a total managerial approach to decide each on each dimension. Hence, the interplay of managerial and operative functions .

Now a more detailed account of each of the operative functions is attempted.

#### (a) Investment and asset management Function

A detailed discussion on investment function of financial management is taken up. This function essentially covers the following:

- (i) The total amount to be committed in assets
- (ii) The proportion of fixed to current assets
- (iii) The mix of fixed assets to be acquired
- (iv) The timing sourcing and acquisition of fixed assets
- (v) The evaluation of capital investment as to risk and return features
- (vi) The mix of current assets
- (vii) The management of each item of current assets to optimize liquidity and return
- (viii) The effecting of a healthy portfolio of assets

Actually the above aspects of investment function are concerned with much pregnant issues with which financial management is concerned. The first aspect deals with the size of the firm, the second and third deal with

the level of risk the business is willing to assume, the fourth with appraisal of investment as to their profitability, payback period, etc., the fifth with actual execution of investment decisions, the sixth with the liquidity of the business, the seventh with structural and circulatory aspects of current assets and the eight with the overall balancing of various investment held by the business taking into account competing and divergent claims.

Investment function is concerned capital budgeting and current asset management. Capital budgeting deals with fixed assets management. Investment appraisal, capital rationing, and acquisition, maintenance, replacement and renewal of fixed assets come under fixed assets management. Inventory management, receivables management marketable securities management, cash management and working capital administration come under current assets management. (You will learn every one of these in the subsequent lessons.) A good deal of planning, organization, coordination and control is needed in every decision area.

### **(b) Financing and liability management function**

The financing functions refers to raising necessary funds for backing up the investment function. Financing function deals with the capital structure of the business and covers the following:

- (i) Determination of total capital to be raised
- (ii) Determination of the debt-equity ratio or the proportion of debt to equity capital and the mix of long –term and short-term capital
- (iii) Determination of the level of fixed- change funds like bonds, debentures, loans, etc.
- (iv) Determination of the sources of borrowing-development banks, public or private
- (v) Determination of the securities/charges to be given
- (vi) Determination of the cost of capital
- (vii) Determination of the extent of lease financing
- (viii) Determination of the degree of sensitivity of earnings per share to earnings before interest and taxation
- (ix) Determination of the method of raising capital- public issue or private placement, under- writing and brokerage, rights issue and the like
- (x) The legal restrictions, if any, on the scale, for, timing and other aspects of raising capital

Like investment function, financing function also affects the liquidity (less short-term debt means more liquidity), solvency (more equity means more solvency), profitability (low-cost capital means more profitability), flexibility of capital structure (more equity, more flexibility), control on business (more debt and less equity mean more concentration of control on the affairs of the business) and so on. That is, financing function is equally influencing the fortunes of the business. But authors like Modigliani and Miller would argue that financing function is not all that relevant requiring our deep concern. Any capital mix or structure is equally good or bad as any other. (You will learn more of these in subsequent lessons). Lot of managerial planning and control are needed in the financing function.

### **(c) Dividend payout Management function**

The third and last, but not the least important, function of financial management is dividend function. The fruits of the carefully executed earlier two functions are the profits. How the profits are to be utilized is the concern of the dividend function. How much of the profits is to be distributed as dividends to the shareholders? In other words what should be the payout ratio? What should be the retention ratio? Dividend payment is necessary, for shareholders expect return on their shareholding for they can invest and spend the dividend income; for maintaining or enhancing the value of the shares in the market, for dividend declaration has a financial signalling effect and so on. Retaining the profits and ploughing back the same in the business itself may become necessary because the company can invest more profitably than the shareholders; the company can get established and can get established and can modernize, diversify and expand using the retained profits; the shareholders are expecting capital gain rather than current income; and because the cost of raising new capital from the public is costlier and time consuming. So, there are conflicting issues in paying dividends as well as in retaining the earnings. A well thought out plan of action is called for. Hence the significance of the dividend function, (You will learn more on this function in the last lesson).

There is another classification of finance functions. Treasurer function and controller function are the two types. Treasurer's responsibilities include asset management, capital budgeting, bank-institutional relationship, credit management, dividend disbursement, investor's relations, insurance risk management, tax analysis, etc. The controller deals with accounting, data processing, budgeting, internal control, government reporting, etc.

### **operative functions**

The operative functions are those tasks or duties which are specifically entrusted to the human resource or personnel department. These are



concerned with employment, development, compensation, integration and maintenance of personnel of the organisation.

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### 1.6 Managerial functions

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Functions of Managers. Managers just don't go out and haphazardly perform their responsibilities. Good managers discover how to master five basic functions: planning, organizing, staffing, leading, and controlling. Planning: This step involves mapping out exactly how to achieve a particular goal.

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### 1.7 Investment

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Investment is an activity that is engaged in by people who have savings. But all savers are not investors. Investment is different from savings. It means many things to many persons. One person may purchase gold in large quantity for the purpose of price appreciation and consider it as his investment. Another person may take an insurance policy to avail so many benefits in offers in future. That is his investment. Yet another person may lend some amount to somebody with an intention to get interest at a future date and may consider the same as his investment.

In all these cases, one thing is common i.e. the amount is invested with the aim of achieving some additional income or growth in value. Hence, it involves the commitment of resources that have been saved in the hope that some benefits will accrue in future. With this discussion, we shall now proceed to see some of the definitions given by the scholars.

#### Definition

**Donald E. Fischer and Ronald J. Jordan:** In the words funds made in the expectation of some positive rate of returns. If the investment is properly undertaken, the return will be commensurate with the risk the investor assumes”.

**F. Amling:** According to **F. Amling** the term investment means, “the purchase by an individual or institutional investor of a financial or real asset that produces a return proportion to the risk assumed over some future investment period”.

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### 1.8 Functions of investment

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Basically, there are four concepts of investment, which are as follows:

1. Financial Investment
2. Economic Investment
3. Business Investment
4. General Investment

We shall now detail each one of them as given below:

1. **Financial Investment:** Allocation of monetary resources to assets that are expected to yield some gain or positive return over a given period of time is known as financial investment. Purchasing of shares, debentures, post office savings certificates and insurance policies all are investments in the financial assets. These investments range from safe investments to risky investments. Such investments yield return in the form interest, dividend, rent, premium, pension benefits or the appreciation of the value of their principal capital. while making investments in these assts, decisions as to type of investment, amount of investment, period of investment etc. are necessarily to be taken.
2. **Economic Investment:** According to the economists, investment means the net additions to the economy's capital stock, which consists of goods and services that are used in the production of other goods and services. Hence, it includes all types of plant, machinery, equipment, inventory, and construction materials as well as all types of services. Such investment generate physical assets.
3. **Business Investment:** Putting money in a private business is known as business investment. For instance, a man is investing Rs. 2,00,000 in his newly started provisional store. Such an investment in called business investment.
4. **General Investment:** Sometimes, some persons invest in the avenues, which do not give any additional income such as interest, dividend, rent, etc., or capital growth. Such people are called "The man on the street". For example, of a person buys a car or scooter for his personal use, such an investment is called general investment or personal investment. He will not receive any additional income from such an investment.

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### 1.9 SCOPE FOR INVESTMENT

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1. To understand various investment decision rules.
2. To knows what are the good investments decisions rules.
3. To known the category of investment decision rules.
4. You can take investment decision only after analyzing entire process of investment that starts with funds contribution and ends with getting expectations fulfilled.
5. The investment decision rules allow you to formalize the process and specify what condition or conditions need to be met to accept the project.
6. You will take decision only after ensuring that the required expectations in terms of returns are ensured at any cost.

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**1.10 FINANCING FUNCTION**

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The Finance Function is a part of financial management. In a business, the finance function involves the acquiring and utilization of funds necessary for efficient operations.

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**1.11 Meaning**

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Finance is defined as the management of money and includes activities like investing, borrowing, lending, budgeting, saving, and forecasting. Corporate finance also includes the tools and analysis utilized to prioritize and distribute financial resources.

**Scope of financing function**

No doubt, the scope of finance function is wide because this function affects almost all the aspects of a firm's operations. The finance function includes judgments about whether a company should make more investment in fixed assets or not.

It is largely concerned with the allocation of a firm's capital expenditure over time as also related decisions such as financing investment and dividend distribution. Most of these decisions taken by the finance department affect the size and timing of future cash flow or flow of funds.

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**1.12 Dividend function**

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A dividend is a payment made by a corporation to its shareholders, usually as a distribution of profits. A dividend is allocated as a fixed amount per share with shareholders receiving a dividend in proportion to their shareholding. Dividends can provide stable income and raise morale among shareholders.

# UNIT – II GOALS OF FINANCIAL MANAGEMENT

Goals provide the foundation for any managerial activity. They are the ends towards which all activities are directed. The purpose and direction of an organization are seen in its goals. Goals act as motivators, serve as the standards for measuring performance,

help in coordination of multiplicity of tasks, help in identifying inter-departmental relationship and so on. Simply put, goals are what you aim at. So, goals have to be specific and quantitative. Generally, goals are multiple. financial management may

pursue different goals such as increasing profit by 20 per cent every year, reducing cost of capital by 1 per cent, maintaining the debt-equity ratio at 3:2 and soon. Let us examine all these in detail.

## 2.1 Types of Goals:

Goals can be classified in many ways. Official goals, operative goals and operational goals are one classification. Official goals are the general aims of the organization. Maximization of return on investment and market value per share may be termed as official goals. Operative goals indicate what the organization is really attempting to do. They are focused and help in choice making. Expected return on investment, cost of capital, debt-equity norms, etc., along with time horizon are specified or their acceptable ranges/limits are started keeping in view the official goals. The operational goals are more directed quantitative and verifiable. The scale, mix and timing of specific form of finance are detailed. The official, operative and operational goals are structured with a pyramidal shape, the official goals at the top (concerned with the top executives), operative goals at the middle (concerned with middle management) and operational goals at the base.

Goals can be classified in a functional way. Return related goals, solvency related goals, liquidity related goals, valuation related goals, risk related goals, cost related goals and so on. Return related goals refer to the aims on minimum, average and maximum return. What should be the minimum return from a project in order to accept the same, what should be average return the firm should settle for and what is the maximum return possible (for risk increases with return). Similarly, goals as to solvency, liquidity, market value, etc., can be thought of. You have to state to what extent the stated goal factor is important and be actively pursued/and the extent of the goal factor required; the minimum, average and the maximum levels be specified. The different goals of financial management are given below in Table 1.1

Table 1.1: Goals of Financial Management

Maximization	Minimization
i. Profit	vii. Risk
ii. Profitability	viii. Cost of capital
iii. Earnings per share	ix. Dilution of control
iv. Liquidity	
v. Solvency	
vi. Flexibility	

x. Wealth Maximization
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xi. EVA Maximization
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## 2.2 Profit Maximization:

Profit maximization is a stated goal of financial management. Profit is the excess of revenue over expenses. Profit maximization is therefore maximizing revenue given the expenses, or minimizing expenses given the revenue or a simultaneous maximization of revenue and minimization of expenses. Revenue maximization is possible through pricing and scale strategies. By increasing the selling price may achieve revenue maximization, assuming demand does not fall by a commensurate scale. By increasing quantity sold by exploiting the price-elasticity of the demand factor, revenue can be maximized. Expenses minimization depends on variability of costs with volume, cost consciousness and market conditions for inputs. So, a mix of factor is called for profit maximization.

This objective is a favoured one for the following reasons;

First profit is a measure of success in business. Higher the profit greater is the degree of success. Second, profit is a measure of performance. Performance efficiency is indicated by the quantum of profit. Third, profit making is essential for the growth and survival of any undertaking. Only a profit making business can think of tomorrow and beyond, think of renewal and replacement of its equipment, and can go for modernization and diversification. Profit is an engine doing away the odds threatening the survival of the business. Fourth, profit making is the basic purpose of business. It is accepted by society. A losing concern is a social burden. The sick business undertakings cause a heavy burden to all concerned, we know. So, profit criterion brings to light operational inefficiency. You cannot conceal your inefficiency if profit is made the criterion of efficiency. Fifth, profit making is not a sin. Profit motive is a socially desirable goal as long as your means are good.

However, profit maximization is not much favoured. Certain limitations are pointed out. First, the concept of profit is vague. There are several concepts of profit like gross profit, profit before tax, profit after tax, net profit, divisible profit and so on. So the reference to profit has to be clear. Second, profit maximization in the long-run or in the short run is to be stated clearly. In the long-run or in the short-run, profit orientations differ in nature, emphasis and strategies. Third, profit maximization does not consider the scale factors. Size of business and level of profit have to be related. Otherwise no sensible interpretation of performance or efficiency is possible. Fourth, profit has to be related to the time factor. Inflation eats up money value. A rupee is worthier today than tomorrow and day after. Time value of money is not considered in profit maximization. Consider the case of three businesses making same absolute profits over a three year time span given below;

Years	Unit – 1	Unit – 2	Unit - 3
	Rs.	Rs.	Rs.
1	20,000	40,000	5,000
2	20,000	15,000	15,000
3	20,000	5,000	40,000
Total	60,000	60,000	60,000

The profit maximization objective would not differentiate among the three business. But, evidently, Unit-2 is the best the three, followed by Unit-1 and Unit-3 in that order. Fifth, profit maximization might lead to unfair means being adopted. Ethics in business dealings may be undermined and this is not good. So, profit maximization is not accepted as a flawless goal.

### **Profitability Maximization:**

Profit as an absolute figure conveys less and conceals more. Profit must be related to either sales, capacity utilization, production or capital invested. Profit, when expressed in relation to the above size or scale factors, acquires greater meaning. When so expressed, the relative profit is known as profitability. Profit per rupee sales, profit per unit production, profit per rupee investment, etc., are more specific. Hence, the superiority of this goal to the profit maximization goal.

Further profit per rupee investment or return on investment (ROI) is a comprehensive measure.  $ROI = \text{return or profit} / \text{average capital invested}$ . This can be written as;

$$\frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Investment}}$$

Profit divided by sales measures the profit per rupee of sales, and sales divided by investment measures the number of times the capital is turned over. The former is an index of profits earning capacity and the latter is an index of activeness of the business. Maximization of profitability (ROI) is possible through either the former or the latter or both.

The favourable scores of this objective are the same as those of the profit maximization objective. The unfavourable scores of this objective again are the same as those of the profit maximization objective except one aspect. The profit maximization goal does not relate profit to any base, but profitability maximization relates profit to sales and / or investment. Hence it is a relative measure. So it is better than the profit maximization goal on this score. But as other limitations continue, this objective too gets only a 'qualified' report as its desirability.

### **EPS Maximization:**

Maximization EPS involves maximizing earnings after tax given the number of outstanding equity shares. This goal is similar to profitability maximization in respect of merits and demands. It is very specific both as to the type of profit and the base to which it is compared. One disadvantage is that EPS maximization may lead to value depletion too, because effect of dividend policy on value is totally discarded.

### **Liquidity Maximization:**

Liquidity refers to the ability of a business to honour its short-term liabilities as and when these become due. This ability depends on: the ratio of current assets to current liabilities, the maturity patterns of current assets and the current liabilities, the composition of current assets, the quality of non-cash current assets; the relations with the short-term creditors; the relations with bankers and the like. A higher current ratio, a perfect match between the maturity of current assets and current liabilities, a well - balanced composition of current assets, healthy and 'moving' current assets, i.e., those that can be converted into liquid assets with much ease and no loss, understanding creditors and ready to help maintain a high - liquidity level for a business. All these are not easy to obtain and these involve costs and risks.

How far is it a good goal? It is a good goal, though not a wholesome one. Every business has to generate sufficient liquidity to meet its day-to-day obligations. Last, the business would suffer. A liquidity rich business can exploit some rare opportunities like buying inventory in large quantity when price is lower, lend to the call money borrowers when the

interest rate is high, retire short-term-creditors taking advantage of cash discounts and so on. So many benefits accrue. But, high liquidity might result in idle cash resources and this should be avoided. Yes, excess liquidity and profitability move in opposite directions, they are conflicting goals and to be balanced.

### **Solvency Maximization :**

Solvency is long-run liquidity is short-run solvency. The business has to pursue the goal of solvency maximization. Solvency is the capacity of the business to meet all its long-term liabilities. The earning capacity of the business, the ratio of profit before interest and tax to interest, the ratio of cash flow to debt amortization, the equity-debt ratio and the proprietary ratio influence the solvency of a business. Higher the above ratios greater is the solvency and vice-versa.

Is this a significant goal? Yes solvency is guarantee for continued operation, which in turn is necessary for survival, growth and expansion. Borrowed capital is a significant source of finance. Its cost is less; it gives tax leverage; So, equity earnings increase; so market valuation increases. So, wealth maximization is enabled through borrowed capital. But to use borrowed capital, solvency management is essential. You have to decide the extent to which you can use debt capital and ensure that the cost of debt capital minimum. Higher dependence and higher cost (higher than the ROI) would spell doom to the business. If the cost is less (cost is the post tax interest rate), and your earnings are stable, a higher debt may not be difficult for servicing. Solvency maximization is increasing your ability to service increasing debt and does not mean using less debt capital. Increasing the debt service ability would require generating more and stable cash flows through the operations of the business. Ultimately, the nature of investments and business ventures influence solvency.

You would now understand that liquidity maximization and solvency maximization emerge to a large extent from the wealth maximization objective.

### **Flexibility maximization:**

Flexibility means freedom to act in one's own way. The finance manager must enjoy a good degree of freedom. This is possible when more equity capital is used, there are no restrictive covenants and exit options are available.

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## **2.3 Minimization of Risk:**

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So far, maximization financial goals were dealt with. Now, if we turn the coin, the minimization goals come to light. Minimization of risk is one of the goals. Risk refers to fluctuation, instability or variations in what



we cherish to obtain. Variations in sales, profit, capacity utilization, liquidity, solvency, market value and the like are referred to as risk. Business risk and financial risk are prominent among different risk. Business risk refers to variation in profitability while financial risk refers to variation in debt servicing capacity. The business risk, alternatively, refers to variations in expected returns. Greater the variations, greater the business risk. Risk minimization also does not mean taking no risk at all. It means minimizing risk given the return and given the risk minimizing return. Risk reduction is possible by going in for a mix of risk-free and risky investments. A portfolio of investments with risky and risk-free investments could help reduce business risk. So, diversification of investments, as against concentration, helps in reducing business risk.

Financial risk arises when you depend more on high-gear capital structure and your cash flows and profits before interest and tax (PBIT) vary. To minimize financial risk, the quantum of debt capital is limited to the serviceable level, which depends on the minimum level of PBIT and the cash flow. Of course, debt payment scheduling and rescheduling may help in financial risk reduction and the creditor must agree to such schedules/reschedules. Here too, a portfolio of debt capital can be thought of to reduce risk.

### **Minimization of Cost of Capital:**

Minimization of cost of capital is a laudable goal of financial management. Capital is a scarce resource. A price has to be paid to obtain the same. The minimum return expected by equity investors, the interest payable to debt capital providers, the discount for prompt payment of dues, etc., are the costs of different forms of capital. The different sources of capital equity, preference share capital long-term debt, short-term debt and retained earnings have different costs. In theory, equity is the costliest source. Preference share capital and retained earnings cost less than equity. The debt capital costs less, besides there is the tax advantage. So, to minimize cost you have to use more debt and less of other forms of capital. Using more debt to reduce cost is however beset with some problems, viz., you take heavy financial risk, create charge on assets and so on. Some even argue that more debt means more risk of insolvency and dimension of cost-the hidden cost. So, minimizing cost of capital means minimizing the total actual and hidden costs.

This is a good. Minimization of capital cost increases the value of the firm. If the overall cost of capital is less, the firm can take up even marginal projects and make good returns and serve the society as well. But, it should avoid the temptation to fritter away scarce capital. Capital should be directed into productive and profitable avenues only.

## Minimization of Dilution of Control:

Control on the business affairs is, generally, the prerogative of the equity shareholders. As the board holds a substantial equity it wants to preserve its hold on the affairs of the business. The non-controlling shareholders too, in their financial pursuit, want no dilution of their enjoyment of fruits of equity ownership. Dilution takes place when you increase the capital base. By seeking debt capital control dilution is minimized. Also, by rights issue of equity dilution of control can be minimized.

It is evident, minimization of dilution of control is essentially a financing - mix decision and the latter's relevance and significance has been already dealt with. But you cannot minimize dilution beyond a point, for providers of debt capital, directly or indirectly, affect business decisions. The convertibility clause is a shot in the arm for those creditors. Yet, controlling power has to be distributed. Especially, in Indian context one need not be a 51 per cent owner to exercise full control. Even with as little as 26 per cent or 30 per cent equity holding maximum control can be exercised. This is bad. So, such control is better not controlled. So, there is need for sharing of controlling power. The present scenario is a fulfilment of the above.

## Wealth Maximization:

Wealth maximization means maximization of networth of the business, i.e., the market valuation of a business. In other words, increasing the market valuation of equity share is what is pursued here. This objective is considered to be superior and wholesome. The pros and cons of this goal are analysed below.

Taking the positive side of this goal, we may mention that this objective takes into account the time value of money. The basic valuation model followed discounts the future earnings, i.e., the cash flows, at the firm's cost of capital or the expected return. The discounted cash inflow and outflow are matched and the investment or project is taken up only when the former exceeds the latter. Let the cash inflows be expressed by  $CF_1, CF_2, CF_3, \dots, CF_n$  where the subscripts 1, 2, 3, ..., n are periods when flows are realized. Let the cash investment at time zero be 'I'. The present value, i.e., the discounted value of  $CF_1, CF_2, CF_3, \dots, CF_n$ , at the discounted rate 'r' is given by:

$$\frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{CF_n}{(1+r)^n}$$

The value addition is given by PV-I. By adopting this methodology the firm gives adequate consideration to time value of money, the short-run

and long-run income as the return throughout the entire life span of the project is considered and so on.

The term cash flow used here is capable of only one interpretation, unlike the term profit. cash inflows refers to profit after interest and tax but before depreciation. Otherwise put, profit after tax and interest as increased by depreciation. Cash outflow is the investment. Salvage value of investment at its present value can be reduced from investment or added to inflow. So, the cash flow concept used in wealth maximization is a very clear concept.

This goal considers the risk factor in financial decision, while the earlier two goals are silent as though risk factor is absent. Not only is there risk but it is also increasing with the level of return generally. So, by ignoring risk, you cannot maximize profit forever. Wealth maximization objective give credence to the whole scheme of financial evaluation by incorporating risk factor in evaluation. This incorporation is done through enhanced discounting rate if need be. The cash flows for normal-risk projects are discounted at the firm's cost of capital. Whereas riskily projects are discounted at a higher than cost of capital rate so that the discounted cash inflows are deflated, and the chance of taking up the project is reduced. Cash flows - inflows and outflows are matched. So, wealth maximization goal comes clear off all the limitations of all the goals mentioned above. Hence, wealth maximization goal is considered a superior goal. This is accepted by all participants in the business system.

The profit, profitability, liquidity, solvency and flexibility maximization goals and risk, cost and dilution of control minimization goals lead to reaping of wealth maximization goal. Wealth maximization is, there fore, a super ordinate goal.

Maximization of Economic value added:

A Morden concept of finance goal is emerging now called maximization or economic value added(EVA). $EVA = NGPAT - CCC$ , where EVA is economic value added, NGPAT is net generating profit after tax but before interest and dividend ans CCC is cost of combined capital.  $CCC = \text{Interest paid on debt capital} + \text{fair remuneration on equity}$ . EVA is, simply put, excess of profit over all expenses, including expenses towards fair remuneration paid/payable on equity fund.

### **RISK-RETURN LINKAGE AND TRADE-OFF:**

Risk is uncertainties or fluctuations in expected gain or benefit. Return is the gain of reward. Risk and return are linked in a probabilistic way. Higher risk may give you more return and vice versa. There is no certainty relationship. If that were so, the concept of risk would

vanish. You put your money with nationalized banks in different schemes. Your return at the maximum would be 10 per cent or so, but you are sure this return would be given to you with no hitch or hindrance. So there is no fluctuation in your earnings from your deposits with these banks. SO, there is no risk but your return is minimum. You put your money in debentures of AAA rated company. A 12 per cent interest may be promised. You may not run any risk, but the government guarantee is not there as in the case of bank deposits. So some risk is there. Hence a 2 per cent extra return. You take some risk and there is additional return. You put your money in a BBB plus company's debentures and you are promised 13 per cent return. You take more risk than in the case of your investment in an AAA company and hence the added return. In these two cases referred to above you take the risk. But returns are only promised. If promise are not fulfilled, higher returns have not resulted. Hence, the probabilistic but direct relationship between risk and return.

As risk and return move in the same direction, a trade-off has to be effected. What is the level of risk you want to take? Then the return is specified. What is the return you want to earn? Then the risk is given. If you decide one, the other is given and you can't have any bargain over that. You decide one and take other as given. If you reduce the level of risk, this is accomplished by a reduction in return too and vice versa. So, every unit of return has a price, i.e., the risk. You pay the price, i.e., assume the extra risk and get the extra return and vice versa. This exchange arithmetic is referred to risk-return trade-off.

All financial decisions involve risk-return trade-off. Consider these- more liquidity means less risk of running out of cash. You keep more liquid cash; result is more barren assets and less return. So, less risk-less return situation arises. More solvency means less risk because you possibly use less debt capital. Less debt means more overall cost of capital, for you have used less of low cost debt capital and more of high cost equity capital. More overall cost of capital means reduced return. So, again less risk and less return situation results. When high risk is involved, high return is expected.

This relationship is put into an equation of risk and return.  $E(R) = R_f + R_p$ , where,  $E(R)$  is expected return,  $R_f$  is risk-free return as in the case of return on good bonds and  $R_p$  is risk premium, i.e., additional return expected for any additional dose of risk assumed and  $R_p$  varies with risk level.

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## **2.4 MAXIMIZATION - MINIMIZATION - OPTIMIZATION - SATISFICING:**

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So far the goals of financial management were dealt either in terms of maximization or minimization, as the case may be. Now the reality of these

maximization and minimization may be required to be looked into, and alternative approaches to them, if need be, evolved.

Both maximization and minimization are devoid of clear expression or definition, as these do not have define limits. Hence these are unrealistic. Unrealistic, not because conceptualization is difficult. We can even conceptualize by mentioning some benchmark levels or some mini-max ranges. But once such levels are mentioned, human tendency is to conform to the limits -you may not maximize return beyond the minimum expected and may not minimize cost below the maximum acceptable. The divorce between ownership and management in a case in point. shareholders are no longer the managers. The interest of shareholders differ from the interests of the management. The principals' interest may not be realised by the agents, unless the agents 'own set of interests are fulfilled. MichaelC. Jensen and william H. Meckling refer to this as the agency cost. Management have to be offered incentives-a percentage commission on profit, a fat salary, a diverse prerequisites, stock obtain and so on. But the above are costs reducing the shareholders' lot. So costs get escalated instead of getting reduced and returns gets reduced instead of getting escalated. Even assuming the management is a reasonable one, i.e., not interested in a fat salary nor varied perks, as humans their judgements are subject to human errors. So maximization of benefits and minimization of costs cannot be taken for granted. So, in reality these approaches to setting goals of financial management are unrealistic. But Eugene F. Frame would say that the above approach is normative in nature, like the official goal. Towards these maxima and minima the organization has to move. They are merely directional and not decisional.

Optimization is yet another approach. This is definable, objective and measurable too. Optimization is getting the best solution, having regard to all constraints. Inventory management, receivable management, resource management, liquidity management, etc., involve very many situations where optimizing techniques are used. The Economic Order Quantity (EOQ) technique is a versatile optimizing model. Similarly, waiting line theory, linear programming, assignment models, etc., can be used in financial management in optimizing goal achievement. Waiting line theory is used to find out whether or not additional facilities are required to ensure a certain level of service and to reduce costs of waiting and servicing. Linear programming is used in efficient resource allocations. Job- machine optimal assignment is facilitated with the use assignment models. Optimization is but constrained maximization or minimization and that it has the same limitations of maximization or minimization goals. However, unlike maximization, constrained maximization is decisional and so is constrained minimization. So, optimization is a good goal, but it is too ideal to practice.

Satisfying is another approach. Maximization and minimization are both utopia. Optimization is prone with constraints. So, satisfying comes. You try to satisfy' rather than maximize or minimize or optimize. The satisfying goal is behaviourally suited and perfectly manageable. You don't search for the 'best', but get satisfied with the considered 'good'. Often the search cost of the 'best' over the better or even the good might be more than the additional gains of the 'best'. So satisfying approach has become a more practical approach.

**SUMMARY:**

Financial management is an integral part of business management. As a discipline it emerged only in the early 20th century. The traditional concept of financial management confined it to cash management and raising of capital. Modern financial management, evolved since the middle of 1950s, deals with both raising and utilization of capital, portfolio management and so on. Finance functions can be classified into two dimensions-managerial and operative. Finance functions include investment, financing and dividend functions. Each of these functions needs careful managerial planning, execution and control. And that is financial management.

## UNIT-III SOURCES OF FINANCE

### 3.1 Introduction

Finance is the life blood of a firm. The firm cannot have smooth sailing unless it has sufficient finance/ funds to meet its working capital and fixed capital requirements. Funds that are required for a period of one year or less than one year to meet working capital needs are known as short term funds. Funds which are needed for a period of more than one year to meet fixed capital requirements are known as long term funds. They are, sometimes, classified as (i) Medium term funds and (ii) Long time funds. The former category includes funds required for a period between one to five years, while the latter category includes funds required for a period exceeding five years. In this chapter, let us discuss the various sources of finance/funds that are available to the firm.

### 3.2 Long term sources

#### i) Shares

Issue of shares is the best for the procurement of fixed and long-term capital. Every company has a statutory right to issue shares to raise capital after: incorporation.

According to Sec. 86 a public company can issue two classes of shares such as Equity shares such as Equity shares and preference shares

Equity shares:

Sec. 2(46) defines Equity share as “The share in the share capital of the companies and includes stock, except when a distinction between stock and share is expressed or implied”.

Preference shares:

Preference share are those which carry preferential rights in respect of dividends at a fixed rate and with regards to repayment of capital on winding up.

#### ii) Debentures and bonds:

Debentures and bonds are two important creditorship securities. These are economical way of raising long-term capital. Holders of these securities receive interest on their investment at the time of liquidation.

#### iii) Public deposits:

Public deposits is yet another important sources of raising funds. Under this method, the general public is invited to deposit their savings with the company. To acknowledge this debt, a simple receipts is given to the depositor specifying the amount of loan advanced, the rate of interest

payable, time off repayment of loan and other important and necessary details.

#### **iv) Term Loans:**

Financial institutions in India play an important role in advancing finance to the industry. The institutional financing mechanism provides industrial finance in a number of ways namely short term credit, medium and long-term loans, underwriting of issues etc. Because of the financial institutions the long-term finance is increasing day by day.

#### **v) Retained earnings:**

Well established companies follow a continuous practice of ploughing back profits in the business. It is an internal source of finance and is mainly used for replacements, modernisation and expansion programmes. It avoids long term debts and does not dilute the ownership by the sale of voting stock.

#### **vi) Leasing:**

A lease represents a contractual arrangement whereby the lessor grants the lessee the right to use an asset in return for periodic lease rental payments.

#### **vii) Hire-Purchase:**

Hire purchase is an agreement between two parties, usually the finance companies offer the facility of hire purchase to its clients.

#### **viii) Venture capital:**

Venture capital represents financial investments in a highly risky proportion made in the hope earning a high rate of return. Only in the last five decades or so, the field of venture capital has acquired a certain degree of coalescence, maturity and sophistication, particularly in the U.S.A. It is a new phenomenon on the Indian scene, which is expected to assume greater significance in the years to come.

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### **3.3 Sources of Working capital**

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The main sources of working capital is as follows:

#### **i) Trade credit:**

It is an advance given by one business firm to another in the form of cash or kind. They are: open account, notes payable and trade acceptances. The most common type is the open account arrangement. Under this method, the buyer of goods is not required to pay for goods upon delivery but allowed a short-term deferment period before payment is due. The cost of such trade credit is clearly determined by its terms and conditions.



**ii) Bank Finance:**

Commercial banks also offer short-term credits both unsecured as well as secured. Banks provide a wide variety of business loans tailored to the specific needs of the borrowers. The unsecured short term credit given by the banks are overdraft, cash credit, transaction loans etc.

**iii) Commercial papers:****a) Bills:**

A bill arises out of a trade transaction. The seller of goods draws the bill on the purchaser. The bill may be either clean or documentary and may be payable on demand or after a usage period which does not exceed 90 days.

**b) Letter of credit:**

A letter of credit is an arrangement whereby a bank helps its customer to obtain credit from its suppliers under a letter of credit arrangement, the credit is provided by the supplier but the risk is assumed by the bank which opens the letter of credit.

**iv. Miscellaneous sources:**

A number of other sources used by business firms to finance their short term financial requirements include: Borrowings from parent companies, borrowings from subsidiary companies, advances from customers and agents, borrowings from directors.

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**3.4 Short-term sources**


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Funds which are required for a period not exceeding one year are called short-term sources. Trade credit, loans from commercial banks and commercial papers are the examples of the sources that provide funds for short duration.

Short-term financing is very common for the financing of present assets such as inventories and account receivables. Seasonal businesses that must build inventories in terms of future prospects of selling requirements often need short-term financing for the interim period between seasons. Wholesalers and manufacturers with a major portion of their assets used in inventories or receivables also require a large number of funds for a short period.

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**3.5 Equity shares**


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Equity shares are the main source of finance of a firm. It is issued to the general public. Equity shareholders do not enjoy any preferential rights with regard to repayment of capital and dividend. Sec. 2(46) defines Equity share as “The share in the share capital of the companies and includes

stock, except when a distinction between stock and share is expressed or implied”.

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### **3.6 Advantages:**

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1. Equity shares do not impose any fixed burden on the company because the dividends on these are subject to the availability of sufficient profit and left to the discretion of management.
2. These equity shares provide long-term finance to the company which is to be paid only in the event of liquidation.
3. Equity shares do not create any charge on the assets of the company.
4. Equity shares act as a cushion, when the assets of the firm shrink in value.
5. Equity shares are usually of a very small denomination.
6. Cost of issue is very low.

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### **3.7 Disadvantages:**

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1. Equity shares may lead to over capitalisation due to over enthusiasm in the issue of equity shares.
2. If only equity shares are issued the company cannot trade on equity.
3. If a company issues equity shares only then it cannot avail the tax advantage.
4. The dividend on equity shares is to be paid more in comparison to other securities.
5. Difficulty in increasing capital.
6. Encourage speculation.

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### **3.8 Preference shares:**

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Preference share are those which carry preferential rights in respect of dividends at a fixed rate and with regards to repayment of capital on winding up.

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### **3.9 Advantages:**

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1. Preference shares attract cautious investors.
2. No need of security.
3. No mortgage of assets.
4. They offer the advantages of trading on equity.

5. No sharing of control in case of preference shares because they can vote only where their own interests are affected.

6. Preference shares make the capital structure flexible.

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### **3.10 Disadvantages:**

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1. Preference shares impose a fixed obligation on the company because of payment of fixed dividend.

2. Not attractive to all.

3. No tax shield.

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### **3.11 Types of debentures**

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Debentures may be classified into the following in accordance with types, the terms of issue:

#### **i) Registered debentures:**

It is made out in the name of a particular person. The name, address and other details are recorded in the register of debenture holders. It is non-negotiable instrument and is transferable only by means of a regular transfer deed.

#### **ii) Bearer debentures:**

A bearer debenture is a negotiable instrument. So, it is transferable by mere delivery. The company keeps no records of debenture holders in this case. The interest on these debentures is paid by means of attached coupons. On maturity, the principle amount is paid to the bearer.

#### **iii) Secured debentures:**

It is otherwise called mortgaged debenture. In this case, a charge is created on the assets of the company. The charge may be either a 'fixed charge' or 'floating charge'.

#### **iv) Unsecured debentures:**

These debentures are also known as naked debentures. They do not carry any security or no charge is created on the assets of the company.

#### **v) Redeemable debentures:**

These are debentures which are to be paid back either at a fixed date or upon demand.

#### **vi) Irredeemable debentures:**

These debentures do not bear and condition of repayment and as such may not be paid on demand. They are redeemable only on the liquidation of the company. They are also known as perpetual debentures.

### **vii) Convertible debentures:**

These debentures are issued with an option to the holder to convert them into equity shares after a few years.

### **viii) Non-convertible debentures:**

These debentures can not be converted into shares of the company.

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## **3.12 Advantages of Debentures:**

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### **i) For companies:**

#### **a) Economy:**

A company can raise loan very economically through debentures because other sources of obtaining loan are costly in terms of cost of issue, return etc.

#### **b) To make the capital structure flexible:**

Debentures issued by the company make the capital structure flexible. When company desires to repay the loans it can redeem the debentures and while in need of fund it can issue the debentures.

#### **c) Timely assistance:**

A company can get loan for a fixed period period through debentures and can improve its financing position.

#### **d) No interference:**

Debentures holders do not have any control in the affairs of the company's management.

#### **e) Trading or equity:**

The company can take the advantages of trading on equity and can maximise the Earning Per Share (EPS).

#### **d) Tax advantage:**

The company can take the tax advantage in respect of interest because interest on debentures is allowed for income tax purposes.

#### **g) Flexibility in capital structure:**

Debentures provide the element of flexibility in capital structure.

### **ii) For investors:**

- a) The principle amount remains safe in debentures.
- b) Fixed and constant return.
- c) It can be sold in the market very easily in comparison to shares.

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### 3.13 Disadvantages of Debentures:

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#### i) Permanent burden on company:

Debentures become a permanent burden on company in respect of interest because a fixed interest on debentures is to be paid irrespective of the profit or loss of the company.

#### ii) Credit worthiness of the firm is reduced:

Secured debentures have a charge on the assets of the company which, in turn, reduces the credit worthiness of the firm.

iii) Not popular during boom period because investors can earn more by investing their money elsewhere.

#### iv) A threat to the existence of company:

The debenture holders can go to the court for the recovery of their loans, resulting in the liquidation of the company.

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### 3.14 Elements of financial system

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- i) Financial instruments
- ii) Financial intermediaries
- iii) Financial institutions
- iv) Financial markets

#### i) Financial instruments

A **financial instrument** is a monetary contract between parties. We can create, trade, or modify them. We can also settle them. A financial instrument may be evidence of ownership of part of something, as in stocks and shares. Bonds, which are contractual rights to receive cash, are financial instruments.

#### ii) Financial intermediaries

A financial intermediary is an entity that acts as the middleman between two parties in a financial transaction, such as a commercial bank, investment banks, mutual funds and pension funds.

#### iii) Financial institutions

Financial **institutions**, otherwise known as **banking institutions**, are corporations that provide services as intermediaries of financial

markets. Broadly speaking, there are three major types of financial institutions.

1. Depository institutions – deposit-taking institutions that accept and manage deposits and make loans, including banks, building societies, credit unions, trust companies, and mortgage loan companies;
2. Contractual institutions – insurance companies and pension funds
3. Investment institutions – investment banks, underwriters, brokerage firms

#### **iv) Financial markets**

A financial market is a market in which people trade financial securities and derivatives at low transaction costs. Securities include stocks and bonds, and precious metals.

The term "market" is sometimes used for what are more strictly *exchanges*, organizations that facilitate the trade in financial securities, e.g., a stock exchange or commodity exchange. This may be a physical location (such as the NYSE, LSE, JSE, BSE) or an electronic system (such as NASDAQ). Much trading of stocks takes place on an exchange; still, corporate actions (merger, spinoff) are outside an exchange, while any two companies or people, for whatever reason, may agree to sell stock from the one to the other without using an exchange.

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#### **3.15 Structure of the Indian capital market**

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The sub-markets of the Indian capital markets are as follows:

- a) Market for corporate securities –Primary and Secondary
- b) Market for Government securities
- c) Market for Debt instruments – Debentures and bonds
- d) Mutual Fund Schemes

## UNIT - IV CAPITALIZATION

### Meaning

Capitalization implies long term funds available for a firm. Long term funds include shares, debentures, long term borrowings and retained earnings. It is defined by several authors as given below;

(i) **Doris** : capitalization is the total accounting value of the capital stock surplus in whatever form it may appear, and long term debts.

(ii) **A.S.Dewing** : The term capitalization or the valuation of the capital includes the capital stock and debts.

(iii) **E.F.Lincoln** : Capitalization refers to the sum of the outstanding stocks and funded obligations which may represent wholly fictitious values.

### 4.1 Theories of capitalization

There are two important theories to determine the amount of capitalization .

#### 1. Cost theory of capitalization

According to this theory, the amount of capitalization is equal to the total cost incurred in setting up of firm's going concern. Thus the estimation of capital requirements of a newly promoted firm is based on the total initial outlays for setting up of a firm. The amount of capital is, under this theory, determined by aggregating:

(i) Cost of fixed assets such as land and building, plant and machinery, furniture, etc.

(ii) The amount of regular working capital to carry on business operations.

(iii) The expenses of promotion, and

(iv) The cost of establishing business.

#### Example :

#### Statement showing total capitalization of new firm

Fixed assets	Rs. In crore
Permanent working capital	90.00
Establishment expenses	10.50
Promotion expenses	1.50
Total capitalization	0.50
	102.50

The cost theory of capitalization is useful for those firms in which the amount of fixed capital is more and whose earnings are regular, such as construction and public utility concerns.

### Merits

- (i) This theory is easy to understand.
- (ii) It is useful to ascertain the capitalization required for a new firm. It enables the promoters to know the amount of capital to be raised.

### Limitations

- (i) The amount of capitalization calculated under this theory is based on cost and not on earning capacity of a firm. The capitalization will remain the same irrespective of the earning capacity of the firm.
- (ii) Since some assets are idle or become obsolete, the earning capacity will be severely affected. But still the capitalization will remain high as it is based on the cost of assets.

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## 4.2. Earning theory of capitalization

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According to this theory, the amount of capitalization of a firm is determined by its earning capacity. In other words, the worth of a firm is not measured by the capital raised but by the earning made out of the productive harnessing of the capital. To determine the amount of capitalization, a new firm will have to estimate the average annual future earnings and the normal rate of earnings (also known as capitalization rate) prevalent in the industry.

For example, suppose the estimated earning of X Ltd. is Rs.12 lakh per annum and the fair rate of return expected is 12%. The amount of capitalization of the firm is :

For a return of Rs . 12, capitalization required = Rs. 100

For Earning of Rs. 12 lakh, capitalization required

$$= 12,00,000 \times 100/12 = \text{Rs.} 1,00,00,000$$

So, the amount of capitalization of the firm is Re. 1 crore.

### Merits

- (i) The amount of capitalization found under this method represents the true worth of the firm.



- (ii) The amount of capitalization arrived at on the basis of earning can be used as a standard for comparison.

### Limitation

Estimation of future earning of a new firm is not easy. If the earning are not estimated correctly, the amount of capitalization would be misleading.

### Overcapitalization

A firm should raise long term funds in a way that it is able to pay interest on borrowed funds and also fair dividend on equity capital. If a firm is unable to pay interest on borrowed funds and firm rate of dividend on equity shares out of profit, it is said to be over capitalized.

“ A company is said to be overcapitalized when its earning are not large enough to yield a firm return on the amount of stocks and bonds that have been issued or when the amount of securities is called over capitalization.

For example, if a firm earns profit of Rs.1 lakh and the expected rate of earnings is 10% the maximum limit of capitalization is Rs .10 lakh (i.e.1 lakh /10%). In case the firm raises Rs.20 lakh, the average earnings shall be 5% i.e., below the expected rate. Such a situation is called over capitalization.

In short, over capitalization is a situation when the profitability of a firm does not justify funds raised/borrowed. This situation signifies when part of funds remain unutilized or idle.

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### 4.3 Causes of over capitalization

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The reasons for over capitalization are as follows:

(i) **High promotion cost:** At the time of promotion, many firms incur heavy preliminary expenses such as promoters fees, brokerage and underwriting commission, purchase of patents/goodwill.

(ii) **Unduly high price paid for assets:** if a new firm is formed by converting partnership or private firms, assets are transferred at inflated prices. These assets do not give commensurate returns or contribute to the earning capacity of the firm. This leads to the earning capacity of the firm. This leads to the firm becoming over capitalized.

(iii) **Inflationary conditions:** floatation of a firm during boom period leads to assets being acquired at inflated prices. But it is not able to increase its earnings accordingly and hence becomes over capitalized.

(iv) **Inadequate provision of depreciation:** If sufficient provision is not made for depreciation of asset, the result is that adequate funds are not available when the asset has to be replaced or becomes obsolete. New

assets at very high prices have to be purchased and amount of capital invested is not justified and the firm may become over capitalized.

(v) **Liberal dividend policy:** If dividends are distributed liberally out of profits, reserve which enhance the earning capacity of the firm are not created. The firm borrows from the external sources and raises capital through issue of shares. In such situation, the firm finds itself over capitalized if high cost of capital is not justified by earnings.

(v) **Shortage of capital:** In case the capital is inadequate due to inaccurate planning, then the firm has to depend on borrowings from external sources at high rates of interest. Working efficiency is affected adversely because of shortage of capital.

### Effects Of Over capitalization

Over capitalization has its effects on firm, its shareholders as well as society. The effect on each one are analysed as follow:

(i) **Effects on firm :** Over capitalization has following adverse effects on company:

(a) Because of its reduced earning capacity, the market value of the shares of a firm falls drastically.

(b) Since earning are decreasing, the firm cuts down the expenditure on maintenance. Replacement of assets and adequate provision for depreciation are also not made.

(c) The reputation of a firm is affected and goodwill is lost. The firm has to go in for either internal or external reconstruction.

(d) The firm may resort to manipulation of accounts to show profits. Sometimes dividends are paid out of capital as there are no profits.

(e) It becomes difficult for such company to raise loans or attract public deposits since its credit rating is lowered.

(ii) **Effects on shareholders:** Over capitalization has the following adverse effects on shareholders:

(a) Shareholders' investment in the firm are depreciated due to fall in the market value of the shares. They incur huge loss when their shares are sold.

(b) Since the earnings of the firm are reduced, their dividend income is Also affected adversely. It becomes uncertain and irregular.

(c) In case reorganization of the firm takes place, the shareholders have to bear the brunt because the face value of their shares is brought down.

(d) The shares of such firms are not accepted as security for advance and loans.

**(iii) Effects on society:** Over capitalization has the following adverse effects on society:

(a) Due to fall in profits, an overcapitalized firm may resort to increase in prices and compromise with the quality of the products.

(b) An over capitalized firm is a drain on the resources of the society as it is unable to earn adequate profits.

(c) Creditors of the firm are affected adversely as they may not get interest regularly and repayment of principal amount becomes uncertain.

(d) It leads to labour unrest and strikes as wages are curtailed and not paid regularly.

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#### 4.4 Remedies for Over capitalization

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The following remedial steps may be taken to convert a over capitalized firm into a properly capitalized firm:

(a) The earning capacity of the firm should be increased by enhancing the efficiency of human and non-human resources belonging to the firm.

(b) The debentures and cumulative preference shares should be redeemed or the existing debenture holders may be persuaded to take new debentures at lower rate of interest and the preference shareholders may be persuaded to accept equity shares.

(c) Long term borrowings carrying higher rate of interest may be redeemed out of existing resources.

(d) The par value and/ or number of equity shares may be reduced.

(e) Management should follow a conservative policy in declaring dividend and should take all measures to cut down unnecessary expenses on administration.

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#### 4.5 Under capitalization

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Under capitalization implies a situation where the profits earned are exceptionally high but the capital employed is relatively small. A firm is said to be under capitalized when:

- (a) Profits earned are exceptionally high.
- (b) The value of long term assets is higher than capital raised.

According to Gerstenberg “A corporation may be under capitalized when the rate of profits it is making on total capital is exceptionally high in relation to the return enjoyed by similar situated companies in the same industry or when it has too little capital with which it conducts its business”.

For example, if a firm earns a profit of Rs. 1 lakh and expected rate of earnings is 10% the maximum amount of capitalization is Rs.10 lakh . In case the firm raises only Rs.8 lakh ,the actual average earning shall be 12.5% more than the expected rate. Such a situation is called under capitalization.

In short, under capitalization is a situation where the profitability of a firm is much higher as compared to the capital employed.

#### 4.6 Causes of under capitalization

Following are some of the reasons of under capitalization:

(i) **Under estimation of earnings:** capitalization is based on the earnings estimated .if the estimated earnings are lower, the capitalization figure is also lower. sometimes , the earning prove to be much higher and the capitalization figure previously calculated is lower.

(ii) **Floatation of a firm during depression:** When a firm acquires assets or is promoted during the recovery period, its earnings during the boom period may increase disproportionately to the capital employed.

(iii) **Conservative dividend policy:** If a firm follows a conservative dividend policy i.e pay out ratio is maintained at low level in the initial stage, profits are retained in the business and reserve are created or reinvested in the business. This results in higher earnings on the capital employed and hence under capitalization.

(iv) **High efficiency :** If assets are used and maintained properly and costs are reduced because of improved technology, higher levels of vigilance and efficiency lead to improvement in productivity and profitability which is reflected by high earnings on capital employed.

#### 4.7 Effects of under capitalization

Under capitalization has its effects on firm, its shareholders as well as society. These effects are summarized as under:

(i) **Effects on firm:** Under capitalization affects a firm in the following ways:

(a) Under capitalization increases the credit worthiness of the firm due to higher rate of earnings.

(b) The higher rate of earnings may encourage outsiders to enter the field and increase competition.

(c) The employees demand higher salaries and wages and this leads to dissatisfaction and labour unrest.

**(ii) Effects on shareholders:** Under capitalization is always beneficial to the existing shareholders of the firm in the following ways:

(a) Due to higher earnings of the firm, the shareholders regularly receive higher dividends on their investments.

(b) The shareholders also avail capital gains because the market value of firm's shares increases very rapidly.

(c) Since the shares have great value as collateral security, the shareholders are at ease in getting loan against the security of shares of an under capitalized firm.

**(iii) Effect on society:** Under capitalization affects society as follows:

(a) Under capitalization leads to unhealthy speculation on the stock exchanges, which affects investment climate adversely.

(b) Consumers feel exploited since profits of the firms are high.

(c) It may also lead to labour unrest and strike, if the demand for higher wages and increase in benefits are not accepted by the firm.

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#### **4.8 Remedies for under capitalization**

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The following remedial steps may be taken to convert an under capitalized firm into properly capitalized firm:

(a) Under capitalization may be remedied by increasing the par value and/or number of equity shares by revising upward the value of assets. This will decrease the rate of earnings per share.

(b) Management may capitalize the retained earnings by issuing bonus shares to the equity shareholders this will also reduce the rate of earnings per share without reducing the total earnings of the firm.

(c) Where under capitalization is due to insufficiency of capital, more shares and debentures may be issued to the public.

# UNIT – V FINANCIAL DECISIONS

Financial Decisions

NOTES

## Financial decisions

It relates to the composition of relative proportion of various sources of finance. It involves deciding the proportion of equity and debt in capital structure. Sources of financing are analysed in light of cost as well as financial risk involved. This decision determines the overall cost of capital and the financial risk of the enterprise. The purpose of financing decision is to decide about the sources which funds should be raised to finance the investment decision.

### 5.1 Relationship between Risk and Return

Financial decision making considers several factors like the availability of finances and the different avenues available for investment. The goal of any rational investor is to maximize the return. When making financial decisions they will consider an investment that will give the highest return at the lowest level of risk. Every decision in finances is key as it affects the overall performance of a company.

Risk/return tradeoffs is concept in finance that is used to show the relationship between the risk and return. Risk and return are positively related. The higher the risk the higher the return. Different finance managers will have different appetite for risk. Some will be risk takers, others will be risk averse while others will be risk neutral. Depending on the risk profile the reward will be different for the different managers.

### 5.2 Sources of finance

Sources of finance for business are equity, debt, debentures, retained earnings, term loans, working capital loans, letter of credit, euro issue, venture funding etc. These sources of funds are used in different situations. They are classified based on time period, ownership and control, and their source of generation. It is ideal to evaluate each source of capital before opting for it.

Sources of capital are the most exportable area especially for the entrepreneurs who are about to start a new business. It is perhaps the toughest part of all the efforts. There are various capital sources, we can classify on the basis of different parameters.

Having known that there are many alternatives to finance or capital, a company can choose from. Choosing the right source and the right mix of finance is a key challenge for every finance manager. The process of selecting the right source of finance involves in-depth analysis of each and every source of fund. For analyzing and comparing the sources, it needs the understanding of all the characteristics of the financing sources. There are many characteristics on the basis of which sources of finance are classified.

On the basis of a time period, sources are classified as long-term, medium term, and short term. Ownership and control classify sources of finance into owned and borrowed capital. Internal sources and external sources are the two sources of generation of capital. All the sources have different characteristics to suit different types of requirements. Let's understand them in a little depth.

### 5.3 Long-Term Sources of Finance

Long-term financing means capital requirements for a period of more than 5 years to 10, 15, 20 years or maybe more depending on other factors. Capital expenditures in fixed assets like plant and machinery, land

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and building, etc of business are funded using long-term sources of finance. Part of working capital which permanently stays with the business is also financed with long-term sources of funds. Long-term financing sources can be in the form of any of them:

- Share Capital or Equity Shares
- Preference Capital or Preference Shares
- Retained Earnings or Internal Accruals
- Debenture / Bonds
- Term Loans from Financial Institutes, Government, and Commercial Banks
- Venture Funding
- Asset Securitization
- International Financing by way of Euro Issue, Foreign Currency Loans, ADR, GDR, etc

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#### **5.4 Short Term Sources of Finance**

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Short term financing means financing for a period of less than 1 year. The need for short-term finance arises to finance the current assets of a business like an inventory of raw material and finished goods, debtors, minimum cash and bank balance etc. Short-term financing is also named as working capital financing. Short term finances are available in the form of:

- Trade Credit
- Short Term Loans like Working Capital Loans from Commercial Banks
- Fixed Deposits for a period of 1 year or less
- Advances received from customers
- Creditors
- Payables
- Factoring Services
- Bill Discounting etc.

# UNIT- VI LONG TERM CAPITAL

Long Term Capital

NOTES

## INTRODUCTION

Long term capital is capital with maturity exceeding one year. It is used to fund the acquisition of fixed assets and part of current assets. Public limited companies meet their long-term financial requirements by issuing shares and debentures and through borrowing and public deposits. The required fund is to be mobilized and utilized systematically by the companies.

## 6.1 SOURCES OF CAPITAL

Broadly speaking, a company can have two main sources of funds: internal and external. Internal sources refer to sources from within the company. External sources refer to outside sources.

Internal sources consist of depreciation provision, general reserve fund or free reserve-retained earnings or the saving of the company. External sources consist of share capital, debenture capital, loans and advances (short-term loans from commercial banks and other creditors, long-term loans from finance corporations and other creditors). Share capital is considered as ownership or equity capital whereas debentures and loans constitute borrowed or debt capital. Raising capital through issue of shares, debentures or bonds is known as primary capital sourcing. Otherwise it is called new issues market.

Long-term sources of finance consist of ownership securities (equity shares and preference shares) and creditor-shop securities (debentures, borrowing from the financing institutions and lease finance). Short-term sources of finance consist of trade credit, short-term loans from banks and financial institutions and public deposits.

## 6.2 LONG -TERM CAPITAL INSTRUMENTS

Now, an attempt is made to discuss the long-term capital instruments of a company, i.e., shares and debentures.

Corporate securities, also known as company securities, are said to be the documentary media of raising capital by joint stock companies. These are of two kinds ownership securities and creditors-ship securities.

### Ownership Securities

Ownership securities consists of shares issued to the intending investors with the right to participate in the profit and management of the company. The capital raised in this way is called 'owned capital'. Equity shares and securities like the irredeemable preference shares are called ownership securities. Retained earnings also constitute owned capital.

### Creditor-ship Securities

*Self-Instructional Material*



Creditor-ship securities consists of various types of debentures which are acknowledgement of corporate debts to the respective holders with a right to receive interest at a specified rate and refund of the principal sum at the expiry of the agreed term. Capital raised through creditors-ship securities is known as 'borrowed capital' Debentures, bonds, notes, commercial papers, etc., are instruments of debt or borrowed capital.

### 6.3 Equity Shares

Equity shares are instruments to raise equity capital. The equity shares capital is the backbone of any company's financial structure. Equity capital represents ownership capital. Equity shareholders collectively own the company. They enjoy the rewards of ownership and bear the risk of ownership. The equity share capital is also termed as the venture capital on account of the risk involved in it. The equity shareholder's liability, unlike the liability of the owners in a proprietary concern and the partners in a partnership concern, is limited to their capital subscription and contribution.

In India, under the Companies Act 1956, shares which are not preference shares are called equity shares. The equity shareholders get dividend after the payment of dividend to the preference shareholders. Similarly, in the event of the winding up of the company, capital is returned to them after the return of capital to the preference shareholders. The equity shareholders enjoy a statutory right to vote in the general body meeting and thus exercise their voice in the management and affairs of the company. They have an unlimited interest in the company's profit and assets. If the profit of the company is substantial, the equity shareholders may get good dividend; if not, there may be little or no dividend with reduced or nil profit. The equity shareholder's return of income i.e., dividend is of a fluctuating character and its magnitude directly depends on the amount of profit made by a company in a particular year.

Nowadays equity capital is raised through global equity issues. Global depository receipts (GDRs), American depository receipts (ADRs), etc., are certain instruments used by Indian companies in the overseas capital market to get equity capital.

#### Advantages of Equity Share Capital

- i. Equity share capital constitutes the corpus' of the company. It is the 'heart' of the business.
- ii. It represents permanent capital. Hence, there is no problem of refunding the capital. It is repayable only in the event of company's winding up and that too only after the claims of preference shareholders have been met in full.

- iii. Equity share capital does not involve any fixed obligation for payment of dividend. Payment of dividend to equity share holders depends on the availability of profit and the discretion of the board of directors.
- iv. Equity shares do not create any charge on the assets of the company and the assets may be used as security for further financing.
- v. Equity capital is the risk-bearing capital, unlike debt capital which is risk-burdening.
- vi. Equity share capital strengthens the credit worthiness and borrowing or debt capacity of the company. In general, other things being equal, the larger the equity base, the higher the ability of the company to secure debt capital.
- vii. Equity capital market is now expanding and the global capital market can be accessed.

### **Disadvantages of Equity shares Capital**

- i. Cost of issue of equity shares is high as the limited group of risk-seeking investors need to be attracted and targeted. Equity shares attract only those classes of investors of who can take risk. Conservative and cautious investors do not to subscribe to equity issues. So, underwriting commission, brokerage costs and other issue expenses are high for equity capital, raising up issue cost.
- ii. The cost of servicing equity capital is generally higher than the cost of issuing preference shares or debentures since on account of higher risk the expectation of the equity shareholders is also high as compared to preference shares or debentures.
- iii. Equity dividend is payable from post-tax earnings. Unlike interest paid on debt capital, dividend is not deductible as an expense from the profit for taxation purposes. Hence cost of equity is higher. Sometimes, dividend tax is paid, which further raises the cost of equity share capital.
- iv. The issuing of equity capital causes dilution of control of the equity holders.
- v. In times of depression, dividends on equity shares reach very low levels which leads to a drastic fall in their market values.
- vi. Excessive reliance on financing through equity shares reduces the capacity of the company to trade on equity. The excessive use of equity shares is likely to results in over-capitalization of the company.

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### **6.4 Preference Shares**

Preference shares are those which carry priority rights with regard to the payment, of dividend and return of capital and at the same time are subject to certain limitations with regard to voting rights.

The preference shareholders are entitled to receive the fixed rate of dividend out of the net profit of the company. Only after the payment of dividend at a fixed rate is made to the preference shareholders, the balance of profit will be used for paying dividend to ordinary shares. The rate of dividend on preference shares is mentioned in the prospectus. Similarly, in the event of liquidation, the assets remaining after payment of all debts of the company are first used for returning the capital contributed by the preference shareholders.

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### 6.5 Merits of Preference Shares

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- i. Preference shares have the merits of equity shares without their limitations.
- ii. Issue of preference shares does not create any charge against the assets of the company.
- iii. The promoters of the company can retain control over the company by issuing preference shares, since the preference shareholders have only limited voting rights.
- iv. In the case of redeemable preference shares, there is the advantage that the amount can be repaid as soon as the company is in possession of funds flowing out of profits.
- v. Preference shares are entitled to a fixed rate of dividend and the company may declare higher rates of dividend for the equity shareholders by training on equity and enhance market value.
- vi. If the assets of the company are not of high value, debenture holders will not accept them as collateral securities. Hence the company prefers to top market with preference shares.
- vii. The public deposit of companies in excess of the maximum limit stipulated by the Reserve Bank can be liquidated by issuing preference shares.
- viii. Preference shares are particularly useful for those investors who want higher rate of return with comparatively lower risk.
- ix. Preference shares add to the equity base of the company and they strengthen the financial position of it. Additional equity base increases the ability of the company to borrow in the future.
- x. Preference shares have variety and diversity, unlike equity shares. Companies have thus flexibility in choice.

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### 6.6 Demerits of Preference Shares

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- i. Usually preference shares carry higher rate of dividend than the rate of interest on debentures.
- ii. Compared to debt capital, preference share capital is a very expensive source of financing because the dividend paid to preference shareholders is not, unlike debt interest, a tax interest, a tax-deductible expenses.

- iii. In case of cumulative preference shares, arrears of dividend accumulate. It is a permanent burden on the profits of the company.
- iv. From the investors point of view, preference shares may be disadvantageous because they do not carry voting rights. Their interest may be damaged by equity shareholders in whose hands the control is vested.
- v. Preference shares have no attraction to investors, however. Not even 1 per cent of total corporate capital is raised in this form in India.
- vi. Instead of combining the benefits of equity and debt, preference share capital perhaps combines the banes of equity and debt.

### 6.7 Debentures

A debenture is a document issued by a company as an evidence of debt due from the company with or without a charge on the assets of the company. It is an acknowledgement of the company's indebtedness to its debenture-holders. Debentures are instruments for raising long-term debt capital. Debenture holders are the creditors of the company.

In India, according to the Companies Act, 1956, the term debenture includes 'debenture stock, bonds and any other securities of a company whether constituting a charge on the assets of the company or not'.

Debenture-holders are entitled to periodical payment of interest at an agreed rate. They are also entitled to redemption of their capital as per the agreed terms. No voting rights are given to debenture-holders. Under section 117 of the companies Act, 1956, debentures with voting rights cannot be issued. Usually debentures are secured by charge on or mortgage of the company.

### 6.8 Merits of Debentures

- i. Debentures provide funds to the company for a long period without dilution its control, since debenture-holders are not entitled to vote.
- ii. Interest paid to debenture-holders is charge on the income of the company and is deductible from computable income for income tax purpose whereas dividends paid on shares are regarded as income and are liable to corporate income tax. The post-tax cost of debt is thus lowered.
- iii. Debentures provide funds to the company for a specific period. Hence, the company can appropriately adjust its financial plan to suit its requirements.
- iv. Since debentures are generally issued on a redeemable basis, the company can avoid over-capitalization by refunding the debt when the financial needs are no longer felt.
- v. In a period of rising prices, debenture issued is advantageous. The burden of servicing debentures, which entails a fixed monetary

commitment for interest and principal repayment, decreases in real terms as the price level increases.

- vi. Debentures enable the company to take advantage of trading on equity and thus pay to the equity shareholders dividend at a rate higher than overall return on investment.
- vii. Debentures are suitable to the investors who are cautious and conservative and who particularly prefer a stable rate of return with minimum or no risk. Even institutional investors prefer debentures for this reason.

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### **6.9 Demerits of Debentures**

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- i. Debenture interest and capital repayment are obligatory payment. Failure to meet these payment jeopardizes the solvency of the firm.
- ii. In the case of debentures, interest has to be paid to the debenture-holders irrespective of the fact whether the company earns profit or not. It becomes a great burden on the finances of the company.
- iii. Debentures financing enhances the financial risk associated with the firm. This may increase the cost of equity capital.
- iv. When assets of the company get tagged to the debenture-holders the result is that the credit rating of the company in the market comes down and financial institutions and banks refuse loans to that company.
- v. Debentures are particularly not suitable for companies whose earnings fluctuate considerable. Such a company raising funds through debentures may lead to considerable fluctuations in the rate of dividend payable to the equity shareholders.

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## UNIT -VII SIGNIFICANCE OF CONVERTIBLE ISSUES

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Significance of Convertible Issues

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Convertible security provides the investor with a fixed return from a bond(debenture)or with a specified dividend from preferred stock (preference share). In addition, the investor gets an option to convert the security (convertible debenture or preference shares)into equity shares and there by participates in the possibility of capital gains associated with being a residual claimant of the company. At the time of issue, the convertible security will be priced higher than its conversion value. The difference between the issue price and the conversion value is known as conversion premium. The convertible facility provides a measure of flexibility to the capital structure of the company to the company which wants a debt capital to start with, but market wants equity. So, convertible issue add sweetners to sell debt securities to the market which want equity issues.

### **Convertible preference shares:**

The preference shares which carry the right of conversion into equity shares within a specified period are called convertible preference shares. The issue of convertible preference shares must be duly authorized by the articles of association of the company.

### **Convertible debentures:**

Convertible debentures provide an option to their holders to convert them into equity shares during a specified period at a particular price. The convertible debentures are not likely to have a good investment appeal, as the rate of interest for convertible debentures is less than the non-convertible debentures. Convertible debentures help a company to sell future issue of equity shares at a price higher than the price at which the company's equity shares may be selling when the convertible debentures are issued. By convertible debenture, a company gets relatively cheaper financial resource for business growth. Debenture interest constitutes tax deductible expenses. So, till the debenture are converted, the company gets a tax advantage. From the investors' point of view convertible debentures prove an ideal combination of high yield, low risk and potential capital appreciation.

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### **7.1 Significance of issue:**

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(i).The number of rights that a shareholder gets is equal to the number of shares held by him.

(ii).The number rights required to subscribe to an additional share is determined by the issuing company.

(iii).Rights are negotiable. The holder of rights can sell them fully or partially.

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(iv). Rights can be exercised only during a fixed period, which is usually less than thirty days.

(v). The price of rights issues is generally quite lower than market price and that a capital gain is quite certain for the shareholders.

(vi). Rights issue gives the existing shareholders an opportunity for the protection of their pro-rata share in the earning and surplus of the company.

(vii). There is more certainty of the shares being sold to the existing shareholders. If a rights issue is successful it is equal to favourable image and evaluation of the company's goodwill in the minds of the existing shareholders.

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## 7.2 Bonus Issues:

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Bonus issues are capital issues by companies to existing shareholders whereby no fresh capital is raised but capitalization of accumulated earnings is done. The shares capital increases, but accumulated earnings fall. A company shall, while issuing bonus shares, ensure the following:

- (i). The bonus issue is made out of free reserves built out of the genuine profits and shares premium collected in cash only.
- (ii). Reserves created by revaluation of fixed assets are not capitalized.
- (iii). The development rebate reserves or the investment allowance reserve is considered free reserve for the purpose of calculation of residual reserves only.
- (iv). All contingent liabilities disclosed in the audited accounts which have bearing on the net profits shall be taken into account in the calculation of the residual reserve.
- (v). The residual reserves after the proposed capitalization shall be at least 40 per cent of the increased paid up capital.
- (vi). Thirty per cent of the average profits before tax of the company for the previous three years should yield a rate of dividend on the expanded capital base of the company at 10 per cent.
- (vii). The capital reserves appearing in the balance sheet of the company as a result of revaluation of assets or without accrual of cash resources are neither capitalized nor taken into account in the

computation of the residual reserves of 40 per cent for purpose of bonus issues.

(viii). The declaration of bonus issues in lieu of dividend is not made.

(ix). The bonus issues is not made unless the partly paid shares, if any existing, are made fully paid -up.

(x). The company (a) has not defaulted in payment of interest or principal in respect of fixed deposits and interest on existing debentures or principal on redemption thereof and (b)has sufficient reason to believe that it has not defaulted in respect of the payment of statutory dues of the employees, such as contribution to provident fund, gratuity on bonus.

(xi). A company which announces its bonus issue after the approval of the board of directors must implement the proposals within a period of six months from the date of such approval and shall not have the option of changing the decision.

(xii). There should be a provision in the Articles of Association of the company capitalization of reserves, etc., and if not, the company shall pass a resolution at its general body meeting making decision in the articles of Association for capitalization.

(xiii). Consequent to the issue of bonus shares if the subscribed and paid-up capital exceed the authorized share capital, a resolution shall be passed by the company at its general body meeting for increasing the authorized capital.

(xiv). The company shall get a resolution passed at its generating for bonus issue and in the said resolution the management's intension regarding the rate of dividend to be declared in the year immediately after the bonus issue should be indicated.

(xv). No bonus shall be made which will dilute the value or rights of the holders of debentures, convertible fully or partly.

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### **7.3 Institutional Framework of Term Lending Institutions:**

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Specialized term finance institutions have been established in the country after independence to meet the specific financial needs of



industrial enterprises. These institutions help mobilize scarce resources, such as capital, technology, entrepreneurial and managerial talents and channelize them into industrial activities in accordance with the national priorities. The following list gives an account of structure of term finance institutions in India.

The following is the list of all-India and state-level financial institutions.

( a ) All - India Institutions

- (i) Industrial Development Bank of India ( 1964 )
- (ii) Industrial Finance Corporation of India ( 1948 )
- (iii) Industrial Credit and Investment corporation of India Ltd. ( 1955 )
- (iv) Life Insurance Corporation of India ( 1956 )
- (v) Unit Trust of India ( 1964 )
- (vi) General Insurance Corporation of India ( 1973 )
- (vii) Industrial Reconstruction Bank of India ( 1985 )  
( Now Industrial Investment Bank of India )
- (viii) Small Industries Development Bank of India ( 1990 )
- (ix) National Bank of Agriculture and Rural Development ( 1982 )
- (x) Infrastructure Development Company Ltd. ( 1997 )
- (xi) EXIM Bank ( 1982 )

(b) State - level Financial Institutions

- (i) State Financial Corporations
- (ii) State Industrial Development Corporations
- (iii) Technical Consultancy Organizations.

A short description of each of these financial institutions follows now:

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#### **7.4 Schemes of Assistance of Financial Institutions:**

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Financial institutions provide the bulk of finance required for industry. For fulfilling the socioeconomic objectives of our country, today

the financial institutions perform a variety of financing and promotional activities and have designed special programmes specifically for the development of industries in backward areas, encouraging competent new entrepreneurs, supporting modernization schemes and development of small-scale industries.

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### **7.5 PUBLIC DEPOSITS:**

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Deposits with companies have come into prominence in the recent years. Of these the more important are the deposits accepted by trading and manufacturing companies. The Indian Central Banking Enquiry committee in 1931 recognized the importance of public deposits in the financing of cotton textile industry in India in general and in Ahmedabad in particular. The growth of public deposits has been considerable. From the company's point of view, public deposits are a major source of finance to meet the working capital needs. Due to the credit squeeze imposed by the Reserve Bank of India on bank loans to the corporate sector during 1970s -1980s and also due to the recommendations of the Tandon committee, restricting credit, many companies were not getting as much money in the 1980s as they used to get in the past from banks. So, public deposits came handy as working capital fund for businesses. While to the depositor the rate offered is higher than that offered by banks, the cost of deposits to the company is less than the cost of borrowings from bank. Moreover, the availability and volume of bank credit are restricted by considerations of margin, security offered periodical submission of statements, etc., The credit available to companies through public deposits is not affected by such consideration. There is no problem of margin or security. Since the fixed deposits from the public are unsecured, the borrowing company need not mortgage or hypothecate any of its assets to raise loans in this form. These deposits are available for comparatively longer terms than bank credit.

#### **Merits of public Deposits**

The merits of public deposits are as follow:

(i) There is no need of creation of any charge against any of the assets of the company for raising funds through public deposits.

(ii) The company can get advantage of trading on equity since the rate of interest and the period for which the public deposits have been accepted are fixed.

(iii) Public deposit is a less costly method for raising short - term as well as medium - term funds required by the companies, because of less restrictive covenants governing this as against bank credits.

(iv) No questions are asked about the uses of public deposits.

(v) Tax leverage is available as interest on public deposits is a charge on revenue.

**Demerits of Public Deposits:**

The main demerits of public deposits are as follows:

(i) This mode of financing, sometimes, puts the company into serious financial difficulties. Even a slight rumour about the inefficiency of the company may result in a rush of the public to the company for getting premature payments of the deposits made by them.

(ii) Easy availability of fund encourages lavish spending.

(iii) Public deposits are unsecured deposits and in the event of a failure of the company, depositors have no assurance of getting their money back.

# UNIT – VIII WORKING CAPITAL

Working Capital

NOTES

## 8.1 Introduction

It is common knowledge that a firm's value cannot be Maximised in the long run unless it survives the short run. Firms fail most often because they are unable to meet their working capital needs. Consequently, sound working capital management is a requisite for firm's survival. Working capital management is requisite for firm's survival. Working capital management is the functional area of finance that covers all the current assets of the firm. It is concerned with management of the level of individual current assets as well as the management of total working capital. In chapter 1, it is mentioned that financial management means procurement of funds and effective utilization of these procured funds. Procurement of funds is firstly concerned for financing working capital requirement of the firm and secondly for financing fixed assets. In this chapter, we are going to deal with various issue relating to financing and management of working capital.

## 8.2 Meaning of working capital

Working capital is the amount of funds required for meeting day-to-day expenses of the business. The firm starts with cash. It buys raw materials, employs workers and spends on expenditures like advertising etc. Even then it may not receive cash immediately if sold on credit. The firm will have to use its own cash before it gets back sales revenue and then the cycle can go on. So the money or funds required to meet the expenditure until it gets back through sales revenue is called working capital and this much funds it has to keep. In simple words, working capital refers to that part of the firm's capital which is required for financing short term or current assets such as cash, marketable securities, debtors and inventories. Funds, thus, invested in current assets keep revolving fast and are being constantly converted into cash and this cash flows out again in exchange for other current assets. Hence, it is also known as revolving or circulating or short term capital.

## 8.3 Concepts of working capital

From the above definitions, it is observed that there are two concepts of working capital. They are: (i) Gross concept and (ii) Net concept.

- (i) **Gross concept:** According to this concept, the term working capital refers to the amount of funds invested in current assets that are employed in the firm. The amount of current liabilities is not subtracted from the total current assets. This concept views working capital and aggregate of current assets as two inter changeable

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terms. To understand this concept, it is essential to know the meaning of current. Current assets are such assets as in the orderly and natural course of business move onward through the various process of production, distribution and payment of goods, until they become cash or its equivalent by which debts may be readily and immediately paid. In other words, current assets refers to those assets which can be converted into cash in hand and with banks, stock-finished, in-process and raw materials, receivables for sale of merchandise, marketable securities held as temporary investment, prepaid expenses and accrued income.

Those gross concept is also known as “current capital” or “circulating capital”. This concept is sometime preferred due to the following reasons:

- (a) Earnings in each firm are the outcome of both fixed as well as current assets. Individually these assets have no significance. The points of similarity in these assets are that both are borrowed and they yield profit much more than the interest cost. But the distinction in the two lies in the fact that fixed assets constitute the fixed capital of a firm, whereas current assets are of a circulating nature. Hence, logic demands that current assets should be considered as the working capital of the firm. (b) This concept takes into consideration the fact that there would be an automatic increase in the working capital with every increase in the funds of the firm; but it is not so according to the net concept of working capital. (c) Every management is interested in the total current assets out of which the operation of a firm is made possible, rather than in the sources from where the capital is procured; (d) This concept is also useful in determining the rate of return on investment in working capital.
- (ii) **Net concept:** According to this concept, working capital is the excess of current assets over current liabilities, or say,  $\text{Net working capital} = \text{Current Assets} - \text{Current liabilities}$ . The term “Current liabilities” refers to those claims of outsiders which are expected to mature for payment within an accounting year and includes sundry creditors, bill payable, bank overdraft, outstanding expenses, short term loans, advances and deposits, provision for tax if it does not amount to appropriation of profit. The net working capital can be positive or negative. When current assets exceed current assets, the net working capital becomes negative. The Net concept

lays emphasis upon the qualitative aspect of the working capital. It is an accounting concept. It deals with the management of “Net working capital flows” in the long run. It is concerned with the management of each current asset as well as each current liability. It is more widely accepted and is used in the analysis of fund flow, ratio analysis and also in the structured decisions and management of working capital. Accounting Standard Board has used the term ‘working capital’ and not ‘net working capital’ and says it refers to excess of current assets over current liabilities, thus, implicitly accepted the “net concept”.

The net working capital concept is useful in the following ways:

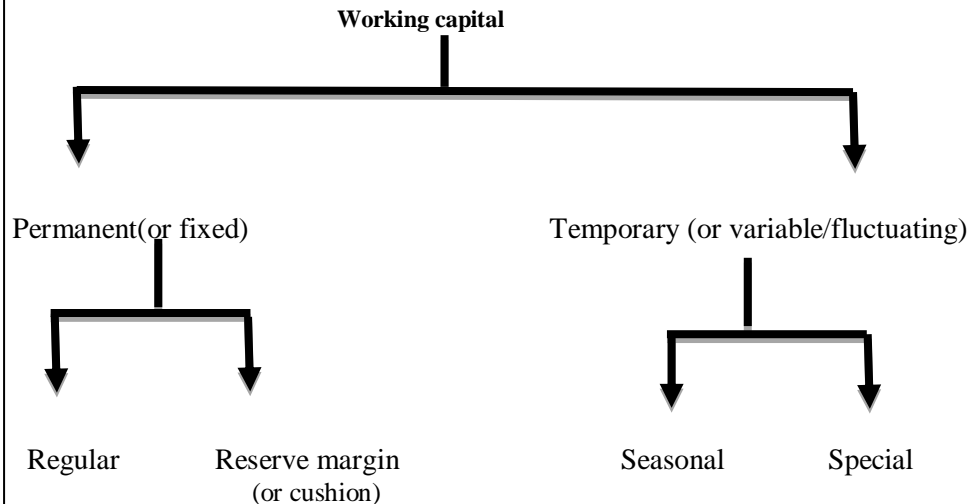
- (a) It is a qualitative concept, which indicates the firm’s ability to meet its operating expenses and short term liabilities.
- (b) It indicates the margin of protection available to the short term creditors.
- (c) It is an indicator of the financial soundness of the firm.
- (d) It suggests the need of financing a part of working capital requirement out of the permanent sources of funds.

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#### **8.4 Types of working capital**

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Generally speaking, the amount of funds required for operating needs varies from time to time in every business. A certain amount of assets in the form of working capital is always required, if a business has to carry out its functions efficiently and without a break. But a certain amount is needed for meeting day-to-day expenditures of business which varies from time to time. These two types of requirements – permanent and variable are the basis for a convenient classification of working capital.



**(i) Permanent working capital:** It is the amount of funds which is required to produce good and service necessary to satisfy demand at its lowest point. Such capital is constantly changing from one assets to another without leaving the business process until the business ceases to exist. Tandon committee has named it as “Core current assets”. This capital can again be subdivided into (1) Regular working capital and (2) Reserve margin or cushion Working capital.

Regular working capital is the minimum amount of liquid capital needed to keep up the circulation of the capital from cash to inventories to receivables and back again to cash. This would include a sufficient cash balance in the bank to pay all bills, maintain an adequate supply of raw materials for processing, carry a sufficient stock of finished goods to give prompt delivery and effect the lowest manufacturing costs and enough cash to carry the necessary accounts receivables for the type of business engaged in.

Reserve margin or cushion working capital is the excess over the need for regular working capital that should be provided for contingencies that arise at unstated period. The contingencies include (a) rising prices, which may make it necessary to have more money to carry inventories and receivables or may make it advisable to increase inventories; (b) business depressions, which may raise the amount of cash required to ride out usually stagnant periods; (c) strikes, fires and unexpectedly severe competition, which use up extra supplies of cash, and (d) Special operations such as experiments with new products or with new method of distribution, war contracts, contracts to supply new businesses and the like, which can be undertaken only if sufficient funds are available and which in many cases mean the survival of a business.

### Features

The permanent working capital has the following characteristics:

- a) It is classified on the basis of time factor;
- b) It constantly changes from one asset to another and continues to remain in the business process;

- c) Its size increases with the growth of business operation;
- d) It should be financed out of long term funds

**(ii) Temporary working capital:**

It represents working capital requirements over and above permanent working capital and is dependent on factors like peak season, trade cycle, boom etc. It is also called fluctuating or variable working capital. It can further be classified as seasonal working capital and special working capital.

Seasonal working capital is the additional amount of current assets-particularly cash, receivable and inventory which is required during the more active business seasons of the year.

Special working capital is the part of temporary working capital which is required for financing special operations such as extensive marketing campaigns, experiments with product or methods of production, carrying of special jobs etc.

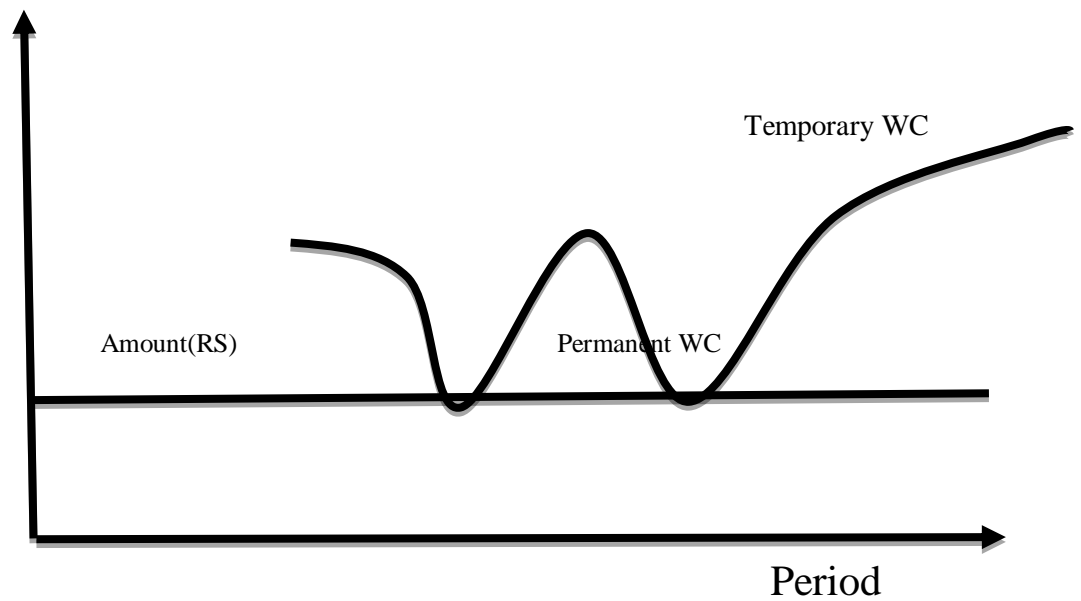
**Features:** The temporary working capital possesses the following characteristics:

- a) It is not always gainfully employed, though it may change from one assets to another, as permanent working capital does.
- b) It is particularly suited to businesses of a seasonal or cyclical nature.

The distinction between permanent and temporary working capital is of great significance particularly in arranging the finance for a firm. The Permanent working capital should be raised in the same way as fixed capital is procured, through a permanent investment of the owner or through long term borrowing. As business expands, this regular capital will necessarily expand. If the cash realized from sales includes a large enough profit to take care of expanding operations and growing inventories, the necessary additional working capital may be provided by the earning surplus of the business. Temporary working capital needs can, however, be financed out of short term borrowings from the bank or from public in the form of deposits.

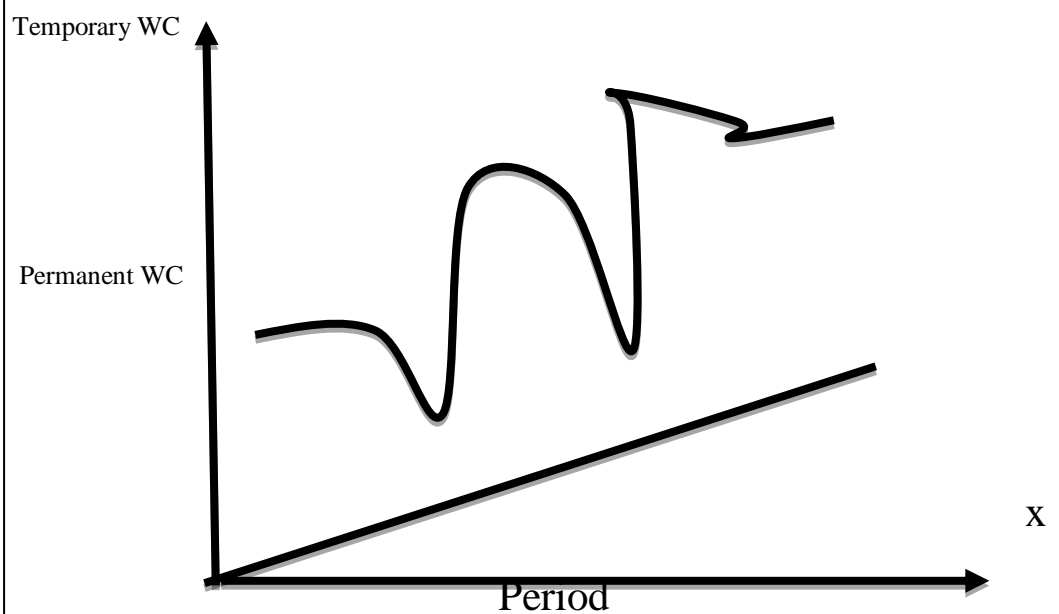
The position with regard to the “permanent working capital” and “Temporary working capital” can be shown with the help of following figure:





**Figure: Permanent WC remains constant at all times**

Form the above figure, it is crystal clear that the amount of permanent working capital remains the same over all periods of time.e.g.,Rs.5 lakh at all times, irrespective of the amount of sales, activity etc .But it cannot be presumed that the permanent working capital will always remain fixed throughout the life of the firm. As the size of the business grows, permanent working capital too is bound to grow. This position can be depicted with the help of the following figure:



**Figure: Permanent WC increases along with time**

The above figure made it clear that the permanent working capital increases in amount (rupee value) based on the activity level of the firm. For example, working capital of Rs.5 lakh may be sufficient for a turnover level of 25 lakh. But when the turnover increased to Rs.50 crore, after a certain time period, the amount of working capital should rise and hence, should be an amount higher than Rs.5 lakh.

### 8.5 Determinants of working capital requirements

The following factors are considered for a proper assessment of the quantum of working capital requirements:

- (a) Nature of business: working capital is very limited in public sector undertakings such as electricity, water supply and railways because they offer cash sales only and supply services, not products and no funds are tied up in inventories and receivables. On the other hand, the trading and financial firms require less investment in fixed assets but have to invest large amount of working capital along with fixed investment.
- (b) Length of production cycle: The longer the manufacturing time, the raw materials and other supplies have to be carried for a longer time in the process with progressive increment of labour and service costs before the final product is obtained. So working capital is directly proportional to the length of the manufacturing process.
- (c) Rate of stock turnover: There is an inverse co-relationship between the question of working capital and the velocity or speed with which the sale is effected. A firm having a high rate of stock turnover will need lower amount of working capital as compared to a firm having a low rate of turnover.
- (d) Business cycle: In period of boom, when the business is prosperous, there is need for larger amount of working capital due to rise in sales, rise in prices, optimistic expansion of business etc. On the contrary, in times of depression, the business contracts, sales decline, difficulties are faced in collection from debtors and the firm may have a large amount of working capital.
- (e) Earning capacity and dividend policy: some firms have more earning capacity than others due to quality of their products, monopoly condition, etc. such firm may generate cash profits from operations and contribute to their working capital. The dividend policy also affects the requirement of working capital. A firm maintaining a steady high rate of cash dividend irrespective of its profits, need working capital than the firm

that retains larger part of its profits and does not pay so high rate of cash dividend.

- (f) Operating cycle: The speed with which the operating cycle completes its round (i.e., cash → raw materials → finished product → accounts receivables → cash) plays a decisive role in influencing the working capital needs.
- (g) Operating efficiency: operating efficiency means optimum utilization of resources. The firm can minimize its need for working capital by efficiently controlling its operation costs. With increased operating efficiency, the use of working capital is improved and pace of cash cycle is accelerated. Better utilization of resources improves profitability and helps in relieving the pressure on working capital.
- (h) Price level changes: Generally, rising price level requires a higher investment in working capital. With increasing prices, the same levels of current assets need enhanced investment. However, firms which can immediately revise prices of their products upwards may not face a severe working capital problem in periods of rising levels. The effects of increasing price level may, however, be felt differently by different firms due to variations in individual prices. It is possible that some companies may not be affected by rising prices, whereas others may be badly hit by it.
- (i) Degree of mechanization: In a highly mechanized concern having a low degree of dependence on labour, working capital requirement gets reduced. Conversely, in labour intensive industries, greater sums shall be required to pay for wages and related facilities.
- (j) Growth and expansion of business: In the business, the working capital requirements of a firm are low. However, with the gradual growth and expansion, its working capital needs also increase. Discernibly, larger amount of working capital in a growing concern is required for its expansion programmes.
- (k) Seasonal variations: some industries manufacture and sell goods only during certain seasons. For example, sugar, oil, timber, and textile industries have either seasonal supplies of raw materials or make their sales in a particular season. Hence, the working capital requirements of such industries will be higher during a certain season as compared to any other period.

- (l) Capital structure of the firm: If shareholders have provided some funds towards the working capital needs (at least to satisfy the permanent working capital needs), the management will find it relatively easy to manage working capital. If the firm has to depend entirely upon outside sources for both permanent and temporary working capital needs, it faces an uphill task under dear money conditions.
- (m) Credit policy: A firm making purchases on credit and sales on cash will always require lower amount of working capital. On the contrary, a firm which is compelled to sell on credit and at the same time having no credit facilities may find itself in a tight corner. Prevailing trade practices and changing economic conditions do generally exert greater influence on the credit policy of the concern.
- (n) Size of the business: The size of business has also an important impact on its working capital needs. Size may be measured in terms of scale of operation. A firm with larger scale of operation will need more working capital than a small firm.
- (o) Production policy: The production policies pursued by the management have a significant effect on the requirement of working capital of the business. The production schedule has a great influence on the level of inventories. The decisions of the management regarding automation, etc. will also have effect on working capital requirements. In case of labour intensive industries, the working capital requirements will be more. While in case of a highly automatic plant, the requirement of long term funds will be more.
- (p) Profit margin: Firms differ in their capacity to generate profit from business operation. Some firms enjoy a dominant position, due to quality product or good marketing management or monopoly power in the market and earn a high profit margin. Some other firms may have to operate in an environment of intense competition and may earn a low margin of profit. A high net profit margin contributes towards the working capital pool. In fact, the net profit is a source of working capital to the extent it has been earned in cash.
- (q) Liquidity and profitability: In case, a firm desires to take a greater risk for bigger gains, it reduces the size of its working capital in relation to its sales. If it is interested in improving its liquidity, it increases the level of its working capital. However, this policy is likely to result in a reduction of the sales volume, and

therefore, of profitability. A firm, therefore, should choose between liquidity and profitability and decide about its working capital requirements accordingly.

- (r) Capacity to repay: A firm's ability to repay determines level of its working capital. The usual practice of a firm is to prepare cash flow projections according to its plans of repayment and fix the working capital levels accordingly.
- (s) Value of current assets: A decrease in the real value of current assets as compared to their book value reduces the size of the working capital. If the real value of current assets increases, there is an increase in working capital.
- (t) Means of transport and communication: Working capital needs also depend upon the means of transport and communication. If they are not well developed, the industries will have to keep huge stocks of raw materials, spares, finished goods, etc., at places of production as well as distribution outlets.

### **8.6 Financing and Approaches to Financing Working Capital:**

Having dealt with the size of investment current assets, the methods of financing of working capital needs our attention. Working capital is financed both internally and externally through long-term and short-term funds, through debt and ownership funds. In financing working capital, the maturity pattern of sources of finance depended on coincide with the credit period for sales for better liquidity. There are basically three approaches to financing working capital: the hedging approach, the conservative approach and the aggressive approach. These three approaches are presented in the chart 3.2.

The management has to decide which approach it wants to adopt. The essential difference between conservative and aggressive approach is that the former uses long term funds not only to finance permanent current assets, but also a part of temporary current assets, while the latter uses short-term funds to finance a part of the permanent current assets. Risk preferences of the management shall decide the approach to be adopted. The risk neutral will adopt the hedging approach, the risk averse will adopt the conservative approach and risk seekers will adopt the aggressive approach.

Figure 3.1 gives a summary of the relative costs and benefits of the three different approaches:

<b>Factors Aggressive</b>	<b>Conservative</b>
Liquidity	More
Less	Moderate
Profitability	Less
More	Moderate
Cost	More
Less	Moderate
Risk	Less
More	Moderate
Asset utilization	Less
More	Moderate
Working Capital	More
Less	Moderate

**FIG .3.1 : Impact of Financing Approaches**

Thus management of working capital is concerned with determining the investment needed and deciding the financing pattern. You would be now knowing that deciding the financing pattern is essential determining the size and composition of current liabilities in relation to those of current assets. Cost of different types of funds (the long-term and short-term funds), the return on different type of current assets, ability to bear risk, desired liquidity levels, etc., have to be considered to decide working capital management related issues.

### **8.7 Aggressive Policy:**

A firm following aggressive or restrictive policy of working capital management endeavours to keep the current assets at the minimum in keeping with the production requirements. This policy ensures that the resources are put to optimum use and the profitability is maximized. But in periods of uncertainties, the firm may face shortage of working capital leading to difficulties in carrying on day-to-day operations. Raw material may go out of stock forcing stoppage of production. Sufficient funds may not be available to pay wages to workers causing resentment and problems of industrial relations. Fixed assets may not be utilized fully due to lack of working funds. Lack of funds renders the firm unable to avail attractive credit opportunities. The firm would find it difficult to repay its creditors who may stop or reduce their supplies on credit. All these factors lead to hampering production, reduced sales and reduced profits or incurring losses.

### **8.8 Hedging:**

Maturity matching or hedging is a strategy of working capital financing wherein short term requirements are met with short-term debts and long-term requirements with long-term debts. The underlying principal

is that each asset should be compensated with a debt instrument having almost the same maturity.

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### 8.9 Conservative Policy:

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A firm following conservative policy of working capital management keeps the current assets at sufficiently high levels to take care of contingencies. There is no risk of stoppage of production. The working of the unit can be smooth without hiccups. On the other hand the firm will find that its funds are locked up in assets that are not put to proper use. Excessive inventory does not add to production but on the contrary involves the cost of holding. Excess debtors may indicate inefficient collection machinery or too liberal a policy of giving credit to purchasers. Cash balances do not earn any profit while return on investments is normally low. Overall, the relaxed atmosphere injects inefficiency into the functioning of the unit and profit suffers. Thus, neither excess nor shortage of working capital is in the interest of the firm as both lead to lower profits.

#### Their risk:

Liquidity and Capital Risk is generally defined as the risk associated with an enterprise's ability to convert an asset or security into cash to prevent a loss. Capital risk is generally defined as an enterprise's access to cash at any given time and balancing this with its efficient use.

#### Return features:

Working capital (abbreviated WC) is a financial metric which represents [operatingliquidity](#) available to a business, organisation or other entity, including governmental entities. Along with fixed assets such as plant and equipment, working capital is considered a part of operating capital. Gross working capital is equal to current assets. Working capital is calculated as [currentassets](#) minus [currentliabilities](#). If current assets are less than current liabilities, an entity has a working capital deficiency, also called a working capital deficit.

A company can be endowed with [assets](#) and [profitability](#) but may fall short of [liquidity](#) if its assets cannot be readily converted into cash. Positive working capital is required to ensure that a firm is able to continue its operations and that it has sufficient funds to satisfy both maturing [short-termdebt](#) and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash.

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### 8.10 Importance of Working Capital

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Working Capital is defined as the capital of a business which is used in its day-to-day operations. It is calculated as the net of current assets minus current liabilities. Working capital helps to

ensures whether or not a business organisation has sufficient cash flow in order to meet its short term obligations and the operating expenses.

### **The article will give us a detailed view about working capital**

Working capital is very essential to maintain smooth running of a business. No business can however run successfully without an adequate amount of working capital.

### **The main advantages or the importance of working capital are as follows:**

#### **1. Strengthen The Solvency**

**Working capital loan** helps to operate the business smoothly without any financial problem for making the payment of short-term liabilities. It also helps in Purchasing of raw materials and payment of salary, wages and overhead without any delay. Also adequate working capital helps to ensure that there is solvency in business by providing uninterrupted flow of production.

#### **2. Enhance Goodwill**

Sufficient working capital enables a business concern to make prompt payments and thus this hence helps in creating and maintaining goodwill. Goodwill is enhanced because all the current liabilities and operating expenses are paid on time.

#### **3. Easy Obtaining Loan**

A firm having which has adequate working capital, high solvency and good credit rating can arrange loans from banks and financial institutions in easy and favourable terms.

#### **4. Regular Supply Of Raw Material**

The quick payment of credit purchase of raw materials helps to ensures the regular supply of raw materials from the suppliers. The suppliers are satisfied by the payment on time which helps to ensures regular supply of raw materials and continuous production.

#### **5. Smooth Business Operation**

Working capital is really a life blood of any business organisation which helps to maintain the firm in well condition. Any day to day financial requirement can be met easily without any shortage of fund. All the expenses as well as the current liabilities are paid on time.



## 6. Ability To Face Crisis

Adequate working capital helps the firm to face the business crisis which happens in case of emergencies such as depression.

**Working capital loan** are ideal for the people or companies that are looking to ensure smooth progress of their business with adequate availability of working capital funds. MSME units are the best suited to avail the benefits provided by working capital loans as these enable them to grow their business without worrying about the working capital requirements. Thus in order to obtain working capital for better functioning of business, the entities that are eligible for this loan are:

- The Sole proprietors/proprietorship firms
- The Partnership firms
- The Private-limited companies
- The Public-limited companies

Also the documents that are required during the application process to obtain such kind of loans are:

- The audited financial records for the past three years
- The bank statements of the past 6 months
- The net worth statements and the tax return of any borrowers / promoters and the guarantors ( if applicable)
- The proof of identity and the address

Thus Working capital is considered as the life blood and the nerve centre of business and it is a very important element for the success of business.

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### 8.11 Sources of working capital

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Sources of working capital are many. There are both external or internal sources. The external sources are both short-term and long-term. Trade credit, commercial banks, finance companies, indigenous bankers, public deposits, advances from customers, accrual account, loans and advances from directors and group companies etc., are external short-term sources. Companies can also issue debentures and invite public deposits for working capital which are external long-term sources. Equity funds may also be used for working capital. A brief discussion of each source is attempted below.

**Trade credit** is a short term credit facility extended by suppliers of raw materials and other supplier. It is a common source. It is an important source. Either open account credit or acceptance credit may be adopted. In the former as per business custom credit is extended to the buyer, the buyer is not signing any debt instrument as such. The invoices is the basic document. In the acceptance credit system a bill of exchange is drawn on the buyer who accepts and returns the same. The bill of exchange evidences the debt. Trade credit is an informal and readily available credit

facility. It is unsecured. It is flexible too, that is, advance retirement or extension of credit period can be negotiated. Trade credit might be costlier as the supplier may inflate the price to account for the loss of interest for delayed payment.

**Commercial Banks** are the next important source of working capital finance. Commercial banking system in the country is broad based and fairly developed. Straight loans, cash credits, hypothecation loans, pledge loans, overdrafts and bill purchase and discounting are the principal forms of working capital finance provided by commercial banks. **Straight loans** are given with or without security. A one time lump-sum payment is made, while repayments may be periodical or one time. **Cash credit** is an arrangement by which the customers (business concerns) are given borrowing facility up to a certain limit, the limit being subjected to examination and revision year after year. Interest is charges on actual borrowings, though a commitment charge for utilization may be charged. **Hypothecation advance** is granted on the hypothecation of stock or other asset. It is a secured loan. The borrower can deal with the goods. **Pledge loans** are made against physical deposit of security in the bank's custody. Here the borrower cannot deal with the goods until the loan is settled. **Overdraft facility** is given to current account holding customers to overdraw the account up to a certain limit. It is a very common form of extending working capital assistance. **Bill financing** by purchasing or discounting bills of exchange is another common form of financing. Here, the seller of goods on credit draws a bill on the buyer and the latter accepts the same. The bill is discounted per cash with the banker. This is a popular form.

**Finance companies** abound in the country. About 50,000 companies exist at present. They provide services almost similar to banks, though they are not banks. They provide need-based loans and sometimes arrange loans from others for customers. Interest rate is higher, but timely assistance may be obtained.

**Indigenous bankers** also abound and provide financial assistance to small businesses and trades. They charge exorbitant rates of interest by understanding.

**Public deposits** are unsecured deposits raised by business for periods exceeding a year but not more than three years by manufacturing concerns and not more than five years by non-banking finance companies. The RBI is regulating deposit taking by these companies in order to protect the depositors. Quantity restriction is placed at 25 percent of paid up capital + free services for deposits solicited from the public is prescribed for non-banking manufacturing concerns. The rate of interest ceiling is also fixed.

This form of working capital financing is restored to by well-established companies.

## NOTES

**Advances from customers** are normally demanded by producers of costly goods. At the time of accepting orders for supply of goods. Contractors might also demand advance from customers. Where sellers' market prevails, advances from customers may be insisted on. In certain cases to ensure performance, a contract in advance may be insisted on.

**Accrual accounts** are simply outstanding dues to workers, suppliers of overhead service requirements and the like. Outstanding wages, taxes due, dividend provision, etc., are accrual accounts providing working capital finance for a short period on a regular basis.

**Loans from directors**, loans from group companies, etc., constitute another source of working capital. Cash rich companies lend to liquidity crunch companies of the group.

**Commercial papers** are used as promissory notes negotiable by endorsement and delivery. Since 1990, CPs came to be introduced. There are restrictive conditions as to issue of commercial papers. CPs are privately placed after RBI's approval with any firm, incorporated or not, any bank or financial institution. Big and sound companies generally float CPs.

**Debentures and equity fund** can be issued to finance working capital so that the permanent working capital can be matchingly financed through long-term funds.

## UNIT -IX CAPITAL PLANNING

Capital Planning

NOTES

Capital structure refers to the portfolio of different sources of capital employed by a business. It is the mix of capital. It is the portfolio of liabilities of business. It is the structure of long-term liabilities of a business. Short-term liabilities being fluctuation type for structure analysis, which is somewhat long term in nature, are not considered for capital structure analysis. There is another concept, viz., financial structure which studies the structure of whole of the liabilities of business including both short-term and long-term capital. In the final analysis, capital structure analysis is considered with the equity and debt composition of capital of a business.

### 9.1 Capital Structure Planning:

The capital structure for a business should be planned. The debt-equity proposition, mix of equity sources, mix of debt sources and the like need to be planned. To plan capital structure, therefore, means determining the debt-equity proportion and mix of individual components of equity (paid equity and earned equity, that is, ratio of paid up equity capital to retained earnings) and mix of debt capital types (bank loan, debentures, public deposits, etc.) so that the firm is optimally capitalized. Optimum capital structure is one that maximizes value of business, minimizes overall cost of capital, that is flexible, simple and futuristic, that ensures adequate control on affairs of the business by the owners and so on. To reap above benefits without accompanying costs, planning of capital structure is needed.

### 9.2 Determinants of capital structure

There are several factors which influence the capital structure. These are: cost of capital of different sources of capital, the tax advantage of different debt source of capital, the restrictive conditions to debt capital, debt capacity of a business, the financial leverage, securability of assets, preference for trading of equity, stability of earnings, gestation period of projects, financial risk perception, variety of debt instruments available, experience in using debt capital, investor preferences, tax rates on capital gain and interest income, capital market conditions, management philosophy and so on. A short description of these determinants is taken up now.

**Cost of capital** of different sources of capital influences the capital structure. A company would be interested in less overall cost of capital and that a source that is less expensive will be used more than the one that is costlier. Generally debt capital is said to be less expensive, hence the tendency to use more debt capital. But, of late, equity capital has become cheaper due to free pricing of capital issues. Hence, now, more equity

Self-Instructional Material

capital is used by companies. Among debt capital, bank loans are viewed more expensive than market borrowings and that more debt capital is raised through the capital market than from bank loans.

**Tax advantage** of debt capital is a factor in favour of using more debt capital. The interest paid on debt capital is deducted while computing taxable income. So, tax saving to the extent of interest paid times tax rate is enjoyed by the company, reducing the effective cost of debt. This advantage lures companies to use more debt capital.

**Restrictive covenants**, such as restriction on business expansions, on raising additional capital, on declaration of dividend, nominee directors on the board, convertibility clause, etc., go with debt financing, especially borrowings from term lending financial institutions. These restrictive conditions are the implicit cost of debt capital normally not considered, but should be considered in deciding the mix of capital.

**Debt capacity of a business** needs consideration. How much debt capital a business can bear, that is, comfortably serviced is a factor to be reckoned. Debt service coverage ratio is calculated using the formula

$$\text{DSCR} = \frac{\text{Annual cash flow}}{\text{Interest} + (\text{Annual Principal installments}) / (1 - \text{TR})}$$

Where TR is tax rate on corporate profit.

DSCR should be at least 3 for comfortable debt servicing.

Business that do not generate sufficient cash flow should think of alternative sources.

**Interest coverage ratio** is another measure of debt capacity of a firm. The formula for ICR is  $\text{ICR} = \text{EBIT} / \text{I}$ , where EBIT – is earning before interest tax and I is interest on debt capital. The ICR should be in the range of 4 or more for better debt servicing capacity.

**Debt equity norm** in the industry/region is another factor. Normally a 2:1 debt equity ratio is in vogue with dilution in favour of more debt for small-scale businesses, capital intensive projects, projects undertaken by weaker sections, etc.

**Leverage effect** has to be looked into. Financial leverage refers to the rate of change in earning per share (EPS) for a given change in earnings. Before interest and tax (EBIT). A more than proportionate positive change in EPS for a given change in EBIT might tempt the management to use further debt capital initially to enhance EPS and later go for additional equity capital at a premium.

**Securability of assets** is a determining factor for using debt capital. Firms which have assets that are readily accepted as security can raise debt capital. Land at prime locations, modern buildings, machinery in a good

conditions, etc., are accepted as security, and undertakings owning these assets can go for more debt financing.

**Trading on equity** is a technique by which low cost debt is used extensively to enhance earnings for equity shareholders. If the management is interested in this it would use more debt capital. ROI must be greater than cost of debt to reap benefit of trading on equity. Suppose a firm's investment is Rs 100 crore and its overall ROI is 18% and it pay 10% on debt capital. Suppose a debt-equity is 1.1. Then available earnings for equity capital will be Rs 18 crore – Rs 5 crore = Rs 13 crore. The rate of earning on equity is 26%. If a debt – equity ratio of 3:1 is adopted the earnings available for effect will be Rs 18 crore – Rs 7.5 crore = Rs 10.5 crore. The rate of earnings on equity will be 42%, i.e., Rs 10.5 crore/Rs 25 crore = 0.42 or 42%. Thus by rising debt component, return on equity is enhanced. This is called trading on equity. If the management has high preference for this it will go for more debt and vice versa.

**Gestation period** refers to the period between commencement of project construction and first commercial operation of the project. Longer the gestation period, more equity financing is advised as there will not be need for servicing of capital in the initial times. Reliance Petroleum Limited used triple convertible debentures equivalent to equity to fund its integrated petroleum project in Jamnagar, Gujarat, in the 1990s.

**Financial risk perception** is an influencing factor of capital structure. Financial risk refers to the chances of bankruptcy proceedings against the firm for non-repayment of debt or failure to service debt for a period. If the risk is higher, less debt capital is good.

**Variety of debt instruments** available is another factor. While ordinary bonds may be unsuitable for a long gestation period project, zero coupon bonds are a good substitute. Convertible bonds are again superior to ordinary bonds in terms of saleability. Now a variety is available as against the recent past. And this influences the choice in favour of more debt.

**Experience in using debt** capital is another factor. Debt needs to be handled expediently. Periodic servicing, roll over, swap early retirement and the like need to be adopted when needed. Not all are good at dealing with debt. Hence, experience in using debt capital is important.

**Investor preferences** for securities for investment need to be kept in mind. At times people want debt securities, while at other times equity is preferred. The risk averse prefer debt instruments, while the risk seekers go for equity investments.

**Capital market conditions** are another factor. When capital market is booming, firms can take the market route to raise capital. In the depressed situation, firms depend on bank finance and other debt finance.

**Cost of floating** can also influence capital structure. Cost of floating is high in india ; the same is less in the international market. Some Indian firms raise capital by floating GDRs (Global Depository Receipts) , an

equity capital form involving lower (3-5 percent) floating cost as against the domestic situation of as high as over 8 percent floating cost.

**Rate of tax** on capital gain and current income may influence from capital. People in the higher tax bracket prefer capital gain as against current income. Hence, preference for equity instruments is evinced by them. So, firms may opt for equity capital.

**Management philosophy** comes next. Some management are not interested in debt financing at all. Colgate- Palmolive Ltd is an all-equity firm by choice. Some companies depend extensively on debt capital. Management orientation is one of the deciding factors.

**Legal stipulation** as to ceiling is another factor influencing capital structure. Earlier a debt equity norm of 2:1 was generally insisted on by the controller of capital issues. Though this legal stipulation no longer exists with the repealing of the capital Issue Control Act, it has become a rule of thumb. Banks and financiers look at the debt equity ratio before committing further debt investment in a firm.

**Free-pricing** of public capital assets issues, now in vogue in the country, has made companies are more equity financing than debt financing.

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### 9.3 Optimal Capital Structure

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As already referred to companies want to be optimally structured as to capital. Overdependence neither, on equity nor on debt capital is advised. Again extent of dependence on any type of capital is influenced by both firm-specific and market-wide factors. Optimal capital structure as earlier referred to is one that maximizes value of the firm, minimizes overall cost of capital, reduces rigidity of capital structure, enhances control over affairs on the business, increases simplicity of capital structure, ensures enjoyment of tax leverage, helps reap financial leverage benefits to the maximum, and so on.

Optimum capital structure is a classical concept. Debt capital and equity capital are in fine balance here producing optimal results on value, cost, leverage, and the like. As a firm uses debt up to a level its value increase. Beyond a certain level debt capital proves costlier and value starts dropping downwards. The debt equity point at which value is maximized is called the optimal capital structure. Optimal capital structure varies with firms and with market factors. As market and firm specific factors keep changing, optimal capital structure also varies.

Business try to reach optimal capital structure. Whether they reach is a question mark. Mostly, they are near but not at the optimal capital structure.

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### 9.4 Theories Of Capital Structure

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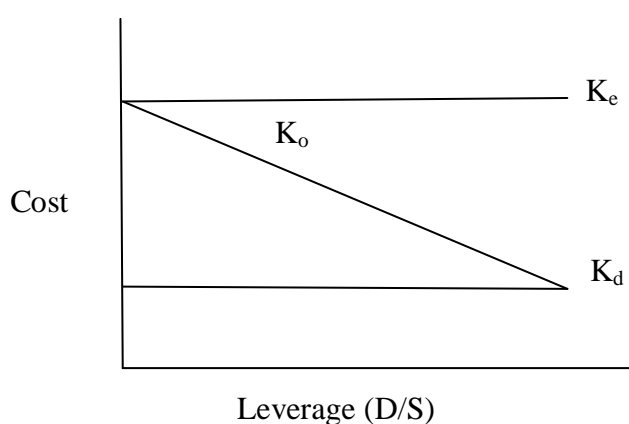
The theories of capital structure analyses whether or not the value of the firm is influenced by capital structure. There are several theories of capital structures. Net income, net operating income and Modigliani-Miller

theories are some capital structure theories. The theories are based on the following general assumptions.

- (i) Only two sources of capital, debt and equity, are used.
- (ii) Debt capital is cheaper than equity capital.
- (iii) Debt capital cost is fixed.
- (iv) There is no corporate taxation.
- (v) There is perfect competition in the capital market.
- (vi) There is 100 per cent dividend payout.
- (vii) The total assets do not change; there is no expansion.
- (viii) The operating profit, i.e., EBIT remains constant.
- (ix) Business risk is constant over time and is independent of capital structure and financial risk.
- (x) There is perpetual life of the firm.

### 9.5 Net income Theory:

The Net income Theory (NIT) was propounded by D.Durand. The theory considers that capital structure influences the value of the business. As more and more of debt capital is employed, value of the firm increases, as per the theory. Chart 5.1 gives a graphical explanation of the theory. Vertical axis measures cost and horizontal axis measures leverage, i.e., debt/equity.



**CHART 5.1: Net income Theory**

The theory assumes that both  $K_e$  are constant. As more and more debt is used, the  $K_o$  decreases and at an extreme position  $K_o = K_d$  when no equity is used. As  $K_o$  decrease, value 'V' rises.

Let EBIT = Rs 1,00,000. Let the debt carry 10% coupon. The  $K_e = 12.5\%$ . Then for varying levels of debt capital being employed, the value of the firm changes as deduced below:



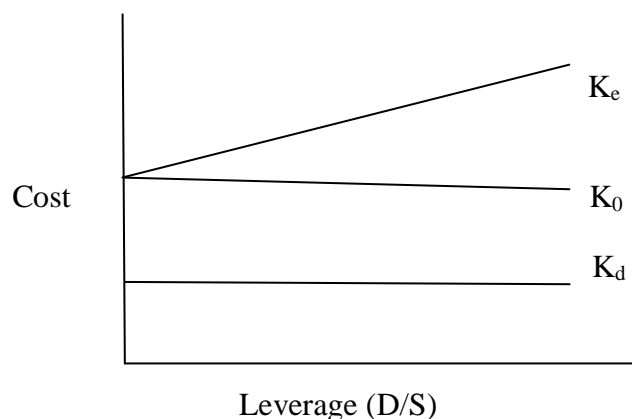
Details:

	Case 1	Case 2	Case 3
Debt	Rs 2,00,000	Rs 4,00,000	Rs 6,00,000
EBIT	Rs 1,00,000	Rs 1,00,000	Rs 1,00,000
(Less) interest on debt @ 10% (I)	Rs 20,000	Rs 40,000	Rs 60,000
Net income on equity (NI)	Rs 80,000	Rs 60,000	Rs 40,000
Ke%	12.5	12.5	12.5
Value of equity (S): NI/Ke	Rs 6,40,000	Rs 4,80,000	Rs 3,20,000
Value of Debt (D): I/Kd	Rs 2,00,000	Rs 4,00,000	Rs 6,00,000
IK/Kd Value of debt (V): (S+D)	Rs 8,40,000	Rs 8,00,000	Rs 9,20,000
Ko = EBIT/T	11.9%	11.4%	10.9%

It is seen above that value increases and overall cost of capital decreases as more and more debt is used. The optimum capital structure is undefined here. As we use more debt we may approach the optimum capital structure. As per this theory 100 per cent debt firm is perhaps optimally capital structured. But that is most unreal. Such situation has no capital structure at all as only type of capital is used.

### 9.6 Net Operating Income Theory (NOIT)

Net operating income theory is also suggested by D.Durand. This is a negation of the NIT. As per the NOIT all capital structures are equally good or bad. So any capital structure can be taken as optimum. It can be also said that there is no optimal capital structure, that is, the value of the firm and overall cost of capital are unaffected by capital structure. The theory assumes that both  $K_d$  and  $K_o$  are constant and it is the equity capitalization rate ( $K_e$ ) that is changing.  $K_e$  changes with leverage,  $K_e = K_o + (K_o - K_d)(D/S)$ , where D is value of debt, S is value of equity and  $S = V - D$ , where 'V' is the value of the firm =  $EBIT/K_o$ .  $K_o$  depends on risk complexion of the business and not on capital structure. In Chart 5.2 NOIT is represented.



**CHART 5.2: Net operating income theory**

Let EBIT = Rs 1,20,000 ;  $K_d = 10\%$  ;  $K_o = 12\%$ . We can prove that V remains constant as shown below:

	Case 1	Case 2	Case 3
Debt	Rs 2,00,000	Rs 4,00,000	Rs 6,00,000
EBIT	Rs 1,20,000	Rs 1,20,000	Rs 1,20,000
$V=EBIT/K_0$	Rs 10,00,000	Rs 10,00,000	Rs 10,00,000
Debt interest 10%	Rs 20,000	Rs 40,000	Rs 60,000
Earning after interest	Rs 1,00,000	Rs 80,000	Rs 60,000
Market value $D(I/K_d)$	Rs 2,00,000	Rs 4,00,000	Rs 6,00,000
$S=V-D$	Rs 8,00,000	Rs 6,00,000	Rs 4,00,000
$K=NI/S$	12.5%	13.3%	15.0%

It is seen that  $K_e$  is raising with rising leverage, that is more and more use of debt.

$K_e$  is increasing in a liner ratio with leverage ( $D/S$ ). For instance, when  $D=2,00,000$  and  $S=8,00,000$ ,  $K_e = K_0 + (K_0 - K_d)B/S = 12 + (12-10) 2,00,000 / 8,00,000 = 12 + 2 (0.25) = 12.5\%$ . When  $D=6,00,000$  and  $S=4,00,000$ ,  $K_e = 12 + (12-10) 1.5 = 15\%$ . As leverage rises, equity share holders expect higher return in order to compensate the increasing financial risk they are exposed to.

### 9.7 Modigliani – Miller (MM) Theory: (Without Corporate Taxation)

Franco Modigliani and Merton H. Miller proposed a theory of capital structure which appeared like the NOIT in effect, but different in process. Like NOIT, MM theory holds that  $K_0$  and  $V$  are independent of capital structure.  $K_0$  and  $V$  are constant for all leverage.  $K_e$  is rising with leverage and is equal to the sum of  $K_e$  of an equity capitalization rate of pure-equity firm and a financial risk premium which is equal to the difference between the equity capitalization rate of pure equity firm and cost of debt times the leverage ratio, i.e., debt to equity.

MM adopt the arbitrage process to prove their theory. Suppose two firms, one using debt capital (L-Levered firm) and another not using any debt capital (U-Unlevered firm) are identical in all other aspects. EBIT = Rs 2,00,000; debt used Rs 10,00,000 with a coupon of 10%. Let the equity capitalization of L be 16% and of U be 12.5%. Then the value and  $K_e$  of the firms shall be as shown bellow:

	L	U
EBIT	2,00,000	2,00,000
Less Debit interest	1,00,000	
EAI	1,00,000	2,00,000
$K_e$	16%	12.5%
Value of shares $S = EAI/K_e$	6,25,000	16,00,000
Value of Debt = D	10,00,000	
Value of firm = $V=S+D$	16,25,000	16,00,000
$K_0 = EBIT/V$	12.3%	12.5%

The levered firm is purported to have less cost and higher value than the unlevered firm. But this situation will not last long and the difference will be ironed out over a period by a process of arbitrage. The arbitrage process is dealt with below.

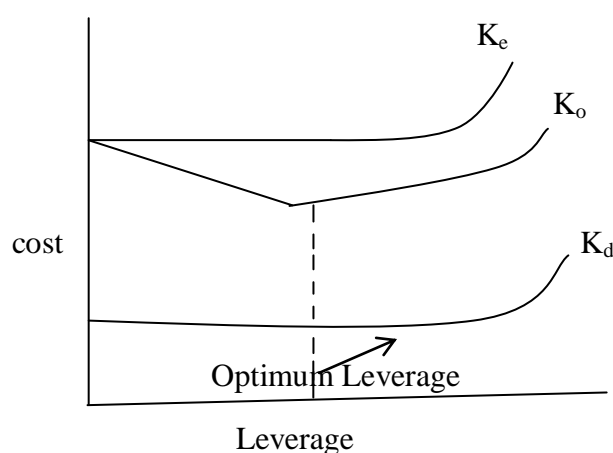
Here L's shares are commanding a higher market price. So, investors will begin to sell the shares. Say A is holding 1% of shares of L. His present income is 1% of Rs 1,00,000 or Rs 1,000. By selling his holding he realizes Rs 6,250, i.e., 1% of Rs 6,25,000, the value of shares of L. He in turn buys 1% of shares of U. He in turn buys 1% of shares in U.

To buy 1% of shares in U, whose shares are under-priced. A needs Rs 16,000. An additional sum of Rs 9,750 is needed, which he borrows at 10%. It is assumed that A can borrow at the rate companies do borrow and A is not to feel uncomfortable of such personal borrowing. And with the Rs. 16,000, now he has A buys 1% of shares in U. His gross income will be 1% of Rs 2,00,000 or Rs 2,000. Out of this Rs 2,000, he has to pay interest Rs 975 on the borrowed sum. His net income is Rs 2,000 – Rs 975 = Rs 1,025, which is greater than the income which he used to get on his share holding in L. The additional income of this arbitrage process drives more investors to sell their holding in L and buy shares of U. Due to selling pressure price of shares of L falls and due to in L and buy shares of U rises, and that the initial position of price of shares of L being higher than that of U is now no longer exist. Thus, in the long run, whether a firm is levered or unlevered, i.e., whether one uses debt or not, value and overall cost of capital cannot be influenced by this factor, other things remaining constant. Thus, this is similar to NOI theory.

## 9.8 Traditional Theory

As per traditional theory of capital structure, up to certain level of leverage  $K_0$  declines, afterwards it increases. In other words, there is a defined optimum capital structure. At the optimum capital structure, marginal real cost of debt is equal to the marginal real cost of equity. For a debt equity ratio before the optimum level, marginal real cost of debt is lower than that of equity and beyond optimum level of debt equity, marginal real cost of debt is more than that of equity. Marginal real cost of debt = out-of-pocket cost + implicit cost of debt like bankruptcy cost. Initially implicit cost is negligible and that overall cost falls. Both the out-of-pocket and implicit costs rise, as leverage rises. As a result overall cost rises. In the process,  $K_0$  passes through a minimum point, which is called the optimum capital structure.

Chart 5.4 gives a pictorial presentation of the traditional theory.  $K_e$  is rising with leverage, while  $K_d$  is constant and  $K_0$  initially slopes down. Once  $K_d$  starts rising after certain leverage level,  $K_0$  starts rising. The lowest point of  $K_0$  is the optimum capital structure.



**CHART 5.4: Traditional Theory**

### ***Their assumptions:***

The M&M Theorem, or the Modigliani-Miller Theorem, is one of the most important theorems in corporate finance. The theorem was developed by economists Franco Modigliani and Merton Miller in 1958. The main idea of the M&M theory is that the capital structure of a company does not affect its overall value.

The first version of the M&M theory was full of limitations as it was developed under the assumption of perfectly efficient markets in which the companies do not pay taxes while there are no bankruptcy costs of asymmetric information. Subsequently, Miller and Modigliani developed the second version of their theory by including taxes, bankruptcy costs, and asymmetric information.

**Significance**

In a world of corporate taxation, capital structure analysis is relevant. It helps firms have optimum capital structure. More the tax rate, more debt will help maximize value of the business. Yet, there is a limit beyond which debt capital induced leverage benefit may be eaten a ways by enhanced financial and business risk requiring the firm to pay more interest on debt as well as more reward to equity investors.

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**9.9 Limitations of capital structure theories:**

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First the assumption that  $K_d$  remains constant for all levels of leverage is not right. As debt rises  $K_d$  is likely to rise. Second, under MM theory, the individual has to go for personal debt to effect the arbitrage process. Such practice may not be liked by all investors. Asking a person to go for a leveraged portfolio may not be comfortably received. Third, for personal loan, rate of interest is generally higher than on corporate borrowings. Hence, the incentive for arbitrage is wiped out. Fourth, the assumption of perfect competition is no good. Fifth, some corporate investors cannot go for leverage portfolio and that arbitrage process cannot take place. Most assumptions of the theories are bordering around unreality.

# UNIT -X COST OF CAPITAL

Cost of Capital

NOTES

## Introduction:

In order to evaluate investment proposals, different methods have been used in chapter 3 on capital budgeting. All those methods, their application, evaluation criteria etc. depend upon two basis inputs i.e., cash flows emanating from projects and the discount rate. The discount rate is actually the 'cost of capital'. The cost of capital is also known as cut-off rate, minimum required rate of return, rate of interest, hurdle rate, target rate etc. The concept of cost of capital has two applications. First in capital budgeting, it is used to find the present value of future cash flows and it is also used in optimization of the financial plan or capital structure of a firm. The second aspect of concept of cost of capital will be taken up in chapter 5. In this chapter, an attempt has been made to measure the cost of capital of each source of finance so as to find the total cost of capital of a firm.

## Meaning of Cost of Capital :

For financing its operations, a firm can raise long term funds through a combination of (i) Debt, (ii) Preference share capital, and (iii) Equity share capital. The firm has to service these funds by paying interest, preference dividend and equity dividend respectively. The payment made by the firm constitutes the cost of obtaining/utilising that source of finance.

## Definition of Cost of Capital:

(i) Milton H. Spencer : Cost of capital is the minimum rate of return which a firm requires as a condition for undertaking an investment.

(ii) G.C. Phillioppatus : The cost of capital is the minimum required rate of return, the hurdle or handle or target rate, the cut-off rate or the financial standard of performance of a project.

(iii) James C. Van Horne : The cost of capital represents a cut-off rate for the allocation of capital to investment of projects. It is the rate of return on a project that will leave unchanged the market price of the stock.

(iv) Hamplon John J : Cost of capital is the rate of return the firm requires from investment in order to increase the value of the firm in the market rate.

(v) Haley and Schall : In general sense, the cost of capital is any discount rate used to value cash streams.

(vi) Solomon Ezra : The cost of capital is the minimum rate of return or cut-off rate for capital expenditures.

(vii) Hunt William and Donaldson : Cost of capital is the rate that must be earned on the net proceeds to provide the cost elements of the burden at the time they are due.

We can, thus, define cost of capital as a minimum rate of return which a firm is expected to earn from a proposed project so as to make no reduction in the earnings per share to equity shareholders and its market price.

*Self-Instructional Material*

## 10.1 Computation of cost of capital:

### 1. Cost of Debt:

Cost of debt may be defined as the returns expected by the potential investors of debt securities of a firm. It measures the current cost to the firm of borrowing funds to finance the projects. It is generally determined by the following variables:

(i) The current level of interest rates: As the level of interest rates increases, the cost of debt will also increase;

(ii) The default risk of the firm: As the default risk of the firm increases, the cost of debt will also increase. One way of measuring the default risk is to use the bond rating for the firm; higher interest rates.

(iii) The tax advantages associated with the debt: Since the interest is tax deductible, the after-tax cost of debt is a function of tax-rate. The tax benefit that accrues from paying interest makes the after tax cost of debt lower than the pre tax cost.

The cost of debt is of two types i.e., cost of irredeemable debt and cost of redeemable debt.

**1. Cost of Irredeemable Debt:** Irredeemable debt also known as perpetual debt refers to the debt which is not redeemable during the life time of the firm. Interest payable on such debt is called cost of irredeemable debt. It is calculated by using the following formula:

#### A. Cost of debt before tax ( $K_{db}$ )

$$K_{db} = \frac{\text{Interest}}{\text{Net Proceeds (NP)}}$$

(a) Interest on debt should be calculated only on the face value of debt irrespective of issue price.

(b) Net proceeds (NP) is to be ascertained as given below:

(i) Debt issued at par:

$$NP = \text{Face value} - \text{Issue expenses}$$

(ii) Debt issued at premium:

$$NP = \text{Face value} + \text{Securities premium} - \text{Issue expenses}$$

(iii) Debt issued at discount:

$$NP = \text{Face value} - \text{Discount} - \text{Issue expenses.}$$

#### B. Cost of debt after tax ( $K_{da}$ )

As the interest on debt is tax deductible, the firm gets a saving in its tax liability. The interest works as a tax liability of the firm is reduced. Thus the

effective cost of debt is lower than the interest paid to debt investors. The cost of debt is determined as given below:

$$\text{Cost of debt after tax } (K_{da}) = \frac{\text{Interest} - \text{Tax savings}}{\text{Net Proceeds}}$$

The after tax cost of debt may also be determined by applying the formula given below:

$$K_{da} = K_{db}(1 - \text{Tax rate})$$

## 2. Cost of Redeemable Debt:

Redeemable debt refers to the debt which is repayable after a stipulated period, say 5 or 7 or 10 years. The cost of this debt is determined as given below:

(A) Cost of debt before tax ( $K_{db}$ )

$$K_{db} = \frac{\text{Annual cost before tax}}{\text{Average value of debt}}$$

Computation of Annual cost before tax

Interest on debt p.a.	xxx
Add: Issue expenses, amortised p.a.	xxx
Add: Discount on issue, amortised p.a.	xxx
Add: Premium on redemption of debt, amortised p.a. (In case of redemption at premium)	xxx
Less: Premium on issue of debt, amortised p.a. (In case of issue at premium)	xxx
Annual cost before tax	xxx

Note: (i) While calculating annual cost, the issue expenses, discount on issue, premium on redemption and premium on issue are amortised over the tenure of debt.

(ii) Issue expenses (floatation costs) are to be calculated at face the issue price whichever is higher.

(b) Computation of average value of debt (AV):

The average value of debt is the average of net proceeds (NP) and redemption value (RV) of debt.

$$AV = \frac{NP + RV}{2}$$



**(B) Cost of debt after tax ( $K_{da}$ ):**

The cost of redeemable debt after tax is calculated as given below:

$$K_{da} = \frac{\text{Annual cost} - \text{Tax savings}}{\text{Average value of debt}}$$

The cost of redeemable debt after tax can be ascertained by using the following formula:

$$K_{da} = K_{db}(1 - \text{Tax rate})$$

**10.2 Cost of Preference share capital**

Dividend paid to the preference shareholders is the cost of preference share capital. The cost of preference share capital is based on the rate of return required by the firm's preference shareholders, which is determined by the market price of the preference shares. Since preference dividend is not tax deductible, there is no need for tax adjustment in calculating the effective cost of preference share capital. Like debt capital, preference shares are divided into two categories i.e., irredeemable and redeemable. In India, Companies Amendment Act, 1988 prohibits issue of irredeemable preference shares.

**A. Cost of Irredeemable Preference Share capital:**

In case of irredeemable preference shares, the dividend at the fixed rate will be payable to the preference shareholders perpetually. The cost of irredeemable preference share capital can be calculated with the help of the following formula:

$$\text{Cost of Preference share capital } (K_p) = \frac{\text{Annual preference dividend}}{\text{Net Proceeds (NP)}}$$

The net proceeds indicate the net amount realized from the issue of preference shares which can be determined as follows:

(a) Issued at par:

$$NP = \text{Face value} - \text{Issue expenses}$$

(b) Issued at premium :

$$NP = \text{Face value} + \text{Security premium} - \text{Issues expenses}$$

(c) Issued at discount :

$$NP = \text{Face value} - \text{Discount} - \text{issue expenses}$$

**(B) Cost of Redeemable Preferences Share capital(RPS)**

If the preferences shares are redeemable at the end of a specified period, then the cost of preference share capital can be calculated by applying the formula given under:

$$\text{Cost of Redeemable preferences share capital} = \frac{\text{Annual Cost}}{\text{Average value of RPS}}$$

## (a) Computation of Annual Cost :

Annual preference dividend	xxx
Add: Issue expenses, amortised p.a	xxx
Add: Discount on issue, amortised p.a.(In case of issue at discount)	xxx
Add: Premium on redemption amortised p.a. (In case of redemption at premium)	xxx
Less: Premium on issue of debt, amortised p.a.( In case of issue at premium)	xxx
Annual cost	xxx

Note: The issue expenses, discount on issue, premium on redemption and premium on issue are to be amortised over the tenure of the preference shares to determine the annual cost.

## (b) Computation of average value of RPS:

The average value of redeemable preference shares is the average of net proceeds (NP) of the issue and the redemption value(RV)

$$\text{Average value of RPS} = \frac{NP + RV}{2}$$

The Net Proceeds (NP) is to be ascertained as given below:

## (i) Issued at par:

NP=Face value - Issue expenses

## (ii) Issued at premium :

NP = Face value + Security premium – Issues expenses

## (iii) Issued at discount :

NP= Face value – Discount – issue expenses

**10.3 . Cost of Equity Capital:**

Computation of cost of equity is quite complex. Some people argue that the equity capital is cost free as the firm is not legally bound to pay dividend to equity shareholders. But this is not true. Shareholders invest their funds with the expectation of dividends. The market value of equity share depends on the

dividends expected by share holders, the book value of firm and the growth in the value of firm. Thus the required rate of return which equates the present value of the expected dividends with the market value of equity share is the cost of equity capital. The cost of equity capital may be expressed as the minimum rate of return that must be earned on new equity share capital financed investment in order to keep the earnings available to the existing equity share holders of the firm unchanged. The following are the different methods on the basis of which the cost of equity capital may be computed:

(i) Dividend yield (or) Dividend price method

According to this method, the cost of equity is calculated on the basis of a required rate of return in terms of future dividend to be paid on equity shares for maintaining their present market price. The cost of new equity share can be determined according to the following formula:

$$\text{Cost of equity (K}_e\text{)} = \frac{D_1}{NP}$$

Where:  $D_1$  = Expected dividend per share

NP = Net proceeds per share

Note: In case of new issue, the firm will have to incur some floatation costs such as fees to investment bankers, brokerage, underwriting commission and commission to agents etc. So, the net proceeds per share (Face value – Floatation Costs) is considered for calculating cost of equity.

In case of existing equity shares, the cost of equity should be calculated on the basis of market price of firm's equity share according to the following formula:

$$\text{Cost of equity (K}_e\text{)} = \frac{D_1}{MP}$$

Where  $D_1$  = Expected dividend per share

MP = Market Price per share

This method is simple and rightly emphasises the importance of dividend, but it suffers from two serious limitations: (i) It ignores the earning on retained earning which increases the rate of dividend on equity shares and (ii) It ignores growth in dividends, capital gains and future earnings. This method is suitable only when the firm has stable dividend policy over a reasonable length of time.

(ii) Dividend price plus growth (D/p+g) method

Under this method, the cost of equity is determined on the basis of the expected dividend rate plus the rate of growth in dividend. The growth rate in dividend is assumed to be equal to the growth rate in earnings per share and market prices per share. The cost of equity, under this method, is determined by using the following formula: as the variability of returns inherent, in the type of security, while the return is defined as the total economic return obtained from it including interest, dividends and market appreciations.

The CAPM divides the total risk associated with a security/assets into two classes i.e., (i) The diversifiable/unsystematic risk and (ii) non – diversifiable systematic risk. The risk refers to that risk which can be eliminated by more and more diversification. On the other hand, non – diversifiable risk is that risk which affects all the firms at a particular point of time and hence cannot be eliminated e.g., risk of political uncertainties, risk of government policies etc.

The CAPM further states that the investor can eliminate the diversifiable risk by diversifying into more and more securities, however, the non-diversifiable risk is the point where the investor's attention is required. This non-diversifiable risk of a security is measured in relation to the market portfolio and is denote by the beta coefficient  $\beta$ . In order to estimate the required rate of return of the equity investors, the risk associated with the shares (as represented by beta factor ) and risk – return relationship in the securities market need to be estimated. The CAPM as applied to find out the cost of equity can be presented as follows:

$$K_e = R_f + \beta(R_m - R_f)$$

Where,  $K_e$ = Cost of equity capital

$R_f$  = Risk free return (Risk free interest rate )

$\beta$ = The beta factor i.e., the measure of non-diversifiable risk

$R_m$ = The expected cost of capital of market portfolio or average rate of return on all assets or market return.

For example, a firm having beta coefficient of 1.6 finds that the risk free rate to be 9% and the market cost of capital at 12%. The cost of equity of the firm will be:

$$\begin{aligned} K_e &= R_f + \beta(R_m - R_f) \\ &= 0.09 + 1.6 (0.12 - 0.09) \\ &= 0.138 \text{ or } 13.8\% \end{aligned}$$

#### 10.4. Cost of Retained Earnings:

Retained earnings are the accumulated amount of undistributed profits belonging to the equity share holders. They provide a major source of financing, expansion and diversification of projects. Their cost is the opportunity cost of the funds. If these were distributed to the shareholders, they would have reinvested them in the same firm by purchasing its equity and earned on the additional shares the same rate of return as they are earning on their existing shares. Thus, the cost of retained earnings is the same as the cost of equity capital. However, unlike issue of equity shares, retained earnings do not involve the payment of personal income tax as well as any floatation cost. This makes their cost slightly lower than the cost of equity capital. The cost of retained earnings may be calculated as follows:

Cost of equity ( $K_e$ )	xxx
Less: Tax on cost of equity	xxx
Less: Brokerage (% on (i) – (ii) )	xxx
Cost of retained earnings	xxx

Alternatively, the cost of retained earnings can be ascertained by using the following formula:

$$\text{Cost of retained earnings } (K_r) = K_e (1 - t) (1 - b)$$

Where,  $K_e$  = Cost of equity capital

$t$  = tax rate

$b$  = brokerage

#### v. Weighted Average Cost of Capital (WACC):

After having ascertained the cost of each component of capital as explained above, the average or composite cost of all the sources of capital is to be determined. The cost of each component of the capital weighted by the relative proportion of that type of funds in the capital structure. Then it is called Weighted Average Cost of Capital (WACC). WACC is defined as the average of the costs of each source of funds employed by the firm, properly weighted by the proportion they hold in the capital structure of the firm. It is denoted by  $k_o$ . The proportion or percentage or weight of each component may be determined based on either book value or market value of capital.

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#### 10.5 Benefits of market value approach:

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As the cost of capital is used as a cut-off rate for investment projects, the market value approach is considered better due to the following reasons:

(a) It evaluates profitability as well as the long term financial position of the firm.

(b) Investors always consider the committing of his funds to a firm and an adequate return on his investment. In such cases, book values are of little significance.

(c) It considers price level changes.

## 10.6 Benefits of book value approach:

However, as the market value fluctuates widely and frequently, the use of book value weights is preferred in practice due to following reasons:

- (a) The firms set their targets in terms of book value.
- (b) It can easily be calculated from published accounts.
- (c) The investors generally use the debt-equity ratio on the basis of published figures to analyses the riskiness of the firm.

### Computation of weighted average cost of capital:

The following steps are to be taken to calculate WACC:

Step 1: Calculate the cost of specific sources of funds, for example, cost of debt, cost of equity etc.

Step 2: Multiple the cost of each source by its proportion in capital structure.

Step 3: Add the weighted component costs to get the firm's WACC.

The following format may be adopted for computation of WACC:

Source of funds Amt.	Proportion to total	After tax cost	Weighted cost
Debt $k_{da} \times w_1$	$w_1$	$w_1$	$k_{da}$
Preference share capital $k_p \times w_2$	$w_2$	$w_2$	$k_p$
Retained earnings $k_r \times w_3$	$w_3$	$w_3$	
Equity share capital $k_e \times w_4$	$w_4$	$w_4$	
Total	$w_1 + w_2 + w_3 + w_4$	WACC	xxx

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### 10.7 Significance of weighted average cost of capital :

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(i) In capital budgeting, WACC is used as a cut off rate (or Hurdle rate ) against which projects can be evaluated. A project can be considered viable only if the returns from the project are higher than the cost thereof i.e. , WACC.

(ii) WACC represents the minimum rate of return at which a firm can produce value for its investors ( Debt and equity ) . If a firm's return on capital employed is less than its WACC, it means the firm is losing its value/wealth. Such a situation is most disadvantageous to equity share holders.

(iii) WACC is useful in making economic value added (EVA) calculations.

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### 10.8. Marginal Cost of Capital (MCC)

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The MCC is defined as the cost of raising an additional rupee of capital. Since the capital is raised in substantial amount in practice, marginal cost is referred to as the cost incurred in raising new funds. MCC is derived when we calculate the average cost of capital using the marginal weights. The marginal weights represent the proportion of funds the firm intends to employ. Thus, the problem of choosing between the book value weights and the market value weights does not arise in the case of MCC computation. To calculate MCC, the intended financing proportion should be applied as weights to marginal component costs. The MCC should, therefore, be calculated in the composite sense. When a firm raises funds in proportional manner and the component's cost remain unchanged, there will be no difference between average cost of capital ( of the total funds ) and the marginal cost of capital. The component costs may remain constant up to certain level of funds raised and then start increasing with amount of funds raised. For example, the cost of debt may remain 8% (after tax) till Rs. 20 lakh of debt is raised, between Rs. 20 lakh and Rs. 30 lakh, the cost may be 10% and so on. Similarly, if the firm has to use the external equity when the retained profits are not sufficient, the cost of equity will be higher because of the floatation costs. When the components cost start rising, the average cost of capital will rise and the MCC will, however rise at a faster rate.

## ILLUSTRATIONS

### Illustration: 1(Cost of irredeemable debt)

Sakthi Ltd. Issued 20,000 8% debentures of Rs. 100 each on 1<sup>st</sup> April 2009. The cost of issue was Rs. 50,000. The company's tax rate is 35%. Determine the cost of debentures (before as well as after tax) if they

were issued, (a) at par; (b) at a premium of 10% and (c) at a discount of 10%.

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### Solution:

(a) Debentures issued at par

	Rs.
(i) Interest: (20,00,000 x 8%)	1,60,000
Less: Tax(1,60,000 x 35% )	56,000
Interests after tax	1,04,000
Rs.	
(ii) Gross proceeds: (20,000 x 100)	20,00,000
Less: Cost of issue	50,000
Net proceeds	19,50,000

$$\text{Cost of debentures before tax (k}_{db}) = \frac{\text{Interest before tax}}{\text{Net proceeds}} \times 100$$

$$= \frac{1,60,000}{19,50,000} \times 100 = 8.21\%$$

$$\text{Cost of debentures after tax (k}_{da}) = \frac{\text{Interest after tax}}{\text{Net proceeds}} \times 100$$

$$= \frac{1,04,000}{19,50,000} \times 100 = 5.33\%$$

(b) Debentures issued at a premium of 10%

	Rs.
Gross proceeds (20,000 x 110)	22,00,000
Less: Cost of issue	50,000

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Net proceeds	21,50,000
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$$\text{Cost of debentures before tax (k}_{db}) = \frac{1,60,000}{21,50,000} \times 100 = 7.44\%$$

$$\text{Cost of debentures after tax (k}_{da}) = \frac{1,04,000}{21,50,000} \times 100 = 4.84\%$$

(c) Debentures issued at a discount of 10%

	Rs.
Gross proceeds (20,000 x 90)	18,00,000
Less: Cost of issue	50,000
Net proceeds	17,50,000

$$\text{Cost of debentures before tax (k}_{db}) = \frac{1,60,000}{17,50,000} \times 100 = 9.14\%$$

$$\text{Cost of debentures after tax (k}_{da}) = \frac{1,04,000}{17,50,000} \times 100 = 5.94\%$$

**Note:** Whether the debentures are issued at par (or) at premium (or) at discount, interest on debentures should be calculated only on the face value of debentures.

### Illustration: 2 (cost of redeemable debt)

Kinely Ltd. Issued 50,000 10% debentures of Rs.100 each, redeemable in 10 years time at 10% premium. The cost of issue was 2.5%. The company's income tax rate is 35%. Determine the cost of debt (before as well as after tax) if they were issued (a) at par; (b) at a premium of 5% and (c) at a discount of 10%.

#### Solution:

**(a) Debentures issued at a par and Redeemable at a premium of 10%**

(i) Calculation of Annual cost

	Rs.
Interest : (50,00,000 x 10%)	5,00,000
Add: Cost of issue: 50,00,000 x 2.5% = 1,25,000/10years	12,500
Premium on redemption 50,00,000 x 10% = 5,00,000/10 years	50,000
Annual cost before tax	5,62,000
Less: Tax (5,62,500 x 35%)	1,96,875
Annual cost after tax	3,65,625

**(iii) Calculation of Average value of debt**

Gross proceeds (50,000 x 100 )	50,00,000
Less: Cost of issue (50,00,000 x 2.5%)	1,25,000
Net proceeds	48,75,000
Redeemable value = 50,00,000 x 110%	Rs. 55,00,000

$$\text{Average value} = \frac{\text{Net proceeds} + \text{Redeemable value}}{2}$$

$$= \frac{48,75,000 + 55,00,000}{2}$$

$$= \text{Rs. } 51,87,500$$

Cost of debt before tax ( $k_{db}$ )

$$= \frac{\text{Annual cost before tax}}{\text{Average value of debt}} \times 100$$

$$= \frac{5,62,500}{51,87,500} \times 100 = 10.84\%$$

Cost of debt after tax ( $k_{da}$ )

$$= \frac{\text{Annual cost after tax}}{\text{Average value of debt}} \times 100$$

$$= \frac{3,65,625}{51,87,500} \times 100 = 7.05\%$$

**Note:** The debentures are redeemable after 10 years. Hence, cost of issue and premium on redemption are spread over 10 years to arrive at annual cost.

**(b) Debenture issued at a premium of 5% and Redeemable at a premium of 10%**

(i) Calculation of Annual cost

	Rs.
Interest : (50,00,000 x 10%)	5,00,000
Add: Cost of issue: (50,00,000 x 105% = 52,50,000 x 2.5%)	13,125
Add: Premium on redemption 50,00,000 x 10% = 5,00,000/10 years	50,000
	5,63,125
Less: Tax (5,62,500 x 35%)	1,96,875
Annual cost after tax	3,65,625
Less: Premium on issue: (50,00,000 x 5% = 5,00,000/10 years)	25,000
Annual cost before tax	5,38,125
Less: Tax (5,38,125 x 35%)	1,88,344
Annual cost after tax	3,49,781

(iii) Calculation of Average value of debt

Gross proceeds (50,000 x 105)	52,50,000
Less: Cost of issue (52,50,000 x 2.5%)	1,31,250
Net proceeds	51,18,750
Redeemable value = 50,00,000 x 110%	Rs. 55,00,000

$$\text{Average value of debt} = \frac{51,18,750 + 55,00,000}{2}$$

$$= \text{Rs. } 53,09,375$$

Cost of debt before tax ( $k_{db}$ )

$$= \frac{5,38,125}{53,09,375} \times 100 = 10.14\%$$

Cost of debt after tax ( $k_{da}$ )

$$= \frac{3,49,781}{53,09,375} \times 100 = 6.59\%$$

**(c) Debentures issued at a discount of 10% and redeemable at a premium of 10%**

(i) Calculation of Annual cost

	Rs.
Interest : (50,00,000 x 10%)	5,00,000
Add: Cost of issue:	
50,00,000 x 2.5% = 1,25,000/10years	12,500
Premium on redemption	
50,00,000 x 10% = 5,00,000/10 years	50,000
Discount on issue	
50,00,000 x 10% = 5,00,000/10 years	50,000
Annual cost before tax	6,12,500
Less: Tax (6,12,500 x 35%)	2,14,375
Annual cost after tax	3,98,125
(ii) Calculation of Average value of debt	
Gross proceeds (50,000 x 90 )	45,00,000
Less: Cost of issue (50,00,000 x 2.5%)	1,25,000
Net proceeds	43,75,000

$$\begin{aligned}\text{Redeemable value} &= 50,00,000 \times 110\% = \text{Rs. } 55,00,000 \\ \text{Average value of debt} &= \frac{43,75,000 + 55,00,000}{2} \\ &= \text{Rs. } 49,37,500\end{aligned}$$

$$\begin{aligned}\text{Cost of debt before tax (k}_{db}) &= \frac{6,12,500}{49,37,500} \times 100 = 12.41\%\end{aligned}$$

$$\begin{aligned}\text{Cost of debt after tax (k}_{da}) &= \frac{3,98,125}{49,37,500} \times 100 = 8.06\%\end{aligned}$$

**Note:** (i) Cost of debt will not be equal to the interest rate on debt. This is due to the various reasons such as tax saving effects, issue at premium/discount, expenses of issue and difference between face value and net proceeds, redemption at premium and additional amount payable.

(ii) Cost of issue has been calculated at face value or the issue price whichever is higher.

### Illustration: 3(Cost of irredeemable preference share capital)

Malaiya Ltd. Issued 60,000 15% irredeemable preference shares of Rs. 100 each. The issue expenses were Rs. 60,000. Determine the cost of preference capital if shares are issued (a) at par; (b) at a premium of 10% and (c) at a discount of 5%

#### Solution:

$$\text{Cost of Red. Pref. share capital (K}_p) = \frac{\text{Annual pref. Dividend}}{\text{Net proceeds}} \times 100$$

#### (a) Preference shares issued at par

Annual pref. dividend:  $60,000 \times 100 = 60,00,000 \times 15\% = \text{Rs. } 9,00,000$

Gross proceeds: $(60,000 \times 100)$	60,00,000
Less: Issue expenses	60,000
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Net proceeds	59,40,000
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$$\text{Cost of Red. Pref. share capital (K}_p\text{)} = \frac{9,00,000}{59,40,000} \times 100 = 15.15\%$$

**(b) Preference shares issued at a premium of 10%**

$$\text{Annual pref. dividend: } 60,00,000 \times 15\% = \text{Rs. } 9,00,000$$

	Rs.
Gross proceeds: (60,000 x 110)	66,00,000
Less: Issue expenses	60,000
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Net proceeds	65,40,000
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	9,00,000

$$\text{Cost of Red. Pref. share capital (K}_p\text{)} = \frac{9,00,000}{65,40,000} \times 100 = 13.76\%$$

**(c) Preference shares issued at a discount of 5%**

$$\text{Annual pref. dividend: } 60,00,000 \times 15\% = \text{Rs. } 9,00,000$$

	Rs.
Gross proceeds: (60,000 x 95)	57,00,000
Less: Issue expenses	60,000
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Net proceeds	56,40,000
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	9,00,000

$$\text{Cost of Red. Pref. share capital (K}_p\text{)} = \frac{9,00,000}{56,40,000} \times 100 = 15.96\%$$

**Note:** Preference dividend is not an allowed expenses for computation if tax. Hence, cost of preference capital before and after tax is same.

**Illustration: 4(Cost of redeemable pref. share capital)**

Asin Ltd. Issued 15,000 12% preference shares of Rs.100, redeemable at 10% premium after 20 years. The floatation costs were 5%. Find out the cost of preference capital if shares are issued (a) at par; (b) at a premium of 5% and (c) at a discount of 10%.

**Solution:**

$$\text{Cost of Redeemable pref. share capital (K}_p\text{)} = \frac{\text{Annual cost}}{\text{Average value of RPS}} \times 100$$

**(a) Issued at par, Redeemable at a premium of 10%****(i) Computation of Annual cost**

	Rs.
Preference dividend(15,000x100=15,00,000x12%)	1,80,000
Add: Floatation costs (15,00,000x5%=75,000/20 years)	3,750
Add: Premium on redemption (15,00,000x10%=1,50,000/20 years)	7,500
Annual cost	<u>1,91,250</u>

**(ii) Computation of Average value of RPS**

	Rs.
Issue price(15,000x100)	15,00,000
Less: Floatation costs(15,00,000x5%)	75,000
Net proceeds	<u>14,25,000</u>

Redemption value: 15,00,000 x 110% = Rs. 16,50,000

$$\text{Average value of RPS} = \frac{\text{Net proceeds} + \text{Redemption value}}{2}$$

$$= \frac{14,25,000 + 16,50,000}{2}$$

$$= \text{Rs. } 15,37,500$$

$$\text{Cost of Red. Pref. capital } (k_p) = \frac{1,91,250}{15,37,500} \times 100 = 12.44\%$$

**(b) Issued at a premium of 5% Redeemable at a premium of 10%:****(i) Computation of Annual cost**

	Rs.
Preference dividend (15,00,000 x 12%)	1,80,000
Add: Floatation costs (15,000 x 105: 15,75,000 x 5% = 78,750/20 years)	3,937.50
Add: Premium on redemption (15,00,000 x 10% = 1,50,000/20 years)	7,500
	<u>1,91,437.50</u>

Less: Premium on issue:  $(15,000 \times 5 = 75,000 / 20 \text{ years})$

Annual Cost

3,750.00

1,87,687.50

Cost of Capital

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(ii) Computation of Average value of RPS:

Issued price  $(15,000 \times 105)$

15,75,000

Less: Floatation costs  $(15,75,000 \times 5\%)$

78,000

Net proceeds

14,96,250

Redemption value  $= 15,00,000 \times 110\% = \text{Rs. } 16,50,000$

$$\text{Average value of RPS} = \frac{14,96,250 + 16,50,000}{2}$$

= Rs. 15,73,125

1,87,687.50

$$\text{Cost of Red. Pref. share capital } (k_p) = \frac{1,87,687.50}{15,73,125} \times 100$$

= 11.93%

**(c) Issued at a discount of 10% Redeemable at a premium of 10%:**

(i) Computation of Annual cost

Rs.

Preference dividend  $(15,00,000 \times 12\%)$

1,80,000

Add: Floatation costs

$(15,00,000 \times 5\% = 75,000 / 20 \text{ years})$

3,750

Add: Premium on issue

$(15,000 \times 10 = 1,50,000 / 20 \text{ years})$

7,500

Less: Premium on redemption :

$(15,00,000 \times 10\% = 1,50,000 / 20 \text{ years})$

7,500

Annual Cost

1,98,750

(ii) Computation of Average value of RPS:

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## NOTES

	Rs.
Issued price(15,000 x 90)	3,50,000
Less: Floatation costs (15,00,000 x 5%)	75,000
Net proceeds	12,75,500

Redemption value = 15,00,000 x 110% = Rs. 16,50,000

$$\text{Average value of RPS} = \frac{12,75,000 + 16,50,000}{2}$$

$$= \text{Rs. } 14,62,500$$

$$1,98,750$$

$$\text{Cost of Red. Pref. share capital (k}_p\text{)} = \frac{1,98,750}{14,62,500} \times 100$$

$$= 13.59\%$$

**Note:** Floatation costs have been calculated at face value or the issue price whichever is higher.

### Illustration: 5(cost of equity-dividend yield method)

Ajit Ltd. Has a stable income and stable dividend policy. The average annual dividend payout is Rs. 25 per share (face value :Rs. 100) . You are required to ascertain:

- Cost of equity capital
- Cost of equity capital if the market price of the share is Rs.150.
- Expected market price in year 2 if cost of equity is expected to rise to 20%.
- Dividend payout in year 2 if the company were to have an expected market price of Rs. 160 price share, at the existing cost of equity.

### Solution:

#### (a) Computation of cost of equity (k<sub>e</sub>)

$$k_e = \frac{D_1}{NP}$$

D<sub>1</sub> = Expected dividend per share: Rs. 25

NP = Net proceeds = Rs. 100

$$25$$

$$k_e = \frac{\quad}{100} \times 100 = 25\%$$

**(b) computation of cost of equity if market price of share is Rs. 150**

$$k_e = \frac{D_1}{MP}$$

$$D_1 = \text{Rs. } 25$$

$$MP = \text{Market price} = \text{Rs. } 150$$

$$k_e = \frac{25}{150} \times 100 = 16.67\%$$

**(c) Computation of market price if  $k_e = 20\%$**

$$k_e = \frac{D_1}{MP}$$

$$20\% = \frac{25}{MP}$$

$$0.20 = \frac{25}{MP}$$

$$= 0.20 \quad MP = 25$$

$$MP = \frac{25}{0.20} = \text{Rs. } 125$$

$$\text{Expected market price} = \text{Rs. } 125$$

**(d) Computation of dividend per share if market price is Rs. 160 at the existing  $k_e$  of 25%**

$$k_e = \frac{D_1}{MP}$$

$$25\% = \frac{D_1}{160}$$

$$D_1 = 160 \times 25\% = \text{Rs. } 40$$

$$\text{Expected dividend per share} = \text{Rs. } 40.$$

### **Illustration: 6(Cost of equity-Dividend yield + growth method)**

Allen Ltd. Pays a dividend of Rs. 4 per share. Its shares are quoted at Rs. 40 presently and investors expect a growth rate of 10% per annum. Calculate (a) cost of equity capital; (b) expected market price per share if anticipated growth rate is 11% and (c) Market price if dividend is Rs. 4, Cost of capital is 16% and growth rate is 10%.

Cost of Capital

NOTES

Self-Instructional Material

**Solution:****(a) Computation of cost of equity ( $k_e$ )**

$$K_e = \quad + g \frac{D_1}{MP}$$

$D_1$  = expected dividend per share = Rs.4

MP = Market price per share = Rs. 40

$g$  = Growth rate in dividend = 10%

$$k_e = \left( \frac{4}{40} \times 100 \right) + 10\% = 20\%$$

**(b) Computation of market price if growth rate is 11%**

$$K_e = \quad + g \frac{D_1}{MP}$$

$$20\% = \frac{4}{MP} + 11\%$$

$$20\% - 11\% = \frac{4}{MP}$$

$$9\% = \frac{4}{MP}$$

$$0.09MP = \frac{4}{0.09}$$

$$MP = \frac{4}{0.09} = \text{Rs. } 44.44$$

Market price per share = Rs. 44.44

**(c) Computation of market price if  $D_1$  = Rs.4,  $k_e$  = 16% and  $g$  = 10%**

$$K_e = \quad + g \frac{D_1}{MP}$$

$$16\% = \frac{4}{MP} + 10\%$$

$$16\% - 10\% = \frac{4}{MP}$$

$$6\% = \frac{4}{MP}$$

$$0.06 = \frac{\text{MP}}{4}$$

$$0.06\text{MP} = 4$$

$$\text{MP} = \frac{4}{0.06} = \text{Rs. } 66.67$$

Market price per share = Rs. 66.67

**Illustration: 7 (Cost of equity – Earning/ price method)**

Kaniska Ltd. Wants to raise Rs. 30,00,000 by issue of new equity shares.

The relevant information is given below:

No. of equity shares	50,000
Profit after tax	Rs.3,00,000
Market value of existing equity shares	Rs. 20,00,000

(a) Compute the cost of existing equity capital

(b) Compute the cost of new equity capital if the shares are issued at a price of Rs. 35 per share and the floatation cost is Rs. 5 per share.

**Solution:**

**(a) Computation of cost of existing equity ( $k_e$ )**

$$\begin{aligned} \text{EPS (Earning per share)} &= \frac{\text{Profit after tax}}{\text{No. of equity shares}} \\ &= \frac{3,00,000}{50,000} \\ &= \text{Rs. } 6 \end{aligned}$$

$$\begin{aligned} \text{MP (Market value per share)} &= \frac{\text{Market value of equity}}{\text{No. of equity shares}} \\ &= \frac{20,00,000}{50,000} \\ &= \text{Rs. } 40 \end{aligned}$$

$$k_e = \frac{6}{40} \times 100 = 15\%$$

**(b) Computation of cost of equity ( $k_e$ )**

$$k_e = \frac{\text{EPS}}{\text{NP}} \times 100$$

NP (Net proceeds) = Issue price – Floatation cost

$$= 35 - 5 = \text{Rs. } 30$$

$$k_e = \frac{6}{30} \times 100 = 20\%$$

## NOTES

**Illustration: 8(cost of equity – Realized yield method)**

An investor purchased 10 shares in a company at a cost of Rs. 480 on 1.1.2001. He held them for 5 years and finally sold them in Jan. 2006 for Rs. 600. The amount of dividend received by him in each of these 5 years was Rs. 28, 28, 29, 29 and Rs. 29 respectively. Find out the cost of equity capital under realized yield method.

**Solution:**

Under the realized yield method, cost of equity capital is the Internal Rate of Return (IRR). IRR is the rate at which total present value of inflows is equal to total present value of outflow. The IRR is calculated by trial and error.

$$\text{Average dividend received} = \frac{28+28+29+29+29}{5} = \text{Rs. } 28.6$$

$$\text{Profit on sale of shares} = 600 - 480 = \text{Rs. } 120$$

$$\text{Average profit on sale of shares} = 120/5 = \text{Rs. } 24$$

$$\text{Total return for a year} = 28.6 + 24 = \text{Rs. } 52.6$$

$$\text{Return on investment} = \frac{52.6}{480} \times 100 = 10.95\%$$

(or)

$$11\%$$

The trial and error procedure to find out the IRR may be started with 11%

**Statement showing present value of cash flows**

Year	Dividend	Sale proceeds	P.V Factor at
Present value			
Rs.			11%
2001	28	-	0.901
25.228			
2002	28	-	0.812
22.736			
2003	29	-	0.731
21.199			
2004	29	-	0.659
19.111			
2005	29	-	0.593
17.197			
2006	--	600	0.593

Total P.V of cash inflows	
461.271	
Less: Total P.V of cash outflow (480 x 1)	
480.000	
	NPV
(-) 18.729	

Cost of Capital

NOTES

Since NPV is negative, it is apparent that the IRR should be less than 11%.  
Let us try 10% as the P.V. factor.

#### Statement showing present value of cash flows

Year	Dividend	Sale proceeds	P.V Factor at
Present value			
Rs.			10%
2001	28	-	0.909
25.452			
2002	28	-	0.826
23.128			
2003	29	-	0.751
21.779			
2004	29	-	0.683
19.807			
2005	29	-	0.621
18.009			
2006	--	600	0.621
Total P.V of cash inflows			
480.775			
Less: Total P.V of cash outflow (480 x 1)			
480.000			
			NPV
0.775			

IRR must be between 10% and 11% , because at 10% NPV is positive and at 11% it is negative. Hence, the exact IRR can be ascertained with the help of following formula:

Positive NPV

Self-Instructional Material

IRR= Lower rate +  $\frac{\text{Difference in calculated present values}}{\text{Difference in rate}}$  x Difference in rate

$$= 10\% + \frac{0.775}{480.775 - 461.271} \times (11 - 10)$$

$$= 10\% + \frac{0.775}{19.504} \times 1$$

$$= 10\% + 0.04$$

$$= 10.04\%$$

Cost of equity capital ( $k_e$ ) = 10.04%

### Illustration: 9 (Cost of equity under CAPM)

The following information relate to Tboulath Ltd.

(i) Risk free return is 12%

(ii) Beta co-efficient  $\beta$  of the company is 1.75

Compute the cost of equity capital using capital if assets pricing model (CAPM) if the expected market return 5%. Also calculate the cost of equity  $\beta$  (a) rise to 2.25 and (b) falls to 1.50.

#### Solution:

#### I. calculation of cost of equity under CAPM ( $k_e$ )

$$K_e \text{ under CAPM} = R_f + \beta(R_m - R_f)$$

$$R_f = \text{Risk free return} = 12\%$$

$$\beta = \text{Beta Co-efficient} = 1.75$$

$$R_m = \text{Market return} = 15\%$$

$$\begin{aligned} K_e \text{ under CAPM} &= 12\% + [1.75(15\% - 12\%)] \\ &= 12\% + 0.0525 \\ &= 12.0525\% \end{aligned}$$

#### II. Calculation of cost of equity if Beta increases to 2.25

$$\begin{aligned} K_e \text{ under CAPM} &= 12\% + [2.25(15\% - 12\%)] \\ &= 12\% + 0.0675 \\ &= 12.0675\% \end{aligned}$$

#### III. Calculation of cost of equity if Beta decreases to 1.5

$$\begin{aligned} K_e \text{ under CAPM} &= 12\% + [1.50(15\% - 12\%)] \\ &= 12\% + 0.045 \\ &= 12.045\% \end{aligned}$$

### Illustration: 10

A company was recently formed to manufactures a new project. It has the following capital structure:

(i) 9% Debentures	10,00,000
(ii) 7% Preference shares	4,00,000
(iii) Equity shares (48,000 shares)	16,00,000
(iv) Retained earnings	10,00,000
	<hr/>
	40,00,000
	<hr/>

Cost of Capital

NOTES

The market price of equity share is Rs. 80. A dividend of Rs. 8 per share is proposed. The company has marginal tax rate of 50% and shareholder's individual tax rate is 25%. Compute after tax weighted average cost of capital of the company.

**Solution:**

**(i) Computation of after tax cost of debt ( $k_{da}$ )**

$$k_{da} = \frac{\text{Interest}}{\text{Net Proceeds}} \times 100$$

Interest on debentures = (10,00,000 x 9%)  
90,000  
Less: Tax(90,000 x 50%)  
45,000

Rs.

Rs.

Interest after tax  
45,000

$$k_{da} = \frac{45,000}{10,00,000} \times 100 = 4.5\%$$

**(ii) Computation of cost of equity ( $k_e$ )**

$$K_e = \frac{D_1}{MP} \times 100$$

$D_1$  = Expected dividend per share=Rs.8

MP= Market price per share = Rs.80

$$K_e = \frac{8}{80} \times 100 = 10\%$$

**(iii) Computation of cost of retained earnings ( $k_r$ )**

$$K_r = \frac{D(1-t)}{MP} \times 100$$

$$= \frac{8(1-0.25)}{80} \times 100 = 75\%$$

**Statement showing weighted average cost of capital**

Source	Amount Rs.	Weights	After tax	Weighted
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			cost %	cost
(1)	(2)	(3)	(4)	5=(3x4)
Debentures	10,00,000	10/40 =0.25	4.5	1.125
Pref.shares	4,00,000	4/40 =0.10	7.0	0.70
Equity shares	16,00,000	16/40 = 0.40	10.0	4.00
Retained earning	10,00,000	10/40 = 0.25	7.5	1.875
	<u>40,00,000</u>			<u>          </u>
			WACC	7.70

**Illustration: 11**

Excel Industrial Ltd. Has assets of Rs. 1,60,000 which has been financed with Rs. 52,000 of debt and Rs. 90,000 of equity and a general reserve of Rs. 18,000. The firm's total profits after interest and taxes for the year ended 31<sup>st</sup> march 2007 were Rs. 13,500. It pays 8% interest on borrowed funds and is in the 50% tax bracket. It has 900 equity shares of Rs. 100 each selling at a market price of Rs. 120 per share. What is the weighted average cost of capital?

[Delhi. M.Com]

**Solution:****Working Notes: (i) Computation of cost of debt after tax**

	%
Interest on debentures	8
Less: Tax (8x50%)	<u>4</u>
Cost of debt after tax	<u>4</u>

**(ii) Computation of cost of equity capital ( $k_e$ )**

$$K_e = \frac{\text{EPS}}{\text{MP}}$$

$$\text{Earnings per share (EPS)} = \frac{\text{Profit after Tax}}{\text{No. of equity shares}} \times 100$$

$$= \frac{13,500}{900} \text{ Rs. } 15$$

MP= Market price per share = Rs. 120.

$$(K_e) = \frac{\quad}{20} \times 100 = 12.5\%$$

Cost of Capital

### (iii) Cost of retained earnings

The cost of equity (i.e., 12.5%) is to be taken as cost of retained earnings.

NOTES

#### Statement showing weighted average cost of capital

Sources Of funds (1)	Amount (Rs.) (2)	Proportion to Total (3)	After tax cost (%) (4)	Weighted cost (%) (5)=(3)x(4)
Equity share capital	90,000	0.5625	12.5	7.03125
	18,000	0.1125	12.5	1.40625
General reserve	52,000	0.325	4	1.3000
Debt	_____			_____
Total	1,60,000			9.7375

Weighted average cost of capital = 9.7375%

#### Illustration:12

From the following capital structure of a company, compute the overall cost of capital using (i) Book value weights, and (ii) Market value weights.

	Book Value Rs.	Market Value Rs.
Equity share capital (Rs. 10 per share)	45,000	90,000
Retained earnings	15,000	-
Preference share capital	10,000	10,000
Debenture	30,000	30,000

The after tax cost of different sources of finance is as follows:

Equity share capital : 14%  
 Retained earnings : 13%  
 Preference share capital : 10%  
 Debentures : 5%

[Madras, M.Com., Nov. 2006]

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[Thiruvalluvar, M.Com Apr 2012] [Thiruvalluvar, M.Com., Dec.2007]

**Solution:****(i) Statement showing weighted average cost of capital****(Book value weights)**

Sources of funds (i)	Amount Rs. (ii)	Proportion to total (iii)	After tax cost (%) (iv)	Weighted cost (%) (v) = (iii) x (iv)
Equity share capital	45,000	0.45	14	6.30
Retained earnings	15,000	0.15	13	1.95
Pref. share capital	10,000	0.10	10	1.00
Debentures	30,000	0.30	5	1.50
Total	1,00,000			10.75

WACC = 10.75%

**(ii) Statement showing weighted average cost of capital****(Market value Weights)**

Sources of funds (i)	Amount Rs. (ii)	Proportion to total (iii)	After tax cost (%) (iv)	Weighted cost (%) (v) = (iii) x (iv)
Equity share capital	90,000	0.692	14	9.69
	10,000	0.077	10	0.77
Pref. share capital	30,000	0.231	5	1.16
Debentures	1,30,000			11.62
Total				

WACC = 11.62%

**Note:** The amount of retained earnings is included in the market value of equity. So, it is not shown separately for calculating WACC by using market value weights.

**Illustration:13**

Wilson Ltd. Wishes to raise additional finance of Rs. 30 lakh for meeting its investment plans. It has Rs. 6,00,000 in the form of retained earnings available for investment purposes. The following are the further details:

- |                                      |                    |
|--------------------------------------|--------------------|
| (i) Debt/Equity mix                  | - 40%:60%          |
| (ii) Cost of debt:                   |                    |
| Upto Rs. 5,00,000                    | - 12% (before tax) |
| Beyond Rs. 5,00,000                  | -16% (before tax)  |
| (iii) EPS                            | - Rs. 5            |
| (iv) Dividend payout                 | - 60% of earnings  |
| (v) Expected growth rate in dividend | - 8%               |
| (vi) Current market price per share  | -Rs. 50%           |
| (vii) Tax rate                       | - 40%              |

You are required to determine

- the pattern for raising the additional finance
- the post-tax average cost of additional debt
- the cost of retained earnings and cost of equity, and
- the overall weighted average after tax cost of additional finance.

**Solution:****(a) Determination of pattern for raising the additional finance:**

	Rs.
Debt: 30,00,000 x 40%	12,00,000
Equity: 30,00,000 x 60%	18,00,000

Detailed pattern:

Source	Cost	Amount
		Rs.
Debt	12%	5,00,000
Debt	16%	7,00,000
Retained earnings		6,00,000
Equity additional		12,00,000
		<u>30,00,000</u>

**(b) Determination of post tax average cost of additional debt**

$$K_{da} = \frac{\text{Interest after tax}}{\text{Net proceeds}} \times 100$$

$$\text{For Rs. 5,00,000} = \frac{60,000 - 24,000}{5,00,000} \times 100$$

$$= 7.2\%$$

1,12,000-44,800

$$\text{For Rs. 7,00,000} = \frac{\text{7,00,000}}{\text{7,00,000}} \times 100$$

$$= 9.6\%$$

$$\text{Average cost of additional debt} = \frac{7.2 + 9.6}{2}$$

$$= 8.4\%$$

**(c) Determination of cost of retained earnings and cost of equity applying dividend growth method**

MP = Market price per share = Rs. 50

g = Growth rate in dividend = 8%

$$K_e = \left( \frac{3.24}{50} \times 100 \right) + 8 = 14.48\%$$

**Statement showing weighted average cost of capital**

Source	Amount	Weights	After tax cost %	Weighted cost%
Equity (including Retained earnings)	18,00,000	18/30 = 0.6	14.48	8.688
Debt	12,00,000	12/30 = 0.4	8.4	3.36
	<hr/>			<hr/>
	30,00,000		WACC	12.048

WACC = 12.048%

**Illustration: 14**

The R&G CO. has following capital structure at 31.3.2004 which is considered to be optimum:

	Rs.
13% Debentures	3,60,000
11% Preference share capital	1,20,000
Equity share capital (2,00,000 shares)	19,20,000

The company's share has a current market price of Rs. 27.75 per share. The expected dividend per share in next year is 50% of the 2004 EPS. The EPS of last 10 years is as follows. The past trends are expected to continue:

Year	1995	1996	1997	1998	1999	2000	2001
2002	2003	2004					
EPS(Rs)	1.00	1.120	1.254	1.405	1.574	1.762	1.974
	2.211	2.476	2.773				

The company can issue 14% new debentures. The company's debenture is currently selling at Rs. 98. The new preference issue can be sold at a net price of Rs. 9.80 paying a dividend of Rs. 1.20 per share. The company's marginal tax rate is 50%.

(i) Calculate the after tax cost (a) of new debts and new preference share capital, (b) of ordinary equity assuming new equity comes from retained earnings.

(ii) Calculate the marginal cost of capital

(iii) How much can be spent for capital investment before new ordinary shares must be sold? Assuming that retained earnings available for next year's investment are 50% of 2004 earnings.

(iv) What will be marginal cost of capital [cost of fund raised in excess of the amount calculated, in part(iii) if the company can sell new ordinary shares to net Rs. 20 per share? The cost of debt and preference capital is constant.

[C.A. Final, may 2005]

### Solution:

#### (i) Computation of after tax cost of debt ( $k_{da}$ )

$$k_{da} = \frac{\text{Interest}}{\text{Net Proceeds}} \times 100$$

$$= \frac{14 - (14 \times 50\%)}{98} \times 100$$

$$= 7.143\%$$

#### (b) Computation of cost of preference share capital ( $k_p$ )

$$K_p = \frac{\text{Pref. dividend}}{\text{Net Proceeds}} \times 100$$

$$k_{da} = \frac{1.20}{9.80} \times 100 = 12.2449\%$$

#### (c) Computation of cost of equity ( $k_e$ )

$$K_e = \frac{D_1}{MP} + g$$

$D_1$  = Expected dividend per share =  $2.773 \times 50\% = 1.3865$

MP = Market price per share = Rs. 27.75

$g$  = Growth rate in dividend = 12%

$$K_e = \left( \frac{1.3865}{27.75} \times 100 + 12\% \right) = 17\%$$

#### (iii) Computation of weighted marginal cost of capital (WMCC)

Source	Amount Rs.	Weights	After tax cost %	Weighted cost
(1)	(2)	(3)	(4)	(%)

				5=(3x4)
Debentures	3,60,000	16/240 =0.15	7.143	1.07145
Pref.shares	1,20,000		12.2449	0.61225
Equity capital	19,20,000	12/240 =0.05	17	13.6000
Total	<u>40,00,000</u>	192/240 = 0.80		<u>          </u>
			WMCC	7.70

Weighted marginal cost of capital at existing capital structure = 15.2837%

**(iii) Computation of amount to be spent for capital investment without increasing marginal cost of capital and selling new shares**

Retained earnings: 2,00,000 x 1.3865 = Rs. 2,77,300

$$\text{Proportion of ordinary capital in total capital} = \frac{19,20,000}{24,00,000} \times 100$$

$$= 80\%$$

$$\text{Investment before issuing equity} = \frac{2,77,300}{80\%}$$

$$= \text{Rs. } 3,46,625$$

**(iv) If the company spends more than Rs. 3,46,625, it will have to issue new shares, the cost of new equity shares is:**

$$K_e = \frac{D_1}{NP} + g = \left[ \frac{1.3865}{20} \times 100 \right] + 12\%$$

$$= 18.93\%$$

**Computation of weighted marginal cost of capital (WMCC)**

Source (1)	Amount Rs. (2)	Weights (3)	After tax cost % (4)	Weighted cost (%) 5=(3x4)
Debentures	3,60,000	36/240 =0.15	7.143	1.07145
Pref.shares	1,20,000		12.2449	0.61225
Equity capital	19,20,000	12/240 =0.05	18.93	15.144
Total	<u>24,00,000</u>	192/240 = 0.80		<u>          </u>

			WMCC	7.70
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Cost of Capital

NOTES

Weighted marginal cost of capital at existing capital structure = 15.144%

## EXERCISE

### 1. Cost of Irredeemable Debt

1. (Issued at par): Janaki Ltd., issued 12,000 10% Debentures of Rs.100 each a par. The tax rate is 50%. Calculate before tax and after tax cost of debt.

**[Ans: Cost of debt before tax (Kdb) = 10% (1,20,000 / 12,00,000 x 100)]**

**Cost of debt after tax (Kda) = 5% (60,000 / 12,00,000 x 100)]**

2. (Issued at premium): Vikram Ltd. issued Rs.3,00,000 8% Debentures at a premium of 10%. The flotation costs (issue expenses) are 2%. The tax rate is 50%. You are required to ascertain cost of debt before tax and after tax.

**(Ans: Kdb= 7.42% (24,000/3,23,400 x 100)**

**Kda = 3.71% (12,000/3,23,400 x 100)**

3. (Issued at discount) Hadley Ltd. issued 6,000 10% Debentures of Rs.100 at a discount of 10%. The issue expenses are Rs.4,000 . Assuming a tax rate of 50% calculate the before tax and after tax cost of debt.

**[Ans: Kdb=11.19% (60,000 / 5,36,000 x 100);**

**Kda = 5.60% (30,000/5,36,000 x 100)**

4. Sri Ram Industries Ltd. issued 10,000 10% Debentures of Rs.100 each. The tax rate is 50%. Calculate the before tax and after tax cost of debt if the debentures are issued (a) at par; (b) at a premium of 10% and (c) at a discount of 10%.

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**[Ans: (a) Kdb=10%(1,00,000/10,00,000 x 100);**

**Kda=5% (50,000/10,00,000 x 100);**

**(b) Kdb=9.09% (1,00,000/11,00,000 x 100);**

**Kda-4.55% (50,000/11,00,000 x 100);**

**(C) Kdb=11.11% (1,00,000/9,00,000 x 100);**

**Kda =5.56% (50,000/9,00,000 x 100);**

### 1i.Cost of Redeemable Debt

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5. (Issued at par; Redeemable at par); KKL Ltd. issued 10% Debentures of Rs.5,00,000 and realized Rs.4,85,000 after allowing 3% commission to brokers. The debentures are due for maturity at the end of the 10th year. You are required to calculate the effective cost of debt before tax.

**[Ans; Kdb; 10.46% (51,500/74,92,500 x 100]**

6. (Issued at premium, Redeemable at par): X Ltd. issued 20,000 7% Debentures of Rs. 100 each at a premium of 5%. The maturity period is 5 years and the tax rate is 40%. Calculate the cost of debentures before and after tax if the debentures are redeemable at par.

**[Ans: Kdb=5.85% (1,20,00/20,50,000 x 100);**

**Kda= 3.51% (72,000/20,50,000 x 100) ]**

7. (issued at discount, Redeemable at par): RK Ltd. issued Rs.20,00,000 11% redeemable debentures at a discount of 10%. The issue expenses are 4% and the debentures are redeemable after 5 years. You required to ascertain are cost of debt before are tax and after tax assuming a tax rate 40%.

**[Ans: Kdb =14.84% (2,76,000/18,60,000x 100);**

**Kda =8.90% (1,65,600/18,60,00 % 100)]**

Hint: Issue expenses Rs. 80,000(20lakhx 4%)

8. (issued at par, Redeemable at premium):Srinivas Ltd., issued 10,000 10% Debentures at a Rs.100 each. The debentures are redeemable after 10 years at a premium of 5%. If the tax rate is 50%.calculate the cost of debt before tax and after tax.

**[Ans: Kdb=10.24 % (1,05,000/10,25,000x 100)**

**Kda 5.12% (52,500/10,25,000 x 100):]**

9. Sarathy Ltd., issued 14% 20,000 Debentures of Rs.100 each. Marketing costs are Rs.40,000. The debentures are to be redeemed after 10 years and the company is taxed at the rate of 40%. Compute the cost of debt if the debentures are issued (a) at par, (b) at a premium of 5%, and (c) at a discount of 5%.

**[Ans: (a) Issued at par: Kdb =14.34%**

**(2,84,000/19,80,000 x 100)**

**Kda=8.6% (1,70,400/19,80,000 x 100)**

**(b) Issued at premium:**

**Kdb=13.5% (2,74,000/20,30,000 x 100)**

**Kda= 8.1% (1,64,400/20,30,000 x 100)**

$$K_{db} = 15.23\% (2,94,000 / 19,30,000 \times 100)$$

$$K_{da} = 9.14\% (1,76,400 / 19,30,000 \times 100)$$

### iii. Cost of Irredeemable Preference Share Capital

10. Dinesh Ltd., 9% 10,000 preference shares of Rs.100 each. The issue expenses are Rs.3 per share. You are required to ascertain the cost of Preference share capital if the shares are issued (a) at a par; (b) at a premium of 10% and (c) at a discount of 5%.

[Ans: Cost of Capital pref. capital ( $K_p$ ) (a) 9.28%  $90,000 / 9,70,000 \times 100$ ];

(b) 8.41%  $(90,000 / 10,70,000 \times 100)$ ; (c) 9.78%  $(90,000 / 9,20,000 \times 100)$ ]

11. Sumo Ltd, has issued 6,000 8% Preference shares of Rs.100 each. The floatation costs are Rs.10.000. Compute the cost of preference share capital if the shares are issued (a) at par; (b) at a premium of 10% and (c) at a discount of 10%

[Ans:  $K_p$  (a) 8.14%  $(48,000 / 5,90,000 \times 100)$

(b) 7.38%  $(48,000 / 6,50,000 \times 100)$ ; (c) 9.06%  $(48,000 / 5,30,000 \times 100)$ ]

### IV. Cost of Redeemable Preference Share Capital

12. (issued at par, Redeemable at premium): Sadhiya Ltd, has issued 12,000 12% Preference shares of Rs.100 each. The shares are redeemable after 10 years at a premium of 10%. Floatation costs are 4%. Calculate the effective cost of redeemable preference share capital.

[Ans: Cost of fred. pref. capital ( $K_p$ ): 13.01%  $(1,60,800 / 12,36,000 \times 100)$ ]

13. Alpha Ltd., issued 10% Redeemable preference shares of Rs.100 each, redeemable after 10 years. The floatation costs are 5% of the nominal value. Compute the effective cost to the company if the issue is made at (a) par; (b) a premium of 5% and (c) a discount of 5%.

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[Ans:  $K_p$  (a) 10.77%  $(10.5 / 97.5 \times 100)$ ;

(b) 10%  $(10 / 100 \times 100)$ ; (c) 11.58%  $(11 / 95 \times 100)$

14. A company issues equity shares of Rs. 10 each for public subscription at a premium of 20%. The company pays @ 5% as underwriting commission on issue price. Expected rate of dividend by equity shareholders is 25%. You are required to compute the cost of equity capital. Will your assumption be different if it is calculated on the basis of present market value of equity share which is only Rs16?

**[Ans:  $K_e$ : 21.93% ( $2.50/11.40 \times 100$ )];**

**$K_e = (\text{When market price is Rs.16}) = 15.625\% (2.50/16 \times 100)$**

15. Akash Ltd., offers for public subscription equity shares of Rs.10 each at a premium of 10%, The company pays an underwriting commission of 5% on the issue price. The equity shareholders expect a dividend of 15%.

(a) Calculate the cost of equity capital.

(b) Calculate the cost of equity capital, if the market price of the share is Rs.20.

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**[Ans: (a)  $K_e = 14.35\% (1.50/10.45 \times 100)$**

**(b)  $K_e = 7.5\% (1.50/20 \times 100)$**

16. (Dividend yield+ Growth Method): The market price of an equity share of Mills Ltd., is Rs.120. The expected equity dividend is Rs.2.40 per share. The shareholders anticipate a growth of 10% in dividends. You are required to calculate cost of equity capital.

**[Ans:  $K_e$ : 12% ( $2.40/120 + 10\%$ )]**

17. Your company's share is quoted in the market at Rs. 20 currently. The company pays a dividend of Re.1 per share and the investor expects a growth rate of 5% per year. Compute:

(a) The company's cost of equity capital;

(b) If the anticipated growth rate is 6% p.a., calculate the indicated market price per share.

(c) If the calculate cost of capital is 8% and the anticipated growth rate is 5% p.a., calculate the indicated market price if the dividend of Re. 1 per share is to be maintained.

**[I.C.W.A.Final]**

**[Ans: (a)  $K_e = 10\% (1/20 + 5\%)$ ;**

**(b) Market price per share : Rs.25 ( $1/10\% - 6\%$ ).**

**(c) Market price per share: Rs.33.33( $1/8\% - 5\%$ )]**

18. A company is planning to raise Rs.40,00,000 additional long term funds to finance its additional capital budget of the current year. The debentures of the company to be sold on a 14% net yield basis to the company, and equity shares to be sold at Rs.50 per share net to the company, are the alternatives being considered by the per share at the end of company. The company expects to pay

dividend of Rs.5 per share at the end of coming year. The expansion is expected to carry the company into a new, higher risk class. The required rate of return expected from the point of view of the investment community is 16%.

(i) Determine the growth rate of the company which the market is anticipating.

ii) Management is anticipating an 8% growth rate. On this basis, at what price should the equity share be sold by the company?

(iii) Assuming that management is anticipating growth rate of only 4% per year, what form of financing would you recommend?

**[Ans: (i) 6% (16%-10%); (ii) Rs.62.50(5/8%);(iii) Rs. 41.67(5/12%)]**

19. Ponting Ltd. intends to issue new equity shares of which the current market value is Rs. 125 per share. The flotation cost is estimated to be 3%. The dividends paid by the company during last 5 years are Rs. 10.70, 11.45, 12.25, 13.11 and 14.03. Find out the growth rate in dividend, cost of new equity shares and the cost of existing equity shares given that the same growth rate continues in future.

**[Ans (a) Growth rate in dividend: 7% (14.03/10.70=1.311;**

**The value for 1.311 in compound factor table in the 4 years**

**row is found in 7% column)**

**(b) Cost of new equity = 19.38% (15.0121/121.25+ 7%)**

**(c) Cost of existing equity= 19.01%(15.0121/125+7%)]**

20. (Cost of Equity-Earnings/price method): Shukla Ltd. intends to raise Rs. 20 lakh by issues of new equity shares. The relevant particulars are given below:

No of existing equity shares	-	5 lakh
Profit after tax	-	Rs.25 lakhs
Market value of existing shares	-	Rs. 200 lakhs

You are required to calculate (a) the cost of existing capital: and (b) the cost of new capital if the shares are issued at a price of Rs. 34 per share and the issue expenses are Rs. 4 per share.

**[ Ans: (a). 12.5% (5/40x 100);(b) 16.67% (5/30x100)]**

Hint EPS:. Rs.5 (25 lakh/5lakh)

21. The capital structure of a company has 2,00,000 equity shares of Rs. 100 each. Its current earnings are Rs. 20,00,000 per annum. The company desires to raise an additional funds of Rs. 40,00,000 by issuing new equity shares. The

flotation costs are expected @ 10% on face value. What will be the cost of equity capital if it is assumed that earnings of the company are stable?

**[Ans: Rs.11.11% (10/90 x 100)]**

22. (Cost of equity-Realised yield method): Mr. Raghu purchased 10 shares in Lekha&Co. at a cost of Rs. 5,200 on 1.1.2001. He retained the shares for 5 years and sold them on 1.1.2006 for Rs.6,500. The dividends which he received for the last 5 years are as follows.

Year	2001	2002	2003	2004	2005
Dividend	300	300	320	320	320

(Rs.)

Compute the cost of equity shares.

**[Ans: Cost of equity = IRR= 10.07%**

**(10%+14.6/211.64 x 1%)]**

23. Kalan purchased some shares in Vijay Nicole Co. at Rs. 634 per share on 1.1.2002. He had kept the shares with him for 5 years and sold them on 1.1.2007 for Rs.1,000 per share. The dividend per share received by him during the last 5 years was as follows:

Year	2002	2003	2004	2005	2006
Dividend: (Rs.)	30	30	36	36	40

You are required to calculate the cost of equity capital.

**[Ans: Cost of equity capital = IRR = 11.98%**

**(10%+58.514/147.574 x 5)]**

#### **Vi. Cost of Retained Earnings**

24. A company's cost of equity capital is 12%. The brokerage cost for purchase of securities is 2%. The personal tax rate of shareholder is 50%. Compute the cost of retained earnings.

**[Ans:  $K_r = K_e (1 - \text{Tax}) (1 - \text{Brokerage})$**

**Coat of retained earnings ( $K_r$ ): 5.88% (0.12(1-50%) (1-2%)) x 100 ]**

25. Rajam Ltd. Has an annual profit of Rs. 50,000 and the required rate of return of the shareholders is 10%. It is further expected that the shareholders will have

to incur 3% brokerage cost of the dividends received and invested by them for making new investments. Find out the cost of retained earnings to the firm given that the tax rate applicable to shareholders is 30%.

**[Ans:  $K_r : 6.79\% (0.10 (1-0.3)(1-0.030 \times 100) )$  ]**

## VII. Cost of Equity under CAPM

26. The following data relate to Harris Ltd.

(i) Risk- free interest in the market is 10%

(ii) The firm's beta coefficient,  $\beta$  is 1.50

Determine the firm's cost of equity capital using the capital assets pricing model assuming an expected return on the market of 14% for next year. What would be the  $K_e$ , if the firm's  $\beta$  (a) raises to 2, and (b) falls to 1.

**[Ans:  $K_e = 16\% (10\% + 1.5 (14\% - 10\% )$  )**

**$K_e = 18\% (10\% + 2 (14\% - 10\% )$**

**$K_e = 14\% (10\% + 1 (14\% - 10\% )$ ]**

27. The following information is available relating to risk free interest rate,  $I_r$  and market rate,  $R_m$  of a security during last 6 years.

Year	$I_r$	$R_m$
1	.06	.14
2	.05	.03
3	.07	.21
4	.08	.26
5	.09	.03
6	.07	.11

Find out the cost of equity capital on the basis of the CAPM given the beta is .863.

**[Ans:  $K_e = 12.18\% (0.07 + 0.863 (0.13-0.07) )$ ]**

Hints : (i)  $k_e$  : Risk free return + Beta (Market value – Risk free return)

(ii) Av.  $I_r$  = 0.07; Av  $R_m$  = 0.13

## VIII. Weighted Average Cost of Capital

28. The capital structure and after tax cost of different sources of funds are given below:

Cost of Capital

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Sources of Funds	Amount	Proportion to total	After tax cost
Equity share capital	7,20,000	.30	15
Retained earnings	6,00,000	.25	14
Preference share capital	4,80,000	.20	10
Debentures	6,00,000	.25	8

You are required to compute the weighted average cost of capital.

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**[Ans: WACC: 12% (4.5+3.5+2+2)]**

29. The following is the capital structure of Moris Ltd.

Source C/C	Amount	Market value
14% Preference capital 14%	Rs.2,00,000	Rs.2,30,000
Equity capital 17%	Rs.5,00,000	Rs.7,50,000
16% Debt 8%	Rs.3,00,000	Rs.2,70,000
	_____	_____
Total	Rs.10,00,000	Rs.12,50,000

Calculate the weighted average cost of capital, using book value weights, and market value weights.

**[Ans: WACC (Book Value): 13.7% (0.2 x 0.14) + (0.5 x 0.17) + (0.3 x 0.08);**

**WACC (Market Value): 14.50% (0.184 x 0.14) + (0.6 x 0.17) + (0.216 x 0.08)]**

30. The following information is provided in respect of the specific cost of capital of different sources along with the book value (BV) and Market value (MV) weights.

Source	C/C	BV	MV
Equity share capital	18%	.50	.58
Preference share capital	15%	.20	.17
Long term debts	7%	.30	.25

(i) Calculate the weighted average cost of capital, using both the BV and MV weights.

(ii) Calculate the WMCC using marginal weights given that the company intends to raise additional funds using 50% long term debt, 35% preference shares and 15% by retaining profits.

**[Ans: (i) . WACC (B.V) = 14.1% (0.5 x 0.18 + 0.2 x 0.15 + 0.3 x 0.07);**

**WACC (MV) = 14.74% (0.58 x 0.18 + 0.17 x 0.15 + 0.25 x 0.07);**

**(ii). WMCC = 11.45% (0.15 x 0.18 + 0.35 x 0.15 + 0.50 x 0.07)]**

30. Aries Limited wishes to raise additional finance of Rs. 10 lacs for meeting its investment plans. It has Rs. 2,10,000 in the form of retained earnings available for investment purposes. The following are the further details

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

You are required:

- (a) To determine the pattern for raising the additional finance.
- (b) To determine the post-tax average cost of additional debt.
- (c) To determine the cost of retained earnings and cost of equity, and
- (d) Compute the overall weighted average after tax cost of additional finance.

**[CA Final May 1993]**

**[Ans: (a) 10% Debt Rs. 1,80,000; 16% Debt Rs. 1,20,000;**

**Retained earnings Rs. 2,10,000; Equity Rs. 4,90,000;**

**(b) Kda=6.2%(18,600/3,00,000 x 100);**



$$(c) K_e = 15\% (2.20/44=10\%);$$

$$(d) WACC : 12.36\% (0.30 \times 0.062 + 0.21 \times 0.15 + 0.49 \times 0.15)]$$

Hint: (i) Expected dividend per share = Rs.2.20 ( 4 x 50%=Rs. 2 x 110%)

(ii) 16% debt Rs.1,20,000 (10 lakh x 30% - 1,80,000).

# UNIT – XI CAPITAL BUDGETING

Capital Budgeting

## Introduction

As mentioned in chapter 1, the finance manager of a firm is responsible to procure the required quantum of funds from different sources and invest the raised funds in various assets in the most profitable way. The investment of funds requires a number of decisions to be taken in a situation in which funds are invested and benefits are expected over a long period. The finance manager is to determine the compositions of assets of the firm. The assets of the firm are of two types i.e., fixed assets and current assets. The aspect of taking the financial decision with regard to fixed assets of taking the financial decision with regard to fixed assets is called capital budgeting.

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## 11.1 Meaning of Capital Budgeting

Capital budgeting means planning the capital expenditure in acquisition of fixed (capital) assets such as land, building, plant or new projects as a whole. It includes replacing and modernising a process. Introduction a new product and expansion of the business. It involves the preparation of Detailed Project Report (DPR) and cost and revenue statements indication the profitability. The project which gives the highest return on investment is to be selected and then investment is to be made in such a project as to maximize the profitability of the firm.

## 11.2 Definition of Capital Budgeting

The term capital budgeting is formally defined as follows:

- I. Charles T. Horngren: capital budgeting is the long term planning for making and financing proposed capital outlays.
- II. GC.Philoppatos: capital budgeting is concerned with the allocation of the firm's scarce financial resources among the available market opportunities. The consideration of investment opportunities involves the comparison of the expected future streams of earnings from a project, with the immediate and subsequent streams of expenditure for it.
- III. Milton H.Spencer: capital budgeting involves the planning for assets. The returns from which will be realised in future time periods.
- IV. Keller and Ferrara: The capital expenditure budget represents the plans for the appropriations and expenditures for fixed assets during the budget period.
- V. R.M. Lynch: Capital budgeting consists in planning for development of available capital for the purpose of Maximising the long term profitability (return on investment) of the firm.

Capital budgeting is thus, broader term and includes not only investment decisions but also the exploration of profitable investment opportunities, marketing and engineering investigation of these opportunities and financial analysis as to their future

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profitability. However, the terms “Investment Decisions”, “Capital expenditure decisions”, “Capital Expenditure Management”, “Long term Investment Decision” and “Management of Fixed Assets” are generally used interchangeably.

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### 11.3 Features of Capital Budgeting

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The following basic features of capital budgeting may be deduced from the preceding discussion:

- I. Investments: Capital expenditure plans involve a huge investment in fixed assets.
- II. Long-term: Capital expenditure, once approved, represents long term investment that cannot be reversed or withdrawn without sustaining a loss.
- III. Forecasting: preparation of capital budget plans involve forecasting of several years profits in advance in order to judge the profitability of projects.
- IV. Serious consequences: In view of the investment of large amount for a fairly long period of time, any error in the evaluation of investment projects may lead to serious consequences, financially and otherwise and may adversely affect the other future plans of the organisation.

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### 11.4 Objectives of Capital Budgeting

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The objectives of capital budgeting are summarized as given below:

- I. Capital budget aims at deciding the most profitable among the numerous investment proposals available.
- II. It decides the most suitable among different sources of finance on the basis of capital market constraints.
- III. The growth and expansion of the firm and modernization can be taken care of.

#### Need and significance of Capital Budgeting

Capital budgeting decision is of paramount importance in financial decision making. Special care should be taken in making these decisions on account of the following reasons :

- I. Substantial expenditure : Capital budgeting decisions involve the investment of substantial amount of funds. It is therefore necessary for a firm to make such decisions after a thoughtful consideration so as to result in the profitable use of its scarce resources. The hasty and incorrect decision would not only result in huge losses but may also account for the failure of the firm.
- II. Long term implications : The capital budgeting decisions has its effect over a long period of time. These decisions not only affect the future benefits and cost of the firm but also influence the rate and direction of growth of the firm.

- III. Irreversible decisions : The capital budgeting decisions are irreversible and the heavy amount invested cannot be taken back without causing a substantial loss because it is very difficult to find a market for the second hand capital goods and their conversion into other uses may not be financially feasible.
- IV. Complexity : The capital budgeting decisions are based on forecasting of future events and inflows. Quantification of future events involves applications of statistical and probabilistic techniques, careful judgement and application of mind is necessary.
- V. Risk : The longer the time period of returns, greater is the risk/uncertainty associated with cash flows. Hence capital budgeting decisions should be taken after a careful review of all available information.
- VI. Surplus : Funds are raised by the firm at a certain cost (i.e., WACC). Even internally generated funds have an implicit cost. Hence, there is a need to obtain a surplus over and above the cost of funds. Only then, the investment is justified.

### 11.5 Advantages of Capital Budgeting

The main advantages of capital budgeting are as under :

- I. At any given time, numerous investment proposals may be available. Capital budgeting evaluates them and ranks them as per merit. This enables management to decide on implementing appropriate proposals.
- II. The limited funds available can be most effectively utilised.
- III. The timing and actual execution of each project can be adjusted to changes in capital market.
- IV. Different sources of finance can be considered and judicious selection of sources can reduce overall cost of capital.
- V. Capital budgeting can take care of the proportion of debt and equity in the capital structure and the resulting capital gearing.
- VI. In tight money situations, capital rationing can be followed not to waste scarce funds available.

### 11.6 Capital budgeting process

Capital investment decisions are the part of the capital budgeting process, which is concerned with determining (a) which specific project a firm should accept, (b) the total amount of capital expenditure which the firm should undertake, and (c) how the total amount of capital expenditure should be financed generally.

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## 11.7 Significance of capital budgeting:

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### i) Long term implications:

The effect of capital budgeting decisions will be felt by the firm over a long period and therefore they have a decisive influence on the rate and direction of the growth of the firm.

### ii) Large investment:

Capital budgeting decisions involve large investment of funds. Therefore, it is absolutely necessary that the firm should carefully plan its investment programme so that it may get the finances at the right time and they are put to most profitable use.

### iii) Irreversible decisions:

In most cases, the capital budgeting decisions are irreversible. The amount invested cannot be taken back without causing a substantial loss because it is very difficult to find a market for the second-hand capital goods.

### iv) Most difficult to make:

The capital budgeting decisions require an assessment of future events which are uncertain. It is really a difficult task to estimate the probable future events because of the various uncontrollable factors.

### v) Long – term effect on profitability:

Capital budgeting decisions have a long-term and significant effect on the profitability of a concern. Not only the present earnings but also the future growth and profitability of the firm depend upon the investment decisions taken today.

### vi) Maximisation of shareholders wealth:

With the help of capital budgeting the management protects the interest of the shareholders and of the enterprise by selecting the most profitable projects.

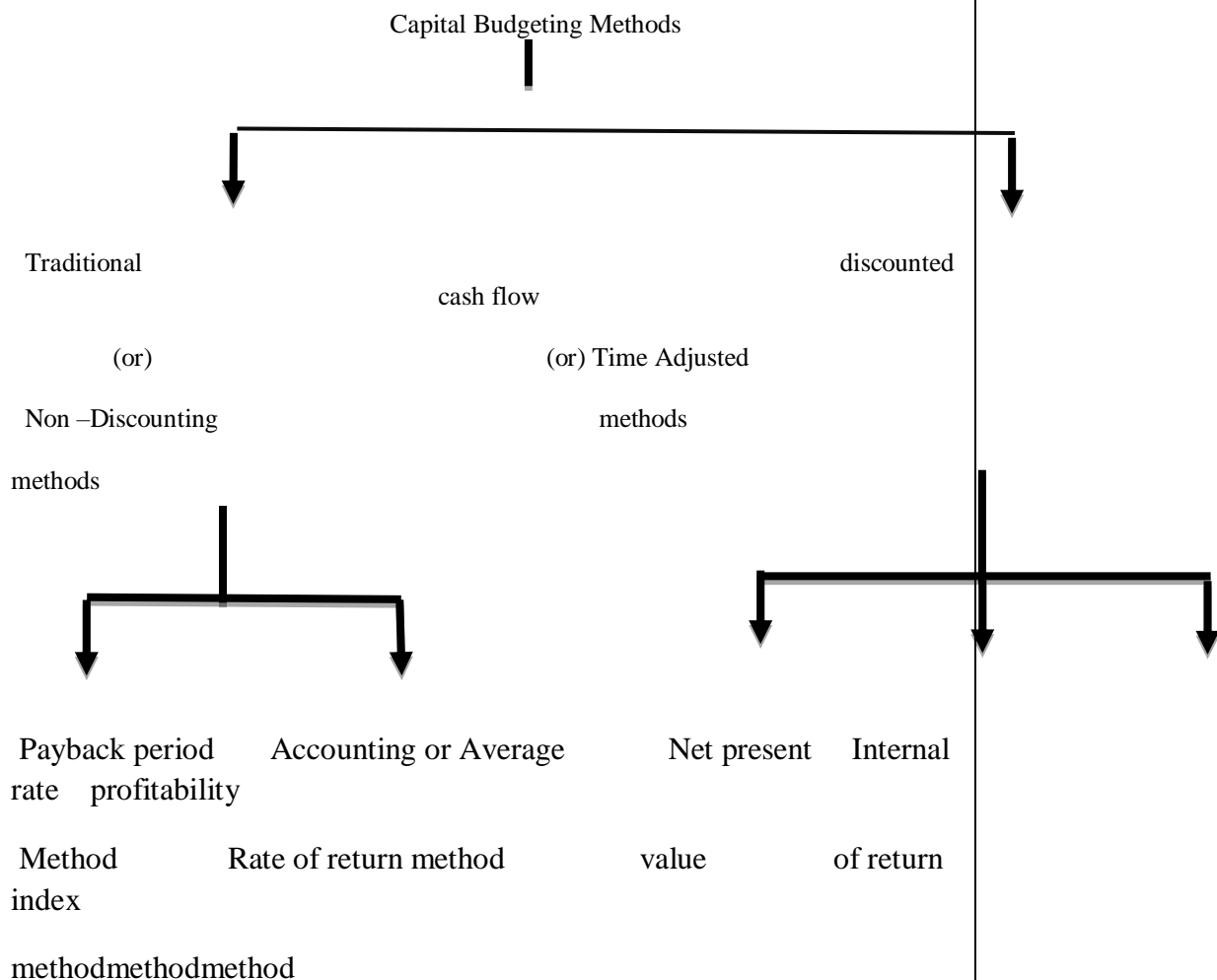
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## 11.8 Evaluation of Capital Budgeting Proposals

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As discussed earlier in the chapter, the capital budgeting decision requires a current investment, the benefits of which are received in future/after one year i.e., it involves a long term commitment. This decision actually is a very significant one since the future development and the competitive power of the firm depends on it which, in other words, has a direct impact on the future earning and growth of the firm. For this purpose, a sound appraisal method should be adopted in order to measure

the economic worth of each investment proposal. In practice, several methods are used to evaluate and select a investment proposal. These methods can be grouped into two categories as given below :



## I. Traditional (or) Non-discounting Method

As the name itself suggests, these methods do not discount cash flows to find out their present worth. There are two such methods available i.e., (i) payback period method, and (ii) the accounting or average rate of return method. These are essentially rules of thumb that intuitively grapple with the trade-off between net investment and operating cash inflows. Both these traditional evaluation criteria are discussed below:

1. **Payback Period Method:** This method, sometimes called the payout or pay off or replacement period method, determines the length of time required to recover the initial outlay of a project. In other words, it is the period within which the total cash inflows from the project equals the cost of investment in the project. The lower the payback period, the better it is since initial investment is recouped faster.

Example: Suppose a project with an initial investment of Rs. 5 lakh, yields profit of Rs.1 lakh, after writing off depreciation of Rs. 25,000 per annum. In this case, the payback period is computed as given below:

$$\text{Payback period} = \frac{\text{Initial investment}}{\text{CFAT pa}}$$

$$\begin{aligned}\text{CFAT pa} &= \text{Profit after tax} + \text{Depreciation} \\ &= 100000 + 25000 \\ &= \text{RS. } 125000\end{aligned}$$

$$\text{Payback period} = \frac{500000}{125000} = 4 \text{ years}$$

### Procedure for computation of payback period

- (i) Ascertain the initial investment (cash outflow) of the project.
  - (ii) Ascertain the cash inflows(CFAT)from the project for various years.
  - (iii) Calculate the payback period as under :
- (a) In case of uniform CFAT pa

$$\text{Payback period} = \frac{\text{Initial investment}}{\text{CFAT pa}}$$

- (b) In case of differential CFAT for various years.
- (i) Compute cumulative CFAT at the end of each year.
  - (ii) Find out the year in which cumulative CFAT exceeds initial investment (calculated on time proportion basis).
  - (iii) Accept if the payback period is less than maximum or bench mark period, else reject the project.

### Merits of Payback Period Method

- (i) It is very easy to apply, calculate and interpret.
- (ii) It is most useful when cost is not high and the capital project is completed in a short period.
- (iii) It focuses on early return heavily and ignores distant returns. It, thus, contains a built-in edge against economic depreciation or obsolescence.
- (iv) It is useful in evaluating those projects which involve high uncertainty.

- (v) It gives an indication to a company facing shortage of funds to invest in projects with small payback period. This is particularly useful when funds are difficult to obtain and a quick return is essential for rapid repayment.

### Limitations of Payback Period Method

- (i) This method fails to take into account the time value of money. All cash flow are treated and weighed equally regardless of the time period of their occurrence.
- (ii) It does not measure the profitability of a project. It ignores the cash inflows beyond the payback period. Thus it is a biased indicator of economic value.
- (iii) It does not differentiate between projects requiring different cash investments and thus it does not provide a meaningful and comparable criterion.
- (iv) It does not indicate any cut-off period for the purpose of investment decision.
- (v) A slight change in operation cost will affect the cash inflows and as such payback period shall also be affected.
- (vi) Neither allowance is made for taxation nor is nay capital allowance made.

### 11.9 Improvement in traditional approach to payback period

- (a) **Discounted Payback Period Method** : The payback period method discussed above can be reworked, taking into consideration the time value of money and the firms required rate of return, thereby overcoming one of the limitations of the undiscounted payback period method. When payback period is calculated by taking into account the discount or interest factor, it is known as discounted payback period.

Procedure for calculation of discounted payback period

- (i) Ascertain the initial investment (cash outflow)
  - (ii) Ascertain CFAT (profit before depreciation and after tax) for each year.
  - (iii) Ascertain the PV factor for each year and compute discounted CFAT (CFAT  $\times$  PV factor) for each year.
  - (iv) Ascertain cumulative discounted CFAT at the end of each year.
  - (v) Calculate discounted payback period at the tie at which cumulative discounted CFAT exceeds initial investment.
  - (vi) Accept if discounted payback period is less than maximum/benchmark period, else reject the project.
- (b) **Post pay-back Profitability**: One of the major limitations of payback period method is that it neglects the profitability of investment during the excess of economic life period over the payback of that investment. Hence, an improvement over this



method can be made by taking into account the returns receivables beyond the payback period. These returns are called post pay-back profits. If other things remain equal, the project which has highest post pay-back profits is to be preferred. The formula for calculating post pay-back profitability index is as follows:

$$\text{pay-back profitability index} = \frac{\text{Post pay-back profit} \times 100}{\text{Initial investment}}$$

- (c) **Payback reciprocal:** as the name indicates, it is the reciprocal of payback period. A major limitation of payback period method is that it does not indicate any cut off period for the purpose of investment decision. It is, however, argued that the reciprocal of the payback period and the project generated equal amount of the annual cash inflow. In practice, the payback reciprocal is a helpful tool for quickly estimating the rate of return of the project provided its life is atleast twice the payback period. The payback reciprocal can be ascertained by using the formula given below:

$$\text{Payback Reciprocal} = \frac{\text{CFAT}}{\text{Initial investment}} \quad (\text{or}) \quad \frac{1}{\text{Payback period}}$$

## 2. Accounting or Average Rate of Return (ARR) Method

ARR is the annualised net income earned on the average funds invested in a project. It is a measure based on the accounting profit (profit after depreciation and tax) rather than the cash flows and is very similar to the measure of rate of return on capital employed, which is generally used to measure the overall profitability of the firm. The alternative formula for calculating the ARR is as follows:

a) Annual return on original investment method

$$\text{ARR} = \frac{\text{Annual average net earnings/savings}}{\text{Initial investment}} \times 100$$

Where, Annual average net earnings = Average of the earning (savings) after depreciation and tax over the whole of the economic life of the project.

Investment = Capital cost of the equipment minus salvage value of the old equipment

b) Annual return on average investment method

$$\text{ARR} = \frac{\text{Annual average net earning}}{\text{Average investment}} \times 100$$

The amount of 'Average investment' can be computed in any of the following methods:

$$(i) \quad \text{Average investment} = \frac{\text{Initial investment}}{2}$$

$$(ii) \quad \text{Average investment} = \frac{\text{Initial investment} - \text{Scrap value of the asset}}{2}$$

Initial investment + Scrap value of the asset

$$(iii) \quad \text{Average investment} = \frac{\text{Original Investment} - \text{Scrap Value} + \text{Additional networking capital} + \text{Scrap value}}{2}$$

Original Investment - Scrap Value + Additional networking capital + Scrap value

$$\text{Average investment} = \frac{\text{Original Investment} - \text{Scrap Value} + \text{Additional networking capital} + \text{Scrap value}}{2}$$

### Procedure for computation of ARR

- (i) Determine the average investment as given above.
- (ii) Determine the profit after tax for each year: PAT = CFAT less depreciation.
- (iii) Calculate the total PAT for N years, where N = project life.
- (iv) Calculate average PAT per annum (Total PAT of all years / N years)

Average PAT pa

$$(v) \quad \text{ARR} = \frac{\text{Average PAT pa}}{\text{Average investment}} \times 100$$

### Merits of ARR Method

- (i) It is very simple and easy to understand and to use.
- (ii) It takes into consideration the total earnings from the project during its life time.
- (iii) It places emphasis on the profitability of the project, rather than on liquidity as in the case of payback period method.
- (iv) It can be calculated by using the accounting data without another set of workings like cash flow etc.

### Demerits of ARR Method

- (i) It ignores the time value of money and considers the profit earned in the 1<sup>st</sup> year as equal to the profits earned in later years. It does not discount the future profits.
- (ii) It does not consider the length of project life
- (iii) It ignores salvage value of the proposal. In real sense, the salvage value is also a return from the proposal and should be considered.

- (iv) It also fails to recognise the size of investment required for the project particularly, in case of mutually exclusive proposals, the two projects having significantly different initial costs, may have same ARR.

## 11.10 Discounted Cash Flow (DCF) Methods (or)

### Time Adjusted Methods (or)

#### Present Value Methods

The payback period and ARR methods discussed above did not recognise the time value money i.e., a rupee today is considered more valuable than the one receivable after a year or two. Discounted cash flow methods take into account the time value of money. The basic feature of discounted cash inflows and cash outflows are discounted at a predetermined discounting rate to ascertain their present values. Usually, the discounting rate is the cost of capital rate of the firm. But it can be any other rate also. Discounting factors can be obtained from present value tables. They can also be ascertained by using the following formula:

$$\text{Discount (PV) factor} = \frac{1}{(1 + r)^n}$$

Where,  $r$  = Discount rate

$N$  = No. of years

The second commendable feature of DCF methods is that they take into account all benefits and costs during the entire life of the project. Moreover, they use cash flows (i.e, CFAT) and not the accounting concept of profit (i.e., PAT).

The DCF methods are becoming increasingly popular day by day. Following are the discounted cash flow methods :

1. Net Present Value (NPV) Method
2. Internal Rate of Return (IRR) Method
3. Profitability Index (PI)

1. Net Present Value (NPV) Method: It is one of DCF methods in which both future cash inflows and outflows from a project are discounted at a

cost of capital rate. This gives present value of cash inflows and outflows. The difference between present value of cash inflows and outflows is called Net Present Value (NPV)

### **Procedure for computation of NPV**

- (i) Ascertain the total cash inflows of the project and the time periods in which they arise.
- (ii) Calculate the present value of cash inflows i.e.,  $CFAT \times PV$  factor
- (iii) Ascertain the total cash outflows of the project and the time periods in which they occur.
- (iv) Calculate the present value of cash outflows i.e.,  $\text{cash outflows} \times PV$  factor.
- (v) Calculate  $NPV = \text{Present value of cash inflows} - \text{Present value of cash outflows}$
- (vi) Accept project if NPV is positive, else reject. If two projects are mutually exclusive, the project with higher NPV should be preferred.

### **Merits of NPV Method**

- (i) It recognises the time value of money.
- (i) It uses the discount rate which is the firm's cost of capital.
- (ii) It considers all cash flows over the entire life of the project.
- (iii) NPV constitutes addition to the wealth of shareholders and thus focuses on the basic objective of financial management.
- (iv) Since all cash flows are converted into present value (current rupees), different projects can be compared on NPV basis, thus, each project can be evaluated independent of others on its own merit.

### **Limitations of NPV Method**

- (i) This method assumes that the discount rate i.e., firm's cost of capital is known. But the cost of capital is difficult to understand and measure in practice.
- (ii) It may not give reliable answers while dealing with alternative projects under the conditions of unequal lives of projects.
- (iii) Decisions arrived at may not be satisfactory when projects being compared involve different amounts of investment.

## 2. Internal Rate of Return(IRR) Method

IRR is the rate of return at which the sum of discounted cash inflows equal the sum of discounted cash outflows. It is the rate at which the NPV of the investment is zero. It is called internal rate because it depends mainly on the outlay and proceeds associated with the project and not on any rate determined outside the investment. This method is also known as marginal rate of return method or time adjusted rate of return method. This method is generally employed when cos of investment and annual cash inflows are known, while the unknown rate of return (i.e., rate of cost of capital ) is to be ascertained.

### Procedure for computation of IRR

IRR is calculated according to two methods on the basis tabular values.

- (a) When cash inflows are uniform for all the years: In this case, the IRR is determined with the help of annuity table showing the present value of Re. 1 received annually over 'n' years by adopting the following two steps:

Step (i): The factors to be located in the relevant annuity table is calculated by using the following simple equation:

I

$$F = \frac{I}{C}$$

C

Where, F = Factors to be located

I = Initial investment

C = Cash inflow per year

Step (ii): The factor, thus, calculated is located in annuity table on the line representing number of year corresponding to the estimated useful life of the assets and the relevant percentage of the discount which represents IRR.

- (b) When cash inflows are not uniform: In this case, IRR is to be ascertained by trial and error process. In this process, cash inflows are to be discounted by a number of trial rates. Just to start, the average cash inflows of different years are to be found. Original investment is to be divided by this average cash inflows. This may be taken as present value factor. The rate can be ascertained from PV table for this

factor and at this rate, the PV of cash inflows of several years are to be calculated, then total PV of cash inflows are compared with the original investment. If the calculated PV of cash inflows is less than the original investment, the further interpolation be carried on at lower rate. On the other hand, a higher rate should be tried if the PV of cash inflows is higher than the original investment. This process continues till the PV of cash inflows and the original investment are equal or nearly equal. However, the exact rate of return can be ascertained with the help of the following formula:

Positive NPV

$$\text{IRR} = \text{Lower rate} + \frac{\text{Positive NPV}}{\text{Difference in calculated present value}} \times \text{difference in rate}$$

### Accept or reject criterion

Accept the project if the IRR is higher than or equal to minimum required rate of return. The minimum required rate of return is also known as cut off rate or firm's cost of capital. While evaluating two or more projects, project giving a higher IRR should be preferred.

### Merits of IRR Method

- (i) All cash inflows of the project arising at a different points of time are considered.
- (ii) Time value of money is taken into account.
- (iii) Decision is immediately taken by comparing IRR with the cost of capital.
- (iv) It helps in achieving the basic objective of maximisation of shareholders wealth. All projects having IRR above the cost of capital will be automatically accepted.

### Limitations of IRR Method

- (i) Computation of IRR is quite tedious and it is difficult to understand.
- (ii) Both NPV and IRR assume that the cash inflows can be reinvested at the discounting rate in the new projects. However, reinvestment of funds at the cut-off rate is more appropriate than at the IRR. Hence, NPV method is more reliable than IRR for ranking two or more projects.

- (iii) It may give results inconsistent with NPV method, this is especially true in case of mutually exclusive projects i.e., projects where acceptance of one would result in the rejection of the other. Such conflict of results arise due to the following:
- (a) Differences in cash outlays
  - (b) Unequal lives of projects
  - (c) Different pattern of cash flows

### Simulation:

Capital constraints limit financial resources and force learners to carefully consider which projects to fund. The participants examine cash outlays and flow patterns and analyze common metrics such as net present value (NPV), internal rate of return (IRR), payback, and profitability index. Ultimately, the participants develop a capital budgeting strategy and choose projects with the greatest impact on the company's value.

### The Story

In this asynchronous single player simulation, learners take on the role of CEO and evaluate capital investment proposals across the company's three divisions. Over a simulated five-year period, learners review 27 proposals ranging from relatively small tactical projects, such as replacing old equipment, to major strategic projects, such as an acquisition.

### i. Accounting (or) Average Rate of Return (ARR)

#### Method

1. Compute ARR from the following data:

Cost of asset : Rs 400000

Useful life : 5 year

Cash flow after tax(CFAT) Rs 172000 p.a

### Solution:

Since CAFT (profit before depreciation, after tax ) is given in the problem, profit after depreciation and tax has to be found out to calculate ARR.

RS

CFAT 172000

Less: Depreciation

$$\left( \begin{array}{r} 400000 \\ \hline \end{array} \right)$$



$$\begin{array}{rcl}
 & 5\text{years} & 80000 \\
 \text{Profit after dep.\& tax} & & \frac{\quad}{\quad} \\
 & & 92000 \\
 & & \frac{\quad}{\quad} \\
 \text{Accounting rate of return (ARR)} & = & \frac{\text{Profit after dep. \& tax}}{\text{Original investment}} \times 100
 \end{array}$$

$$\begin{array}{rcl}
 & 92000 & \\
 = & \frac{\quad}{400000} \times 100 = 23\%
 \end{array}$$

2. Project k required an investment of RS 20 lakh and yields profits after tax and depreciation as follows:

Year	1	2	3	4
5				
<b>Profit after tax&amp;</b>				
<b>Depreciating (RS)</b>	100000	150000	250000	260000
160000				

At the end of 5<sup>th</sup> year, the plant can be sold for RS. 160000. You are required to calculate ARR.

### Solution:

Average rate of return (ARR) = Average profit/Average investment×100

$$\begin{array}{rcl}
 \text{Average profit} & = & \\
 100000+150000+250000+260000+160000/5 \text{ years} & & \\
 & = & 920000/5 = \text{RS. } 184000
 \end{array}$$

$$\begin{array}{rcl}
 \text{Average investment} & = & \text{original investment- Scrap value}/2 \\
 & = & 2000000-160000/2 = \text{RS } 920000
 \end{array}$$

$$\text{ARR} = 184000/920000 \times 100 = 20\%$$

3. X Ltd. is considering the purchase of a new machine to replace a machine which has been in operating in the factory for the last 5 year. Ignoring interest but considering tax at 50% of net earnings, suggest which of the two alternatives should be preferred. The following are the details:

Particular	Old machine	New machine
Purchase price	RS 40000	RS 60000
Estimated life of machine	10 year	10 year
	2000	2000
Machine running hours P.A.	24	36
Units per hour	3	5.25
Wage per running hour	2000	4500
	6000	7500
Power per annum	8000	9000
Consumable stores p.a.	0.50	0.50
All others charges p.a.	1.25	1.25
Material cost per unit		
Selling price per unit		

You may assume that the above information regarding sales and cost of sales will hold good throughout the economic life of each of the machines. Depreciation has to be charged according to straight line method. Calculate accounting rate of return.

**Solution:**  
**Profitability statement**

Particular	Old machine		New machine	
		RS		RS
Sale	(48000×1.25)	60000	(72000×1.25)	90000
Less: cost of sales:				
Direct materials	(48000×0.50)	24000		36000
Wages	(2000×3)	6000	(72000×0.50)	10500
Power		2000	(2000×5.25)	4500
Consumable stores		6000		7500
Other charges		8000		9000
Depreciation	(40000/10)	4000	(60000/10)	6000
Profit before tax		10000		16500
Less: Tax @50%		5000		8250
Profit after tax		5000		8250

**Working note: calculation of No .of units produced**

Output = units per hour × running hours

Old machine =  $24 \times 2000 = 48000$  units

New machine =  $36 \times 2000 = 72000$  units

**Calculation of Accounting Rate of Return (ARR)**

ARR = profit after dep. & tax / original investment × 100

Old machine =  $5000 / 40000 \times 100 = 12.5\%$

New machine =  $8250 / 60000 \times 100 = 13.75\%$

Analysis: As the accounting rate of return of new machine (13.75%) is higher than that of old machine (12.5%) the old machine can be replaced by the new machine.

**ii. Net present value (NPV) method**

1. An investment of RS 10000 (having scrap value of RS .500) yields the following return:

Year	1	2	3	4	5
CFAT	4000	4000	3000	3000	2500

The cost of capital is 10%. Is the investment desirable? Discuss it according to NPV method assuming the P.V. factors for 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> and 5<sup>th</sup> year. -0.909, 0.826, 0.751, 0.683 and 0.620 respectively.

**Solution:****Statement showing net present value**

Year	CFAT RS	P.V.favctor@10%	Present value Rs
(1)	(2)	(3)	(4)=(2×3)
1	4000	0.909	3636
2	4000	0.826	3304
3	3000	0.751	2253
4	3000	0.683	2049
5	2500	0.620	1550

	<b>500(scrap)</b>	<b>0.620</b>	<b>310</b>
<b>Total present value of cash inflows</b>			<b>13102</b>
<b>Less :present value of cash outflow(10000×1)</b>			
<b>10000</b>			
<b>Net present value(NPV)</b>			<b>3102</b>

1. Lissa Metals Ltd. Is considering two different investment proposals, x and y. The details are as under:

	Proposal X Rs.	Proposal Y Rs.
Investment cost	1,90,000	4,00,000
CFAT (Cash inflows before dep. And after tax)		
Year 1	80,000	1,60,000
Year 2	80,000	1,60,000
Year 3	90,000	2,40,000

Suggest the most attractive proposal on the basis of NPV method considering that the future incomes are discounted at 12%

**Solution:****Statement showing net present value****(NPV)**

NOTES

Year	CFAT(RS.)		P.V.factor
Present value (Rs.)			
	X	Y	@ 12%
Y			X
1	80,000	1,60,000	0.893
71,440	1,42,880		
2	80,000	1,60,000	0.797
	63,760	1,27,520	
3	90,000	2,40,000	0.712
64,080	1,70,880		
Total Present value of cash inflows			
1,99,280	4,41,280		
Less: Present value of cash outflow			
(1,90,000 x 1) (4,00,000 x 1)			
1,90,000	4,00,000		
NPV			
9,280	41,280		

Analysis: NPV is more in proposal y and therefore, it should be accepted.

**iii. Internal Rate of Return (IRR) Method****1. (Uniform CFAT)**

Initial outlay RS 100000

Life of the assets 6 year

Estimated cash inflow RS 20000

You are required to calculate internal rate of return.

**Solution:****Computation of internal Rate of Return (IRR)**

Present value factor = initial investment/CFAT = 1,00,000/20,000 = 5

The present value factor is to be found out in the present value annuity table in the column of 6 year (life of the assets). The figure 4.917 (nearer to 5) is found in the row of 6%. Therefore, the IRR is 6%.

2. A job which is presently done entirely by manual method has a labour cost of Rs 46000 a year. It is proposed to install a machine to do a job which involves an investment of Rs 80000 and an annual operating cost of Rs 10000. Assume that the machine can be written off in 5 years on straight line depreciation basis for tax purposes. Salvage value at the end of its economic life is zero. The tax rate is 55%. Analyse the economic implications of the proposal by the IRR method.

**Solution:****Statement showing cash inflow (CFAT)****Rs**

Cost savings (lower running expenses i.e., 46000-10000)	36000
	Less: Tax @55%
	<u>19800</u>
16200	
Add: Tax advantage on depreciation (80000/5 = 16000×55%)	
8800	<u>8800</u>
CFAT (1-5 Years)	<u>25000</u>

**Computation of internal Rate of Return (IRR)**

P.v. Factor = initial investment/CFAT = 80,000/25,000 = 3.2

P.V. annuity table shows the closest factor to 3.2 is 3.199 at 17% rate of discount against 5 years. Thus, the IRR is 17%.

**Economic Implications:** The proposal should be accepted only when the firm's cost of capital is less than 17%. Otherwise, the present method of doing work manually should continue.

## UNIT XII - LEASING

Leasing

NOTES

### 12.1 Leasing Concept

Leasing is an arrangement whereby the beneficiary (lessee) retains the possession and effective use of an assets belonging to another (the lessor). Accounting Standards 19(AS-19) issued by the Institute of Chartered Accountants of India defines leasing as “an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time”. More descriptively, in the words of the Equipment Leasing Association, “a lease is a contract between a lessor and lessee for the hire of a specific assets selected from a manufacturer or vendor of such assets by the lessee. The lessor retains the ownership of the assets. The lessee has possession and use of the asset on payment of specified rentals over a period”.

The ingredients of the above definition would be better understood if we look at the modus operandi of a lease transaction.

### 12.2 Types of Leases

#### FINANCE LEASE AND OPERATING LEASE

Leasing is broadly classified into two types:(i)finance lease and(ii)operating lease.

### 12.3 Finance Lease

Finance lease covers substantially the economic life of the asset during which time the lessor recovers fully the investment on the asset, viz., the cost price of the asset and the financial expenses(interest etc.). During this lease period, the lease is non- cancellable. The lessee himself may identify the asset to be purchased which the lessor arranges to carry out and lease it to the lessee, The lessor may or may not take responsibility for the maintenance of the asset. The lessee pays periodically the lease rental as agreed. The lease rental is fixed in such a way that they cover the cost of the asset plus expected rate of return to the lessor.

The lessor retains the ownership of the asset. After the expiry of the lease too, the lessor remains the owner of the asset. Subsequent to this lease period (primary lease), the lease may be leased again to the lessee(secondary lease) for a substantially lesser lease rental since the lessor has already recovered his investment.

AS-19 distinguishes between finance lease and operating lease on the basis of risk and rewards incidental to the ownership of a leased asset. A lease is classified as finance lease if it transfers substantially all the risks and rewards incident to ownership of an asset. Title may or may not be eventually transferred. Risks include the possibilities of losses from idle capacity or

*Self-Instructional Material*



technological obsolescence and of variations in return due to changing economic conditions. Rewards may be represented by the expectation of profitable operation over the economic life of the asset and of gain from appreciation in value or realisation of residual value.

The classification of the lease as finance lease depends upon the substance of the transaction rather than its form. Examples of leases which would normally be classified as finance lease are:

(a) The lease transfers ownership of the asset to the lessee by the end of the lease term.

(b) The lessee has the option to purchase the asset at price substantially lower than the fair value at the date the option becomes exercisable such that, at the inception of the lease, it is reasonably certain that the option will be exercised.

[Fair value is the amount for which an asset could be exchanged or a liability settled between knowledgeable, willing parties in an arm's length transaction. In other words, fair value can be considered the marketable value of the asset at the time being considered.]

(c) The lease term is for the major part of economic life of the asset even if title is not transferred.

(d) At the inception of the lease the present value of the minimum lease payments amounts to at least substantially all of the fair value of the leased asset.

(e) The leased asset is of a specialised nature such that only the lessee can use it without major modifications being made.

In the following situations, individually or in combination, the lease may be considered a finance lease.

(a) If the lessee can cancel the lease, the lessor's losses associated with the cancellation are borne by the lessee.

(b) Gains or losses from the fluctuation in the fair value of the residual fall to the lessee (for example, in the form of a rent rebate equalling most of the sale proceeds at the end of the lease).

(c) The lessee can continue the lease for a secondary period at a rent which is substantially lower than market rent.

Finance lease is also known as capital lease.

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## 12.4 Operating Lease

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As against the finance lease, where the lessor expects to recover his investment from a single lease, under operating lease the asset is leased out for

shorter duration to a number of successive lessees. The lessor recovers his Investment in the asset over a period from the lease rentals received from several lessees. The lessor looks after the maintenance and proper upkeep of the asset, As in the case of finance lease, the ownership remains with the lessor.

AS-19 defines an operating lease as a lease other than a finance lease. A lease is classified as operating lease if it does not transfer substantially all the risks and rewards incident to ownership. Operating lease is also known as service lease.

Operating lease is preferable in cases where:

- (a) The rate of obsolescence of the asset is very high.
- (b) The asset will be required for a short duration.
- (c) The lessee wants to tide over a temporary financial problem.

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## 12.5 Significance of Leverage

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Leverage refers to the use of fixed costs in an attempt to increase the profitability. Leverage affects the level and variability of the firm's after tax earnings and hence, the firm's overall risk and return. The study of leverage is significant due to the following reasons.

### Measurement of operating risk

Operating risk refers to the risk of the firm not being able to cover its fixed operating costs. Since operating leverage depends on fixed operating costs, larger fixed operating costs indicate a higher degree of operating leverage and thus, higher operating risk of the firm. High operating leverage is good when sales are rising but bad when they are falling.

### Measurement Of Financial Risk

Financial risk refers to the risk of the firm not being able to cover its fixed financial costs. Since financial leverage depends on fixed financial cost, high fixed financial costs indicate a higher degree of operating leverage and thus, high financial risk. High financial leverage is good when operating profit is rising and bad when it is falling.

### Managing Risk

Relationship between operating leverage and financial leverage is multiplicative rather than additive. Operating leverage and financial leverage can be combined in a number of different ways to obtain a desirable degree of total leverage and level of total firm risk.

### Designing Appropriate Capital Structure Mix

To design an appropriate capital structure mix or financial plan, the amount of EBIT under various financial plans, should be related to earnings per share. One widely used means of examining the effect of leverage to

analyze the relationship between EBIT and earning per share.

### **Increase Profitability**

Leverage is an effort or attempt by which a firm tries to show high result or more benefit by using fixed costs assets and fixed return sources of capital. It insures maximum utilization of capital and fixed assets in order to increase the profitability of a firm, It helps to know the reasons not having more profit by a company.

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## **12.6 General considerations**

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A situational analysis highlights key characteristics of the programme setting and stakeholders, including the risk factors (e.g. police acceptance and perpetration of abuse of women and girls) and protective factors (e.g. presence of gender desk/focal point in local police facility). Understanding what types of violence exist, who is most affected, and how women and girls rate the security services and actors they have access to, provides programme designers some idea of key issues to be addressed. This review is needed to determine the potential strategies, entry points, and partnerships for the planning and design of a particular intervention, which helps to ensure its appropriateness to the local context and avoid duplication of efforts. A situational analysis is distinct from and cannot replace the baseline analysis which is conducted at the start of a programme after strategies have been identified, in order to measure change, although it may complement it. A good situational analysis should be grounded in a human rights-based approach, among other core guiding principles.

### **Economic of leasing**

A leveraged lease is a tax-advantaged lease arrangement in which a lessor borrows funds to acquire an asset that is then leased to a lessee. In this situation, the lender holds title to the leased asset, while all lessee payments are collected by the lessor and passed to the lender. The lender can repossess the asset in the event of a lessee payment default. In this arrangement, the lessor can recognize depreciation expense on the asset for tax purposes, while the lessee can deduct its lease payments from taxable income.

The name of this lease refers to the financing position of the lessor, which has used debt (leverage) to pay for most of the cost of the asset that is being leased.

## EVALUATION OF LEASE

Leasing

### ACCOUNTING AND TAX TREATMENT OF LEASE

NOTES

The Accounting Standard 19 dealing with 'Accounting for Leases' takes a practical view of leases. For finance lease the accounting treatment prescribed is tantamount to treating the transaction as a credit sale. Depreciation is provided by the lessee. The investment made in the leased asset is treated as 'Receivable' by the lessor.

In the books of the lessee, the accounting prescribed for finance lease is to treat it as a credit purchase. The lessee will raise the asset in his books and claim depreciation and finance charges. The lessor will appear in his books as creditor.

The lessor should treat the transaction as credit extended to the lessee. He is eligible for depreciation. The lease rental received should be allocated between every of investment (capital receipt) and finance charge (revenue receipt).

For operating lease, in the books of the lessor, the asset on lease will be treated as fixed asset and depreciation charged at the determined rate. The rental income is credited to the profit and loss account. In the books of the lessee, the lease rental paid is debited to the profit and loss account.

For taxation purposes, legal ownership of the asset forms the basis for eligibility to charge depreciation. Thus, in respect of both finance lease and operational lease, depreciation can be charged only by the lessor. The lessee can consider the entire lease rental as revenue payment.

For evaluation of lease, the taxation treatment is appropriate as it deals with actual cash flows involved.

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### 12.7 EVALUATION BY LESSEE

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The lessee has the option of either purchasing the asset or taking it on lease. He may acquire the asset either by borrowing money or out of own resources. If the asset is acquired from own sources, there is opportunity cost of funds involved. For practical purposes, it can be considered the same as cost of borrowing for the lessee. The following cash flows are involved when the asset is acquired. There is outflow of cash towards periodical payment towards interest and repayment of principal borrowed. The lessee is eligible to charge depreciation on the asset. Although depreciation does not involve any cash outflow, it is allowed as expenditure for income tax purposes. To the extent of tax saved due to depreciation, there is notional cash inflow. The residual value of the asset, after its economic life, is also available to the owner.

If the asset is taken on lease, the lessee incurs outflows of cash in the form of lease rentals. The entire rental is deductible as eligible expense for

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income tax purposes and to that extent there is saving on tax. The lessee is not eligible for the residual value of the asset, as he is not its owner.

Evaluation of lease by the lessee is similar to that of evaluation of capital expenditure proposals. The alternatives to be compared are the cash flows under outright purchase and lease. In this evaluation, the cash inflows or the benefits from the use of the assets need not be considered because they will be the same irrespective of the means of acquiring the asset. Therefore, only the net cash outflows are considered.

The timing of the cash outflows under the two options is different. Therefore they have to be brought to a common base by applying the net present value or Internal rate of return concept.

When the asset is purchased, the cash outflows are towards interest payment and repayment of principal. There may be a tax saving due to depreciation and interest which are eligible expenses for tax purposes. The net cash outflow is arrived at after deducting the tax saving from the cash outflow.

Under lease, the outflow is the lease rental. The lease rental is an eligible expenditure resulting in tax saving. The net cash outflow is arrived at after deducting tax saved from lease rental.

The cash flows under both the methods are reduced to their net present value. As between the two methods, that which has lower net present value of cash outflow will be chosen.

To arrive at the net present value, we have to discount the cash flow at a particular rate. The discount rate should be selected carefully because different rates may give differing results. If the asset is acquired out of borrowed funds, the rate of interest payable on the borrowing can be taken as the discounting rate. In case owned funds are employed, the rate at which the funds could have otherwise been employed (opportunity cost) would be the appropriate discounting rate.

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## 12.8 EVALUATION BY LESSOR

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For the lessor, evaluation of a lease consists in finding out if the returns will be sufficient to meet the cost of the transaction and result in a net gain.

The lease transaction may be financed out of one or more of the following sources of capital:

- (i) Borrowings,
- (ii) Equity, and
- (iii) Retained earnings.

The lease rentals should be sufficient to cover the cost of the asset as well as the cost of funds employed. Besides, the administrative cost should also be recovered. Lease rentals being fixed after bargaining, the lessor should decide if the rentals that he can receive would be sufficient for the above purpose.

Assuming that all sources of finance mentioned above would be used for financing the lease transaction, the weighted average cost of capital will be used as the basis rate for evaluation. To the cost of capital some premium may be added to cover the risk involved in lease. This risk adjusted rate will be the cut off rate in evaluation of the lease proposal.

The lease can be evaluated either by the present value method or internal rate of return method. Under the net present value method, the cash inflows and outflows are discounted at the cut off rate decided. The lease can be accepted if the net present value of the aggregate cash flow is positive. Under the internal rate of return method, the lease can be accepted if the internal rate of return is higher than the cut off rate.

As we have seen in an earlier chapter, there is a difference between pre-tax cost of capital and post-tax cost of capital. For instance, if the company borrows at an agreed rate of 16%, it represents the pre-tax cost of capital. Supposing the company is in the tax bracket of 40%, it can save tax to the extent of 6.4% (since interest paid is chargeable as revenue expenditure) and the net cost to the company after tax is only 9.6% on the borrowing.

Cash flows can also be considered pre-tax or post-tax. Cash inflows are mainly lease rentals and management fee. Cash outflows are investment in lease transaction and maintenance charges. The difference between these cash inflows and outflows will be the net pre-tax cash flow. Income tax is payable on the net cash flow further reduced by the depreciation eligible. The net pre-tax cash flow less income tax will be the net post-tax cash flow.

While evaluating a lease transaction by net present value method, either pre-tax cash flows or post-tax cash flows may be considered, but correspondingly the pre-tax cost of capital or post-tax cost of capital should be used.

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## 12.9 Present value and IRR methods:

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Present value:

The minimum **lease** payments are the amount the lessee is expected to pay over the term of the **lease**. Since the **value** of money decreases each year due to inflation, accountants measure the **present value** of the minimum **lease** payments to determine how much the **lease** will cost in today's dollars.

IRR methods:

### Multiple IRRs [Edit](#)

When the sign of the cash flows changes more than once, for example when positive cash flows are followed by negative ones and then by positive ones (+ + - - - +), the IRR may have multiple real values. In a series of cash flows like (-10, 21, -11), one initially invests money, so a high rate of return is best, but then receives more than one possesses, so then one owes money, so now a low rate of return is best. In this case, it is not even clear whether a high or a low IRR is better.

There may even be multiple real IRRs for a single project, like in the example 0% as well as 10%. Examples of this type of project are [strip mines](#) and [nuclear power](#) plants, where there is usually a large cash outflow at the end of the project.

The IRR satisfies a polynomial equation. [Sturm's theorem](#) can be used to determine if that equation has a unique real solution. In general the IRR equation cannot be solved analytically but only by iteration.

With multiple internal rates of return, the IRR approach can still be interpreted in a way that is consistent with the present value approach if the underlying investment stream is correctly identified as net investment or net borrowing.

See for a way of identifying the relevant IRR from a set of multiple IRR solutions.

### Modified internal rate of return (MIRR) [Edit](#)

[Modified Internal Rate of Return](#) (MIRR) considers [cost of capital](#), and is intended to provide a better indication of a project's probable return. It applies a discount rate for borrowing cash, and the IRR is calculated for the investment cash flows. This applies in real life for example when a customer makes a deposit before a specific machine is built.

When a project has multiple IRRs it may be more convenient to compute the IRR of the project with the benefits reinvested. Accordingly, MIRR is used, which has an assumed reinvestment rate, usually equal to the project's cost of capital.

### Average internal rate of return (AIRR) [Edit](#)

Magni(2010) introduced a new approach, named AIRR approach, based on the intuitive notion of mean, that solves the problems of the IRR. However, the above-mentioned difficulties are only some of the many flaws incurred by the IRR. Magni (2013) provided a detailed list of 18 flaws of the IRR and showed how the AIRR approach does not incur the IRR problems.

## 12.10 Leverage:

### Introduction

Capital structure decision, discussed in the preceding chapter, aims at determining the type of funds a firm should seek to finance its investment opportunity and the proportion in which these funds should be raised. This decision is of tremendous significance for the management as it affects shareholders' return and risk. In case the proportion of debt capital is more than owned capital in the capital structure of a firm, the return and risk of shareholders will be high. On the other hand, if the proportion of owned capital is more than the debt capital in the total capital of the firm, the return as well as risk of the shareholders will be much less. The leverage analysis is the technique used by business firm to quantify risk-return relationship of different alternative capital structures.

### Meaning of Leverage:

The term Leverage in general, refers to an increased means of accomplishing some purpose. With leverage, it is possible to lift objects which is otherwise impossible. However, in the area of finance, the term leverage is used to describe the firm's ability to use fixed cost assets and funds to magnify the return to its owners. It has been defined by several authors as given below.

- (i) James Horne: Leverage is the employment of an asset or funds for which the firm pays a fixed cost or fixed return.
- (ii) J.E. Walter: Leverage is the percentage returns on equity to percentage return on capitalization.
- (iii) Ezra Solomon: Leverage is the ratio of net returns on shareholders' equity and the net rate of return on total capitalization.
- (iv) S.C. Kuchhal: Leverage refers to meeting a fixed cost or paying a fixed return for employing resources or funds.

The definitions given above indicate that fixed cost of return is the fulcrum of leverage.

There will be no leverage, if a firm is not required to pay fixed cost or return. Leverage is the

Result of the employment of an asset or funds having a fixed cost or return.

The former may be



Termed as “fixed operating cost”, whereas the latter may be termed as “fixed financial cost”.

As fixed cost or return has to be paid irrespective of the volume of production or sales

considerable influence on the amount of profit available for shareholders. When the volume of

sales changes, leverage helps in firm's profit. A high degree of leverage implies that there will be

a large change in profit as result of a relatively small change in sales and vice versa Thus higher

is the leverage, higher is the risk and higher is the expected re

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### 12.11 Types of Leverages

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There are three commonly used measures of leverage in financial analysis

These are:

1. Operating Leverage
2. Financial Leverage
3. Combined Leverage

Let us discuss all these leverages one by one in the pages to come.

#### 1. Operating Leverage

Operating leverage implies use of fixed cost in the operation of a firm. As pointed out earlier, every firm has to incur fixed cost irrespective of the volume of production or sales. Since fixed cost remains constant, even a small change in sales brings about a more than proportionate change in operating profit. This occurrence is termed as operating leverage. It is thus defined as "the firm's ability to use fixed operating cost to magnify the effects of changes in sales on its earnings before interest and taxes (EBIT). It can be calculated by applying the following formula:

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

Where, Contribution = Sales - Variable cost.

EBIT = Operating profit.

It may be mentioned here that operating leverage may be favourable or unfavourable. Favourable operating leverage arises when contribution exceeds fixed cost and vice versa in the opposite case.

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## 12.12 Degree of Operating Leverage

The degree of operating leverage (DOL) represents percentage change in change operating profit resulting from a percentage change in the sales. It may be put in the form of following equation:

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

The degree of operating leverage depends upon the amount fixed cost element in the cost structure. A firm is said to have a high degree to operating leverage if it employs a greater amount of fixed cost and a smaller amount of variable cost. On the contrary, if the firm incurs a greater amount of variable cost and a smaller amount of fixed cost, it produces a low degree of operating leverage.

The concept of degree of operating leverage will be clear with the help of the following example.

**Example:** X ltd. Sells 1,000 units @ Rs. 20 per unit. The cost of production is Rs. 14 per unit. The firm has a fixed cost of Rs. 1,000. Assume that the sales of X ltd. Increases by 50%. The present and expected costs and profits would be as follows:

Expected Rs.		Present Rs.	
Sales	(1,000x20)	20,000	(1,500x20)
30,000			
Less: Variable cost	(1,000x14)	14,000	(1,500x14)
21,000			
Contribution		6,000	
9,000			
Less: Fixed cost		1,000	
1,000			
Operating profit (EBIT)		5,000	
8,000			

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

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$$\text{Percentage increase in EBIT} = \frac{3,000}{5,000} \times 100 = 60\%$$

$$\text{Percentage increase in sales} = \frac{10,000}{20,000} \times 100 = 50\%$$

$$\text{DOL} = \frac{60\%}{50\%} = \frac{0.6}{0.5} = 1.2$$

The degree of operating leverage is 1.2 means that 1% increase in sales would result in 1.2% increase in operating profit. In the above example, percentage increase in operating profit 60% and percentage increase in sales is 50%. It means that for every increase in operating profit would be 1.2.

A firm will not have an operating leverage if there is no fixed cost and the total cost is variable in nature. In such cases, the operating profit varies in direct proportion to the changes in sales level. This is illustrated below:

	Present	Expected
	Rs	Rs
Sales	20,000	30,000
Less: Variable cost	14,000	21,000
Operating profit (EBIT)	<u>6,000</u>	<u>9,000</u>

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

$$\text{Percentage increase in EBIT} = \frac{3,000}{6,000} \times 100 = 50\%$$

$$\text{Percentage increase in sales} = \frac{10,000}{20,000} \times 100 = 50\%$$

$$\text{DOL} = \frac{50\%}{50\%} = \frac{0.5}{0.5} = 1$$

The degree of operating leverage of 1 means that increase in profit (50% in this example) is in direct proportion to increase in sales (50% in this example).

### Significance of Operating Leverage:

Analysis of operating leverage of a firm is very useful to the finance manager. It tells the impact of changes in sales on operating income. A firm having higher DOL can experience a magnified effect on EBIT for even a small change in sales level. Higher DOL can dramatically increase the operating profit. But if there is decline in sales level, EBIT may be wiped out and a loss may be operated.

As indicated earlier, the operating leverage depends on fixed cost. If the fixed cost is higher, the higher would be firm's operating leverage and its operating risks. If operating leverage is high, it automatically means that the break even point would also be reached at a high level of sales. Also, in the case of higher operating leverage, the margin of safety would be low. Therefore, it is preferable to operate sufficiently above break-even point the danger of fluctuations in sales and profits.

### 2. Financial Leverage:

Financial leverage occurs when a firm uses fixed interest/dividend bearing securities i.e. Debentures and preference share capital along with owner's equity to improve the return on an equity investment. The fixed financial charges such as interest on debentures, dividend on preference shares etc. do not vary with the operating profit (EBIT). These charges have to be paid regardless of the amount of EBIT available to pay them. After paying them, the remaining EBIT belongs to equity shareholders. Financial leverage is concerned with the effect of changes in EBIT on the earnings available to the equity shareholders (EPS). It is thus, defined "as ability of a firm to use fixed financial charges to magnify the effect of changes in EBIT on the firm's earnings per share". It can be determined by using the following formula:

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

Where,

EBIT = Earnings before interest and taxes

EBT = Earnings before taxes.

### 12.13 Degree of Financial Leverage

The degree of financial leverage (DFL) is the percentage change in taxable profit as a result of percentage change in operating profit, i.e. the ability of

the firm of the utilize fixed financial costs in order to magnify the effect of changes in EBIT on EPS of the firm. The DFL can be computed as under:

$$\text{DFL} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$$

The financial leverage is favourable when the firm earns more on the investments/assets financed by the sources having fixed charges, it is obvious that shareholders gain in a situation where the firm earns a high rate of return and pays a lower rate of return to the suppliers of long term funds. Financial leverage in such cases is therefore also called “ Trading on Equity “ . This is illustrated below:

Consider the following example

	X Ltd Rs.	Y Ltd. Rs.
Equity share capital of Rs. 10 each	8,00,000	3,00,000
12% Debentures	<u>50,000</u>	<u>5,50,000</u>
Capital employed	<u>8,50,000</u>	<u>8,50,000</u>
EBID	2,55,000	2,55,000
Less: Interest on debentures	<u>6,000</u>	<u>66,000</u>
EBT	2,49,000	1,89,000
Less: Tax @ 35%	<u>87,150</u>	<u>66,150</u>
EAT( Earnings available to equity shareholders)	<u>1,61,850</u>	<u>1,22,850</u>
EAT	1,61,850	<u>1,22,850</u>
EPS = <u>                    </u>	<u>80,000</u>	<u>30,000</u>
No. of equity shares	= 2.02	= 4.095

The firm had the same return on investment of 30% (2,55,000 / 8,50,000 x 100), but the EPS is almost 2 times in the case of Y Ltd as compared to X Ltd. This is attributed to the fact that the capital structures of the firms are different. Y Ltd. Has relied more on fixed return sources of funds. On these funds, it is earning 30% but paying only 10%. Thus the difference between the return and the cost of these funds had enhanced the earnings of the shareholders. Not only this, in the case of debt funds, the interest cost is also tax deductible.

Thus gain from financial leverage has arisen due to:

(a) Excess of return on investment over effective cost (cost after considering taxation effects) of funds.

(b) Reduction in the number of shares issued due to the use of debt funds.

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### **12.14 High and Low Operating Leverage**

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It is important to compare operating leverage between companies in the same industry, as some industries have higher fixed costs than others. The concept of a high or low ratio is then more clearly defined.

Most of a company's costs are fixed costs that recur each month, such as rent, regardless of sales volume. As long as a business earns a substantial profit on each sale and sustains adequate sales volume, fixed costs are covered and profits are earned.

Other company costs are variable costs that are only incurred when sales occur. This includes labour to assemble products and the cost of raw materials used to make products. Some companies earn less profit on each sale but can have a lower sales volume and still generate enough to cover fixed costs.

For example, a software business has greater fixed costs in developers' salaries and lower variable costs in software sales. As such, the business has high operating leverage. In contrast, a computer consulting firm charges its clients hourly and doesn't need expensive office space because its consultants work in clients' offices. This results in variable consultant wages and low fixed operating costs. The business thus has low operating leverage

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## UNIT - XIII DIVIDEND THEORIES

In this section we take up the different dividend theories for discussion. Graham-Dodd theory, Walter's theory, Gordon's Theory and Modigliani-Miller (MM) theory of dividend are dealt with below:

### 13.1 Graham-Dodd Theory

Graham-Dodd theory is in support of dividend value nexus. As per their theory,  $P = m(D + E/3)$ ,

Where  $p$  = market price per share,  $D$  = dividend per share,  $E$  = earnings per share and  $m$  is a multiplier. The above valuation formula can be rewritten as follows:

$$P = m \left( D + \frac{(D + (E - D))}{3} \right) \text{ or } P = m \left( \frac{3D + D + (E - D)}{3} \right) \text{ or}$$

$P = m/3 (4D + R)$ , where  $E - D = R$  = retained earning per share.

As 'm' is a multiplier,  $m/3$  becomes a constant.

Value  $P$  is 4 times influenced by  $D$  compared to a unit time influence from retained earnings. So liberal dividends would enhance share value by leaps and bounds.

Example: Let  $E = \text{Rs } 10$ ,  $D = \text{Rs } 6$  and  $m = 6$  then

$$P = m/3(4D + R) = 6/3[(4 \times 6) + (10 - 6)] = 2(24 + 4) = \text{Rs } 56$$

If  $D = \text{Rs } 8$  given other things are the same as before

$$P = m/3(4D + R) = 6/3[(4 \times 8) + (10 - 8)] = 2(32 + 2) = \text{Rs } 68$$

### 13.2 Walter's Theory

This theory holds that market value is influenced by dividend decision. The value of the share  $P$  is given by:

Where,

$$P = [D + (E - D)r/K] \div K$$

$P$  = Price per share

$D$  = Dividend Per Share

$E$  = Earnings per share

$R$  = Internal rate of return on investment of the company

$K$  = Cost of capital

$E - D$  = retained earnings per share

**Walter's Model – An Explanation**

Growth firm Declining firm  $r > k$	Normal firm  $r = k$
$r = 20\%$ $k = 10\%$ $E = \text{Rs } 5$ $E = \text{Rs } 5$	$r = 20\%$ $k = 20\%$ $E = \text{Rs } 5$
If $D = \text{Rs } 5$ $P = [5 + (5 - 5) \cdot 2/1] / .1$ $= \text{Rs } 50$	If $D = \text{Rs } 5$ $= [5 + (5 - 5) \cdot 2/2] / .2$ $= \text{Rs } 25$ $= \text{Rs } 25$
If $D = \text{Rs } 3$ $P = [3 + (5 - 3) \cdot 2/1] / .1$ $= \text{Rs } 70$	If $D = \text{Rs } 3$ $= [3 + (5 - 3) \cdot 2/2] / .2$ $= \text{Rs } 25$ $= \text{Rs } 20$
If $D = \text{Rs } 0$ $P = [0 + (5 - 0) \cdot 2/1] / .1$ $= \text{Rs } 100$	If $D = \text{Rs } 0$ $= [0 + (5 - 0) \cdot 2/2] / .2$ $= \text{Rs } 25$ $= \text{Rs } 12.5$

From the above explanation you know that when  $r > k$ , value increase as  $D$  decreases; that when  $r = k$ , value remains constant; and that when  $r < k$ , nil payout is optimal, when  $r = k$ , dividend – value nexus is absent.

**Illustration 7.1**

From the following information supplied to you, ascertain whether the firm's dividend payout ratio is optimal according to Walter's theory. The firm was started a year before with equity capital of Rs 20 lakh (There is no debt capital).

Earning of the firm	Rs 2,00,000
Dividend paid	Rs 1,50,000
Price-earnings ratio	12.5

Number of shares outstanding is 20,000. The firm is expected to maintain its current rate of earnings on investment.

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- (i) What is the value of the share?  
 (ii) What should be the price-earning ratio at which dividend payout ratio will have no effect on the value of the share?  
 (iii) Will your decision be changed if the P/E ratio is 8 instead of 12.5?

**Solution:**

First we have to compute, E,D,K and r.

$E = \text{Rs } 2,00,000/20,000 = \text{Rs } 10$ ;  $D = 1,50,000/20,000 = \text{Rs } 7.5$ ,

$K = \text{inverse of price-earnings ratio} = 1/12.5 = 8\%$  and

$R = \text{earning/capital} = \text{Rs } 2,00,000/20,00,000 = 10\%$

$$\begin{aligned}
 P &= \frac{7.50 + (\text{Rs } 10 - \text{Rs } 7.5) \times (10\% / 8\%)}{8\%} \\
 &= \frac{7.50 + (\text{Rs } 2.5) \times (1.25)}{8\%} \\
 &= \frac{7.50 + 3.125}{8\%} \\
 &= \frac{\text{Rs } 10.625}{8\%} \\
 &= \text{Rs } 132.81
 \end{aligned}$$

This is a growth firm, since  $r > k$ . So, zero payout ratio is optimal. So the firm's present dividend payout ratio is not optimal. At 75% dividend payout ratio, i.e., the current payout, the price per share is Rs 132.81. The zero percent dividend payout ratio would be optimum as at this ratio, the value of the share would be maximum. This is shown in the following calculations:

$$\begin{aligned}
 P &= \frac{0 + (\text{Rs } 10 - 0) \times (10\% / 8\%)}{8\%} \\
 &= \frac{(10)1.25}{8\%} \\
 &= \frac{\text{Rs } 12.50}{8\%}
 \end{aligned}$$

8%

Rs = 156.25

(ii) PE ratio of 10 times would have no effect on the value of the share because at this rate  $k = 10\%$ . You know  $k = 1/\text{PE ratio} = 1/10 = 0.1 = 10\%$ . You know  $r = 10\%$ . Hence,  $r = k$ .

(iii) If the PE ratio is 8,  $k = 12.5\%$  since  $k > r$ , the 100% dividend payout ratio would maximize the value of the share. With the current 75% payout, P will be

$$P = \frac{7.50 + (Rs10 - Rs7.5) \times (10\% / 12.5\%)}{12.5\%}$$

$$= \frac{7.50 + (Rs2.5) \times (0.8)}{12.5\%}$$

$$= \frac{7.50 + 2.00}{12.5\%}$$

$$= \frac{Rs9.5}{12.5\%}$$

$$= Rs76$$

For 100% payout,

$$P = \frac{10 + (Rs10 - Rs10) \times (10\% / 12.5\%)}{12.5\%}$$

$$= \frac{10 + 0}{12.5\%}$$

$$= \frac{Rs10}{12.5\%}$$

$$= Rs80$$

So, 100 % payout is optimal.

### 13.3 Gordon's Theory

Myron Gordon's theory of share valuation using dividend capitalization assumes that:

- (a) Retained earnings are the only source of finance for the firm.
- (b)  $r$  and  $k$  are both constant.
- (c) Growth rate ( $g$ ) of the firm is product of retention of retention of ratio and rate of return and  $g < k$ .
- (d) The firm has an infinite life.
- (e) There is no tax.

$$\text{According to Gordon, } P_0 = \frac{Y_1(1-b)}{K - br}$$

Where,

$P_0$  = Price per share at time zero or the beginning of year 1

$Y_1$  = earnings per share at the end of year 1

$b$  = retention ration

$1 - b$  = dividend payout ratio

$K$  = Cost of capital

$br$  = growth rate (retention ratio  $\times r$ )

Actually the above model is the dividend capitalization approach which was dealt with when we studied cost of capital in an earlier lesson.  $Y_1(1-b)$  is equal to  $D_1$  and  $br = g$ .

(You remember we formulated an equation there,  $P_0 = D_1 / K_e - g$  from which we deduced that,  $K_0 = D_1 / P_0 + g$  in the lesson on cost of capital).

The nature of influence of dividend decision on the share price of a growth firm, a normal firm and a declining firm is dealt with under Gordon's theory, in the following table.

**Gordon Theory – An Explanation**

Growth firm Declining firm	Normal firm	
$r > k$	$r = k$	
$r = 20\%$ or 0.2 10% or 0.1	$r = 20\%$ or 0.2	$r =$
$k = 10\%$ or 0.1 20% or 0.2	$k = 20\%$ or 0.2	$k =$
$E = \text{Rs } 5$	$E = \text{Rs } 5$	

E = Rs 5		
If D = Rs 5, i.e., b=0 = Rs 5, i.e., b=0	If D = Rs 5, i.e., b=0	If D = Rs 5, i.e., b=0
$P = [5(1-0)]/[0.1-0]$ $P = [5(1-0)]/[0.2-0]$  = Rs 50	$P = [5(1-0)]/[0.2-0]$  = Rs 25 = Rs 25	
If D = Rs 3	If D = Rs 3	
$P = [5(1-0.2)]/[0.1 - 0.04]$ $P = [5(1-0)]/[0.2-0.2]$  = 4/0.06 = Rs 70 = 4/0.16 = Rs 25	$P = [5(1-0.2)]/[0.2-0.04]$  = 4/0.18 = Rs 20	
If D = 3, i.e., b = 0.4 b=0.4	If D = 3, i.e., b = 0.4	If D = 3, i.e., b = 0.4
$P = [5(1-0.4)]/[0.1-0.08]$ $P = [5(1-0.4)]/[0.2-0.04]$  = 3/0.02 = Rs 150 = 3/0.12 = 25	$P = [5(1-0.4)]/[0.2 - 0.8]$  = 3/0.16 = 19	

You would understand that in the case of a growth firm,  $r > K$  as retention ratio (b) increases the value (P) of the share rises. For a normal firm, the value remains the same. For the declining firm, as b increase P decreases. All these results are on the same lines as those found with Walter's theory.

Walter's theory permitted 100% retention, i.e., nil dividend, whereas Gordon's theory would not permit the same as the numerator then becomes zero. This is one difference. The other is in the values of P as you will know by comparing the two tables.

So, the optimal dividend payout for a declining firm is 100% ; for a normal firm the payout ratio is irrelevant and for a growth firm the payout ratio is lower. Consequent to a lower payout ratio (and hence a higher retention ratio) the  $br$  might become larger than  $K$ . Then P becomes undefined. So, in the case of a growth firm the optimal dividend payout ratio cannot be extremely low.

**Illustration 7.2**

The following information is available in respect of the rate of return on investments ( $r$ ), the capitalization rate ( $K_e$ ) and earnings per share ( $E$ ) of a manufacturing company.

$r =$  (i) 12%                      (ii) 11%                      (iii) 8%

$K_e = 11\%$

$E = \text{Rs } 20$

Determine the value of its shares as per Gordon's model in each alternative, assuming (i) 10%, (ii) 40% and (iii) 70% payout ratios.

**Solution:**

According to Gordon's model, the value of share  $P$  is given by the following formula:

$$P = \frac{Y(1 - b)}{K - br}$$

Alternative (i) when  $r = 12\%$

(a) Payout ratio 10% ; so, retention ratio 90%

$br = (g) = 0.9 \times 0.12 = 0.108$

$$P = \frac{\text{Rs } 20 (1-0.9)}{0.11 - 0.108} = \frac{\text{Rs } 2}{0.002} = \text{Rs } 1,000$$

(b) Payout ratio 40% ; so, retention ratio 60%

$br = (g) = 0.6 \times 0.12 = 0.072$

$$P = \frac{\text{Rs } 20 (1-0.6)}{0.11 - 0.072} = \frac{\text{Rs } 8}{0.038} = \text{Rs } 210.52$$

(c) Payout ratio 70% ; so, retention ratio 30%

$br = (g) = 0.3 \times 0.12 = 0.036$

$$P = \frac{\text{Rs } 20 (1-0.3)}{0.11 - 0.036} = \frac{\text{Rs } 14}{0.074} = \text{Rs } 189.19$$

**Alternative (ii) when  $r = 11\%$** 

Payout ratio 10% ; so, retention ratio 90%

$$br = (g) = 0.9 \times 0.11 = 0.099$$

$$P = \frac{Rs\ 20 (1-0.9)}{0.11 - 0.099} = \frac{Rs\ 2}{0.011} = Rs\ 181.82$$

(b) Payout ratio 40%; so, retention ratio 60%

$$Br = (g) = 0.6 \times 0.11 = 0.066$$

$$P = \frac{Rs\ 20 (1-0.6)}{0.11 - 0.066} = \frac{Rs\ 8}{0.044} = Rs\ 181.82$$

(c) Payout ratio 70%; so, retention ratio 30%

$$br = (g) = 0.3 \times 0.11 = 0.033$$

$$P = \frac{Rs\ 20 (1-0.3)}{0.11 - 0.033} = \frac{Rs\ 14}{0.077} = Rs\ 181.82$$

### Alternative (iii) when $r = 10\%$

(a) Payout ratio 10%; so, retention ratio 90%

$$br = (g) = 0.9 \times 0.10 = 0.090$$

$$P = \frac{Rs\ 20 (1-0.9)}{0.11 - 0.090} = \frac{Rs\ 2}{0.002} = Rs\ 100$$

(b) Payout ratio 40%; so, retention ratio 60%

$$br = (g) = 0.6 \times 0.10 = 0.060$$

$$P = \frac{Rs\ 20 (1-0.6)}{0.11 - 0.060} = \frac{Rs\ 8}{0.050} = Rs\ 160.00$$

(c) Payout ratio 70% ; so, retention ratio 30%

$$br = (g) = 0.3 \times 0.10 = 0.030$$

$$P = \frac{Rs\ 20 (1-0.3)}{0.11 - 0.030} = \frac{Rs\ 14}{0.080} = Rs\ 175.00$$

Thus far, the theories that support the dividend – value nexus were seen. The above theories hold that dividend payout is a relevant factor in share price determination. The reasons are not far to seek.

A high payout ratio makes the shareholders feel certain about their income. This is what is called resolution of the uncertainty of future income. There is an information content that the firm would make good profits in the future. Shareholders with high current income prefer companies with high payout ratio. Dividend income is exempted from taxation upto a limit. So, high payout increase value. Similarly, low payout might also increase value. This view is stressed by Michael J. Brennan, As there is no floatation cost, the cost of internally generated equity

is less than cost of fresh equity, and capital gain is taxed at a lower rate. So, a preference for low payout ratio is also there.

The conclusion is that, dividend payout is relevant to valuation.

### 13.4 MM Theory

Miller and Modigliani advanced their theory in 1961. According to this theory the dividend-valuation nexus does not exist. Their assumptions are:

- (a) Capital market is perfect,
- (b) Investors are rational,
- (c) there is no transaction cost,
- (d) securities are divisible,
- (e) information is freely available,
- (f) no investor can influence market price singly,
- (g) there is no tax, and
- (h) there is no floatation cost

Their conclusion is that the dividend decision is not significant in the context of share valuation. In other words, the shareholders get the same benefit from dividend as from capital gain through retained earnings. So, the division of earnings into dividend and retained earnings does not influence shareholders' perceptions. So, whether dividend is declared or not, and whether high or low payout ratio is followed, it makes no difference on the value of the share.

MM prove their argument quantitatively as follows:

$$P_0 = \frac{1}{1 + K} (D_1 + P_1)$$

Where ,

$P_0$  = market price per share at the beginning of year 1

$P_1$  = Market price per share at the end of year 1

$D_1$  = dividend per share at the end of year 1

$k$  = discount rate applicable to the firm.

Equation 1 simply tells that the current price of a share is equal to the sum of the discounted value of the year – end dividend and the market price at the end of the year. From equation 1, the value of outstanding equity shares of the firm at time 0, i.e., beginning of the year is equal to:

$$nP_0 = [nD_1 + (n+m)P_1 - mP_1] \frac{1}{1 + K}$$

Where,

$n$  = number of shares outstanding at time 0,

$nP_0$  = total value of outstanding equity at time 0,

$k$  = discount rate

$m$  = number of additional shares issued at time 1

$n+m$  = number of outstanding shares at time 1

$(n+m)P_1$  = value of all outstanding shares at time 1

$mP_1$  = market value of fresh issue at time 1

The value of equity issued at time 1 ( $mp_1$ ) is equal to total investment  $I$ , proposed at time 1, minus retained earnings. Retained earnings = earnings ( $X$ ) minus dividend ( $nD_1$ ), i.e.,  $X - nD_1$

So,  $mp_1 = I - (X - nD_1)$

By substituting the value of  $mp_1$  as in equation 3 in the equation 2 above, we get

$$\begin{aligned} nP_0 &= \frac{1}{1+K} [nD_1 + (n+m)P_1 - (I - (X - nD_1))] \\ &= \frac{1}{1+K} [nD_1 + (n+m)P_1 - I + X - nD_1] \\ &= \frac{1}{1+K} [(n+m)P_1 - I + X] \end{aligned}$$

When equation 4 gives valuation of current equity shares of the company, you don't find a place for  $D_1$ , i.e., dividend at all. So, Modigliani and Miller held that value is independent of the dividend decision. Hence, their dividend irrelevance stand. The dividend irrelevance stand stems from their leverage irrelevance stand dealt with in an earlier lesson. You must note the MM theory points out that dividend decision does not alter the value of share, unlike the case with Walter, Gordon and Graham-Dodd theories.

### Illustration 7.3

ALtd's cost of equity is 10%. Its outstanding shares are 1,00,000, each valued Rs 40. The company plans to invest Rs 13,60,000 one year hence. Its expressed earnings are Rs. 3,00,000 and the likely dividend one year later is Rs 2 pershare. Show dividend irrelevance as per the MM theory.

$$\begin{aligned} P_0 &= \frac{1}{1+K} (P_1 + D_1) \\ \text{Rs } 40 &= (P_1 + 2) \frac{1}{1+10\%} \\ \text{Rs } 40 &= (P_1 + 2) \frac{1}{1.1} \end{aligned}$$

$$\text{Rs } 44 = P_1 + 2 \text{ or } P_1 = 42$$

$$\begin{aligned} \text{Amount required for new financing} &= I - (X - nD_1) \\ &= 13,60,000 - (3,00,000 - 2,00,000) \\ &= 12,60,000 \text{ at 1 year end.} \end{aligned}$$

No. of shares needed to be issued = Rs 12,60,000 / Rs 42 = 30,000 shares, so,  $M = 30,000$ . Value of the firm.

$$V = nP_0 = \frac{1}{1.1} [nD_1 + (n+m)P_1 - I + X - nD_1]$$



$$= \frac{1}{1.1} [2,00,000 + (1,00,000 + 30,000)42 - 13,60,000 + 3,00,000 - 2,00,000]$$

$$= \frac{1}{1.1} [2,00,000 + 54,60,000 - 12,60,000]$$

$$= \frac{1}{1.1} (44,00,000) = 40,00,000$$

To show that dividend payment has no value on V, we have to show that non-payment of dividend also results in V as same as when dividend is declared. Let us now show that V when dividend is not declared is same at Rs 40,00,000 found earlier as the value of the firm with dividend payment.

Now,  $P_1$  is got as follows:

$$Rs40 = \frac{P_1 + \text{zero}}{1.1} \text{ or } P_1 = Rs 44$$

Amount needed to finance a new project is:

$$= I - (X - D) \\ = 13,60,000 - (3,00,000 - 0) = Rs 10,60,000$$

No. of shares to be freshly issued is :

Rs 10,60,000

\_\_\_\_\_ Shares

Rs 44

Value of the firm is

$$V = nP_0 = \frac{1}{1.1} [nD_1 + (n+m)P_1 - I + X - nD_1]$$

$$= \frac{1}{1.1} [1,00,000 + (10,60,000 / 44)44 + 13,60,000 - 3,00,000]$$

$$= \frac{1}{1.1} [44,00,000 + 10,60,000 - 13,60,000 + 3,00,000]$$

$$= \frac{1}{1.1} (44,00,000) = 40,00,000$$

See the value of the firm is same as with dividend payment. Hence, the irrelevance of dividend decision on valuation of firm.

### Criticisms on MM Dividend Theory

MM theory is criticized on the invalidity of most of its assumptions. Some of the criticisms are presented here. First, perfect capital market is not a reality. Second, transaction and floatation costs do exist. Third, dividend has a signaling effect. Dividend decision signals financial standing of the business, earnings position of the business, and so on. All these are taken as uncertainty reducers and they influence share value. So, the stand of MM is not tenable. Fourth, MM assumed that additional shares are issued at the prevailing market price. It is not so. Fresh issues-whether

rights or otherwise, are made at prices below the ruling market price. Fifth, taxation of dividend income is not the same as that of capital gain. Dividend income up to Rs 1,000 is fully exempt, whereas capital gain attracts a flat 20 per cent tax in the case of individual assesses. So, investor preferences between dividend and capital gain differ. Sixth, investment decisions are not always rational. Some, submarginal projects may be taken up by firms if internally generated funds are available in plenty. This would deflate ROI sooner than later reducing share price. Seventh, investment decisions are tied up with financing decisions. Availability of funds and external constraints might affect investment decision and rationing of capital then becomes a relevant issue as it affects the availability of funds. Eighth, in equation 4  $D_1$  is not there. So dividend does not influence value, according to MM. But there is  $P_1$  in the equation, which is influenced by  $D_1$  as in equation 3. The MM theory is wrong on this count.

### 13.5 Dividend Policies:

A policy is a guideline for action. What are the guidelines followed in respect of dividend function? The guidelines relate to forms, scale, stability and timing of dividend payment. Accordingly, dividend policies of a diverse nature are available. Prominent among them are dealt with here.

#### **Dividend Policies Based on Form of Dividend**

From the point of view of form, dividend policies could be the cash dividend policy, scrip dividend policy or combined policy. The cash dividend policy stipulates that dividends are payable in cash only. This is the most predominant method. Indian laws recognize only this form of dividend. The scrip dividend policy underlines payment of dividend through issue of fully-paid-up bonus shares. Well established companies make bonus issues. To conserve of the firm's liquidity to make the balance sheet to present a realistic picture of its capital base, to widen the corporate image, to lower the rate of dividend per share on future occasions and to get some tax benefits, scrip dividend is issued. The combined policy implies that both cash and scrip dividends are periodically declared by the company.

#### **Dividend Policies Bases on Scale of Dividend**

From the point of view of scale, the policy options are: high payout policy, low payout policy and medium payout policy. The high payout policy is supported by Graham and Dodd. The arguments in favour of such policy were already dealt with. Low payout policy underlies lesser dividend and higher retention. When  $r > k$ , this policy is also good as it combines the advantages of both the other policies without their disadvantages.

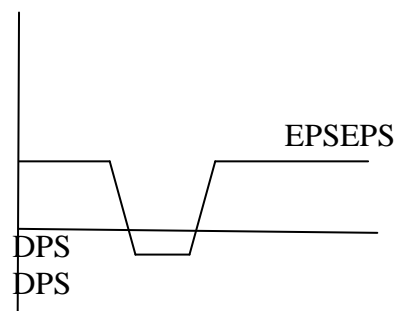
#### **Dividend policies Based on Stability of Dividend**

From the stability point of view we have fixed dividend or varying payout ration policy, varying dividend or fixed payout ration policy, steadily changing dividend policy, target dividend payout policy and residual dividend policy. **Fixed dividend policy** ensures that a constant dividend per share (DPS) is paid periodically. Shareholders are certain of their current dividend income and can plan their financial activities accordingly.

This policy implies that the payout ratio is changing and that a dividend equalization fund may be required. This policy might ensure a high and stable share price. Such a condition favours investors. **Varying dividend per share policy** implies that **DPS** fluctuates. This may be because a constant payout ratio is adopted by the firm while its earnings fluctuate year after year. Share prices might fluctuate and speculation might build up. Chart 7.1 and 7.2 give a pictorial presentation of these two policies.

A policy of **steadily dividend per share** is a good alternative to both the above policies. Here the **DPS** is not infinitely held constant or allowed to scale peaks and fall into troughs alternatively. On the contrary, the **DPS** is gradually changing (increasing or decreasing). Unless and until an upswing in EPS is stabilized, **DPS** is not scaled up, and similarly, only when a downswing in EPS is more or less constant, **DPS** is scaled down.

When an upswing in EPS is expected to be maintained for a reasonably long time, **DPS** is scaled up.



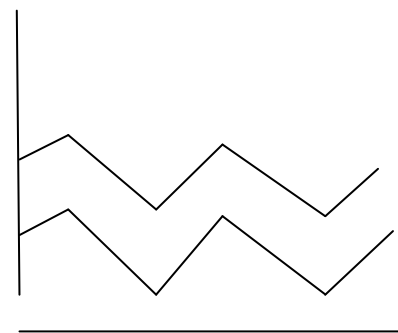
PeriodPeriod

Varying dividend payout policy or dividend per share policy

Fixed DPS policy  
payout ratio policy

**CHART 7.1**

**CHART 7.2**



Varying

or fixed

A company may adopt a policy of **target payment ratio**, wherein it fixes a payment ratio which it must reach over a period of time. This policy is also a *Via media* to fixed and fluctuating dividend policies. There is another policy called **residual dividend** policy. Dividend is paid only when anything is left after meeting all investment needs. So, dividends would be very much fluctuating or mostly nil going uphill or down the valley.

### Dividend Policies Based on Timing

From the timing point of view we have regular and irregular, interim and annual immediate and no-immediate dividend policies. Regular dividend policy implies the payment of dividend is a regular feature. Irregular dividend policy implies the opposite. Shareholders definitely prefer the former to the latter policy. Interim dividend is that the company declares dividend more than once a year. As and when disposable profits

are available dividend is declared. Annual dividend policy means that dividend is paid only once a year. Immediate dividend policy means that the company has dividend right from establishment. It adds value to the company. No immediate dividend policy is one where the company does not start paying dividend until it has good earnings. To finance expansion, growth and diversification internal funds may be used. The cost of fresh external capital may be high and thus no-dividend policy is adopted. General few companies adopt this policy, but they have to be very cautious in this regard.

### 13.6 DIVIDEND PRACTICES AND LEGAL FORMALITIES

Dividend practices are as divergent as dividend policies. Cash dividend, scrip dividend interim dividend, annual dividend, regular and stable dividend, and regular and extra dividend practices are widely adopted. These are all already discussed.

The company has to first formulate its policy as to form, scale, stability and timing

of dividend payment. Once the formulation is over, dividend practice becomes a routine affair with certain legal formalities to be fulfilled.

Provisions of the Companies Act relating to the declaration and payment of dividend have to be followed. In fact, the declaration and payment of dividend is an internal matter of the company and is governed by its Articles. The power regarding appropriation of profits is given to the board of directors. However, they are governed by the provisions of the Companies Act. The directors are to follow Table A or the provisions of Articles and the provisions of the Companies Act, 1956, in this regard. The following are the rules regarding the declaration and payment of dividend:

**(1) Dividend on paid up capital:** A company may, if so authorized by its Article pay dividend on the paid up value of shares under Section 93 of the Companies

**(2) Provisions of Articles of Association:** Rules 85 to 94 of Table A provide that:

(i) A company may declare dividend in its general meeting provided not exceed the amount recommended by the board of directors.

(ii) The board of directors may from time to time pay to the members such interim dividends as appear to be justified by the profits of the company.

(iii) Notice of any dividend should be given to those who are entitled to receive the same.

(iv) The directors may transfer any amount they think appropriate to the reserve fund which may be utilized for any contingencies

(v) When a dividend has been declared, it becomes a liability for the company to the shareholders from the date of its declaration, but no interest can be claimed on it.

### **(3) Dividend only out of profits:**

(a) Dividend can only be declared or paid out of (i) the current profits of the company. (ii) the past accumulated profits, and (iii) moneys provided by the central or state government for the payment of dividends in pursuance of a guarantee given by that government. No dividend can be paid out of capital [Sec. 205(i)]. The director who is responsible for payment of dividend out of capital, shall be personally liable to make good such amount to the company.

(b) Companies are not entitled to pay any dividend unless present or arrears of depreciation have been provided from out of the profits and an amount of 10 per cent of profits has been transferred to the reserve. However, the central government may allow any company to declare or pay dividends out of profits before providing for any depreciation.

(c) Capital profits may also be utilized for the declaration of dividend. provided (i) there is nothing in the article prohibiting the distribution of dividend out of capital profits; (ii) they have been realized in cash; and (iii) they remain as profits after revaluation of all assets and liabilities

(d) Dividend cannot be paid out of accumulated profits unless current losses are made good.

**(4) Payment of dividend only in cash:** [Sec. 205(1) Dividends are to be paid in only except in the following circumstances:

(i) By capitalizing the profits by issue of fully paid bonus shares, if Articles so permit, provided all legal formalities have been satisfied in respect of issue of bonus shares. By paying up any unpaid amount on partly paid up shares.

**(5) Payment of dividend to specified persons:** (Sec. 206) Dividend shall be paid only to those whose names appear on the register of members on the date of declaration of dividend or to the holders of dividend warrant, it issued by the company

**(6) Payment of dividend within 42 days:** (Sec. 207) Dividend must be paid within 42 days of its declaration except in the following circumstances:

- (i) By operation of law of insolvency.
- (ii) In compliance of the directions of the shareholders.
- (iii) Where right to receive dividend is pending decision.
- (iv) Where it is not due to the default of the company.

(v) If company lawfully adjusts the amounts against any debt due from the shareholder.

**(7) Payment of interim dividend:** The directors of a company can pay interim dividend subject to the provisions of the Articles. Interim dividend can be paid at any time between the two annual general meetings taking into account the full year's accounts and after providing the full year's depreciation on fixed assets.

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### 13.7 FACTORS INFLUENCING DIVIDEND DECISION

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Scores of factors affect dividend decision. These are enumerated below with brief explanation.

#### (i) Legal Position

Section 205 of the Companies Act, 1956, which lays down the sources from which dividend can be paid, provides for payment of dividend (i) out of past profits and (ii) out of moneys provided by the central/state government, apart from current profits. Thus, by law itself, a company may be allowed to declare a dividend even in a year when the profits are inadequate or when there is absence of profit. However, in a year when there are meagre profits, while one company may skip the payment of dividend, another company may apply for the alternatives offered by the law.

Concerning the declaration of dividend, two concepts are relevant, namely, (i) profits available for distribution and (ii) profits available for dividend. While the former refers to the maximum profits which can be legally distributed as dividend, the latter denote profits which the directors recommend for distribution. Even when there are no profits in a commercial sense, yet they can be divisible profits. There is, legally no prohibition against profits from sale of fixed assets from being distributed as dividend. Whether such a course of action is prudent or not is altogether a different matter, and while one company may decide in favour of distributing dividends out of such profits', another company may disfavour it.

When a company declares dividend it has to transfer a certain percentage of its profit to reserves, which of course, depends on the rate of dividend. Even after transferring profits to reserves and declaring

dividends, there may still be a balance in profit. Whether this residue is to remain in the profit and loss account (P&L A/C) itself or any higher percentage of profit is to be transferred to reserves depends largely on the practical considerations and policy of the management. In a particular year, when there is absence of profit or inadequacy of profit, the profits of earlier years (which remain in P&L A/c itself) are more freely available for distribution than the earlier years profits which are transferred to reserves because in the latter case, it would be declaration of dividend out of reserves and provisions of Section 205A(3) are applicable: company concerned is bounded by the restrictions and conditions laid down in the Companies (Declaration of Dividend Out of Reserves) Rules 1975'.

### **(ii) Magnitude and Trend in EPS**

EPS is the basis for dividend. The size of the EPS and the trend in EPS in recent years set how much can be paid as dividend. A high and steadily increasing EPS enables a high and steadily increasing DPS. When EPS fluctuates, a different dividend policy has to be adopted.

### **(iii) Taxability**

According to Section 205(3) of the Companies Act, 1956, 'no dividend shall be payable except in cash'. However, the Income Tax Act defines the term dividend so as to include any distribution of property or rights having monetary value. Even under Section 2(22) of the Income Tax Act (which treats certain distributions as dividend under Income Tax Act though they may not be regarded as dividend under the Companies Act. issue of bonus shares to equity shareholders is not at all treated as dividend by the Companies Act. Therefore, liberal dividend policy becomes unattractive from the point of view of the shareholders/investors in high-income brackets. Thus, a company which considers the taxability of its shareholders may not declare liberal dividend, though there may be huge profit, but may alternatively go for issuing bonus shares later.

### **(iv) Liquidity and Working Capital Position**

Apparently, distribution of dividend results in outflow of cash and as such a reduction in working capital position. Even in a year when a company has earned adequate to warrant a dividend declaration, it may be confronted with a weak liquidity position. Under the circumstance, while one company may prefer not to pay dividend since the payment may impair liquidity, another company following a stable dividend policy may wish to declare dividends even by resorting to borrowings for dividend payment in cash. In the latter case, the company borrows money for the sake of pursuing a regular dividend policy. At the same time, one could visualize a totally different phenomenon, where there may be adequate profits and sufficiency of cash for payment of dividend. Here, the payment of dividend

depends on the policy of the management. The company may require funds to finance an expansion programme, and the director may decide to skip the payment of dividend; and instead retain the earnings and invest them in the expansion programme. But, if the management follows a stable dividend policy, it may pay dividend and prefer to finance the expansion programme through borrowings. This will be very much so if the company enjoys an enviable record of perennial dividend payments.

#### **(v) Impact on Share Price**

Though, the impact of dividends on market price of shares, though cannot be precisely measured, still one can have an assessment of it. The dividend policy pursued by a company naturally depends on how far the management is concerned about the market price of shares. Generally, an increase in dividend payout results in a hike in the market price of shares. This is significant as it has a bearing on new issues. For instance, a company which has a proposal to expand after a few years and of issuing new shares for financing its expansion may try to enhance the market price of its shares by maintaining a record of increasing trend in dividends. Whether it is fair on the part of the management to attempt to influence the market price of its shares is a different question. On the other hand, established concerns may follow a stable dividend policy instead of varying dividend rates frequently. The market price of shares of former companies is higher than that of companies with fluctuating dividend payments.

#### **(vi) Control Consideration**

Where the directors wish to retain control, they may desire to finance growth programmes by retained earnings, since issue of fresh equity shares for financing growth plans may lead to dilution of control of the dominating group. So, low dividend payout is favoured by the board.

#### **(vii) Type of Shareholders**

When the shareholders of the company prefer current dividend rather than capital gain a high payment is desirable. This happens when the shareholders are in low tax brackets, less moneyed and require a periodical income, or they have better investment avenues than the company. Retired persons, economically weaker sections and similar placed investors prefer current income, i.e. dividend. If on the other hand, majority the shareholders are moneyed people and want capital gain, then low payout is desirable. This is known as clientele effect on dividend decision.



**(viii) Industry Norms**

The industry norms have to be adhered to the extent possible. If most firms in the industry adopt a high payout policy, perhaps others also have to adopt such a policy

**(ix) Age of the Company**

Newly formed companies adopt a conservative dividend policy so that they can stabilize and think of growth and expansion.

**(x) Investment Opportunities for the Company**

If the company has better investment opportunities and it is difficult to raise fresh capital quickly and at cheap costs, it is better to adopt a conservative dividend policy. By better investment opportunities we mean those with higher  $r$  relative to the  $k$ . So, if  $r > k$ , low payout is good and vice versa.

**(xi) Restrictive Covenants Imposed by Debt Financiers**

Debt financiers, especially term lending financial institutions, may impose restrictive conditions on the rate, timing and form of dividends declared. So, this consideration is also significant.

**(xii) Floatation Cost, Cost of Fresh Equity and Access Capital Market**

When floatation costs and cost of fresh equity are high and capital market conditions are not congenial for a fresh issue, a low payout ratio is adopted.

**(xiii) Financial Signaling**

Dividends are the best medium to tell shareholders of better days ahead of the company. When a company enhances the target dividend rate, it overwhelmingly signals to the shareholders that their company is on a stable growth path. Share prices immediately react positively.

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**13.8 SUMMARY**


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Dividend decision is an important decision area. Dividend valuation nexus is still an unresolved issue. Dividend valuation nexus is supported by Walter, Gordon and Graham, while Miller and Modigliani hold the contrary position. Walter's theory and Gordon's theory say that if  $r > k$ , low payout ratio enhances value and vice versa. When  $r = k$ , dividend is irrelevant to valuation. But MM view that altogether valuation is not affected by dividend decision. There are many dividend policies which could be classified from the points of view of form, stability, scale and timing of dividend payment. Several factors like legal considerations, taxability, trend in EPS, liquidity,

shareholder's preferences floatation costs, access to capital market and the like influence dividend decision

Dividend Theories

### 13.9 SELF-ASSESSMENT QUESTIONS

NOTES

1. Bring out the dividend-valuation nexus.
2. Is dividend decision relevant to valuation? Substantiate.
3. Compare and contrast Walter's theory and Gordon's theory of dividend valuation
4. Explain the MM theory of dividend irrelevance.
5. What are the different dividend policies? Briefly explain each.
6. Between stable and fluctuating dividend policies, which one would you recommend. Why?
7. Explain dividend payment practices and the legal formalities in that context.
8. Discuss clearly the factors that affect dividend decision.
9. Calculate the market price of X Ltd's share given the following under Gordon's theory and Walter's theory for different payout ratio: EPS = Rs 4;  $k = 16\%$  and  $r = 18\%$ . Dividend payout ratios: 0%, 25%, 50%, 75% and 100%. Also compute value under the Graham-Dodd model, taking the multiple as 8.
10. A company has 1,00,000 shares outstanding, with a current market value of Rs 80 per share. Its earning for the ensuing year is Rs 20,00,000. It has investment proposals of Rs 30,00,000 by the end of the year. The shareholders' expected return is 20%p.a. and they expect a DPS of Rs 10 per share by the year-end. Show that under the MM theory, the market value of the shares is not affected by dividend decision.
11. A company's RE ratio is 12.5%. Its  $r = 10\%$ . The company declares a dividend of Rs 3 per share, with EPS of Rs 5. Is the dividend policy optimum? If not, why? Will your answer differ when  $r = 8\%$  and  $r = 6\%$ . Use Walter's model.
12. Explain (i) Financial signaling, (ii) Residual theory of dividend, (iii) Scrip dividend, (iv) Stable DPS policy, and (v) Clientele effect.

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# UNIT-XIV INTERNATIONAL FINANCIAL MANAGEMENT

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1. Define multinational organization?

A multinational organisation is an organisation which has investment and sales in two or more countries

2. Explain the term multinational organisation?

An organisation having atleast 50% per cent of its business outside its home country and which derives atleast 50% per cent of its total profits from international operations is a multinational organisation.

3. What is International Financial Management?

Financial Management of a multinational company is known as International financial management.

4. What is meant by foreign exchange market?

The foreign exchange or forex market is the place of exchange of the currency of one country to another county.

5. Explain the Forex market operations?

Foreign exchange or Forex market is characterised by an informal network of telephone, telex, satellite, facsimile and computer communications among the various forex market participants. Banks foreign exchange dealers, arbitrageurs and speculators are amongst these participants.

Foreign market operators are induced by different motives when they deal in the foreign exchange market.

6. What is inter-currency transaction?

Inter-Currency transaction is a transaction involving the conversion of one currency to second currency used to exchange goods, services or monetary instruments

7. What an operations currency and reference currency?

Operations currency is the currency used to run normal business transactions.

Reference currency is the currency used for financial accounting purposes in measures and evaluating operating results.

## 8. How are export credit needs financed?

On the basis of the terms of sources of finance the export credit sources may be divided into short-term, medium-term and long-term sources.

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### 14.1 International Financial Management

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The foreign exchange or forex market is the place of exchange of the currency of one country to another country.

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### 14.2 Foreign Exchange Market

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The foreign exchange or forex market is the place of exchange of the currency of one country to another country.

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### 14.3 Export Credit Needs

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On the basis of the terms of sources of finance the export credit sources may be divided into short-term, medium-term and long-term sources.

#### **I. Short term sources of finance:**

##### **i) By exporter**

The exporter puts up his own capital or diverts his business funds towards export business. He may either have an open account or send the documents against payment or against acceptance after exporter shipping the goods. If documents are against payment, the exporter gets the payment within a reasonable time. If the documents are against acceptance, he can discount the acceptance from his banker. In this way, the exporter finances his short term needs himself.

##### **ii) By importer**

In certain cases the importer finances the exporter by sending the amount required to meet the preshipment credit in advance which can be adjusted against the import price of the goods.

##### **iii) By the export middlemen**

The export middlemen or the export commission house finances export shipment. Usually, the middlemen refinance their own drafts through a bank. For this services rendered by Such middlemen.

##### **iv) By factors**

Factoring houses which serve as a mercantile and banking house finance the export trade by discounting the bills of the exporters. They charge a commission or discount for this. They also undertake the

responsibility of any risk in the discounting of bills and therefore, they offer a good insurance cover for the losses.

v) By banks

Banks provide short in term finances to the exporters and render valuable service in the international trade.

The banks generally finance the exporters by discounting the bills. They provide pre-shipment credits through loans, cash credit and overdrafts for exporters which are, in turn, refinanced by the R.B.I. in India. In addition, the banks pay amount on behalf of the customers and collect the necessary amount from the importer's bank against letter of credit.

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#### **14.4. Medium and Long term sources of finance**

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i) Commercial banks

Commercial banks also provide medium term and long term loans to exporters. When the commercial bank offer term long to exporters, they get refinance from the specialised financial institutions, for example Exim Bank in India.

ii) Export import bank

Exim bank has been established to provide medium and long term export. Credit directly or indirectly to exporters.

iii) International financial institutions

Many international banks and financial institutions have extended long term credit facilities to many countries especially developing countries.

iv) Private export finance companies

A number of private finance companies also provide medium and long-term loans for export trade under their own term and conditions.

9. How are India's exports financed?

Export finance in India is provided by commercial banks at two stages:

i) Pre- shipment stage, and

ii) Post-shipment stage

### **i) Pre-shipment stage**

Pre-shipment credit is known as packing credit. It is a loan or any other credit given by a bank to an exporter. It is meant for financing the purchase, processing and packing of goods for export on the basis of a letter of credit opened in his favour by an importer of goods or a confirmed or irrevocable order for the export of goods from India.

#### **Procedure of Packing Credit Loan:**

The exporter is expected to submit the following documents along with the completed packing credit loan application:

- a) Letter of credit
- b) Partnership deed in case of partnership firms.
- c) Memorandum of association, Articles of Association, Certificate of Incorporation, Certificate of commencement of business and the like in case of registered companies.
- d) Audited financial statements for the past 3 to 5 years.
- e) Copies of income-tax assessment orders for the past 2 to 3 years in respect of sole proprietary and partnership firms.
- f) The bank giving the export credit should obtain a credit report from the foreign correspondent bank/branch if the export is not covered by an irrevocable letter of credit.

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#### **14.5 Packing Credit Period**

Packing credit period ranges from 90 days to 180 days for specified medium and heavy engineering goods.

Packing credit period ranges from 45 days to 90 days for other goods.

The banks can extend the time period beyond the specified limits to a tune of 180 days in case of the first category of exports mentioned above with the prior approval of the Reserve Bank of India. In case of other exports the banks can extend time at their own discretion on the merit of each case. Interest on the extension beyond 270 days or 135 days, as the case may be, will be charged for the additional period at the normal rates and not at the concessional rates mentioned above.

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#### **14.6 Packing credit for exports through export houses**

The export houses often receive orders and place them on their suppliers. The details regarding the period and the amount to be apportioned are worked out by the banks and suppliers through mutual consultation.

### 14.7 Pre-shipment credit and exports through post parcels

Financing of exports through post-parcels by banks is done on certain conditions. The parcels should not be directly addressed to the importer. They should be addressed to the foreign branch or correspondent banks of the exporter's bank.

#### ii) Post shipment Credit:

Post-shipment credit is given to exporters by the banks against the purchase / discount of the relative documents tendered by them to the banks after the goods have been shipped. Post-shipment finance is given only by commercial banks in foreign exchange. The exporters require post-shipment finance as there is a time gap between the selling of goods and receipt of payment from their buyers abroad. This period of waiting depends upon the payment terms. The period of waiting is longer when the payment term is open account or consignment of DA as against letters of credit or sight payment terms. The post-shipment finance in India is met by banks in the following forms:

#### a) Negotiation of documents under letter of credit

The exporter has to present the following documents to the negotiating bank for obtaining finance. Bills of exchange, Bills of lading, Marine Insurance Policy, Commercial Invoice, Certificate of Origin, Inspection Certificate, Packing list and any other documents mentioned in the letter of credit.

#### b) Negotiation of DP and DA bills

This is the second important method of financing exports. This facility of financing exports enables the customer to secure finance without having to wait for the remittances from abroad. The financing banks pay the customer the full face value of the bill after deducting the charges.

#### c) Lending against export bills tendered for collection abroad

#### d) Financing against the security of claims for export incentives.

### 10. Explain the various methods of international payments?

(OR)

**Explain the various modes of payments used in foreign trade.**

### 14.8 International Payments

Following are the various modes of payment in international trade



#### i) Cash with order

Under this method the exporters can obtain advance payment for their goods along with the order or ahead of the actual shipment buyer has to remit the value of goods in advance or along order. The exporter receives the remittance by a draft or an telegraphic transfer. This method of advance payment needs permission by the exchange control authorities in some countries.

#### ii) Open Account

Under this method, the seller debits the account of the importer whenever he exports goods and the importer also maintains a detailed account of the goods in his book. Payments under this terms are made at periodical intervals by demand draft, cheque or telegraphic mail transfer. Under the terms of open account the exporter does not possess a negotiable instrument which could be utilised for financing the transaction. Hence, it saves the exporter from the trouble of drawing and discounting bill of exchange. But a great degree of risk in payments is involved. Therefore, this mode of payment is suitable for two-way trade contracts.

#### iii) Consignment sale

In case of consignment sale the goods are consigned to an agent of an exporter and the consignee arranges for its sale. The actual sale of the goods however, takes place long after the export of the goods by the agent for and on behalf of the exporter. Thus, the sale is not absolute, as in case of open account. The sale proceeds of goods as and when they are sold, will be remitted to the consignor.

#### iv) Bank Transfers

In case of a bank transfer, the importer makes payment to a local bank in home currency. The local bank arranges for payment to the payee abroad in the currency of his country either through its branch or a foreign bank with which the local bank has arrangements for all such payments.

The bank transfers are of the following three types.

##### a) Telegraphic Transfer

It results in saving interest to the remitter and no stamp duty is necessary for it.

##### b) Mail transfer

There is a loss of interest to the remitter.

##### c) Banker's Draft or Cheque

Under this method a draft is issued at the request of the remitter. The remitter sends this draft to the payee abroad, who collects the payment from the drawee bank. The draft may be in the currency of the payee's country or of the remitter's.

#### **14.9 Letter of Credit:**

This is the most common method of remittance practised in the export trade. The exporter can obtain payment from a bank at his own centre immediately after shipment of the goods by presenting the bill of exchange and the relative documents.

The letter of credit are of the following types:

- a) General and Special letters of credit
- b) Open and documentary letters of credit
- c) Fixed and revolving letters of credit
- d) Revocable and irrevocable letters of credit
- e) Confirmed and unconfirmed letters of credit
- f) "With" and "Without recourse" letter of credit
- g) Transferable and non-transferable letters of credit

#### **14.10 Kinds of Letter Of Credit**

##### **11. Explain the various kinds of letter of credit.**

The following are the various kinds of letter of credit.

- a) General and special letters of credit.

A general letter of credit is one addressed by the issuing bank to the world requesting that advance be made to the third person by anyone to whom it is shown.

A special letter of credit is one which is addressed to some specified person or persons. Only those persons to whom the letter is addressed can advance money and acquire rights under it.

- b) Open and documentary letters of credit

An open letter of credit is one which the issuing bank undertakes to honour the bill drawn under the credit without security of any documents such as bill of lading, Insurance policy etc.

A documentary letter of credit is one in which the issuing bank undertakes to honour the bill drawn under it only if it receives with it

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certain documents of little such as bill of lading, certificate of origin, invoice, insurance policy etc.

iii) Fixed and revolving letters of credit

In case of a fixed letter of credit the issuing banker specifies the amount upto which and the period in which beneficiary can draw one or more bills.

In case of a revolving credit, the issuing banker specifies the total amount up to which the bills drawn may remain outstanding at a time, and not the total amount upto which the bills can be drawn.

iv) Revocable and irrevocable letters of credit

Under revocable credit the bank issuing the credit retains the right to revoke the credit according to its own discretion without any concurrence of the beneficiary.

An irrevocable letter of credit cannot be revoked, amended or modified by the issuing bank with out the concurrence of the beneficiary or any other interested party including the confirming bank.

**v) Confirmed and Unconfirmed credit**

A confirmed letter of credit carries with it a guarantee for payment from two banks- the bank opening the letter of credit and the bank which confirms it.

Unconfirmed credit is one which the issuing bank advises credit through a correspondent or branch bank located in the exporter's centre.

**vi) "With" and "without recourse" letter of credit**

In case of a bill of exchange drawn under a letter of credit "With resource to drawer" the beneficiary of the letter of credit as drawer of the bill holds, himself liable to the holder of the bill in the event of its dishonor. When the beneficiary does not undertake such liability the letter of credit is said to be "With out recourse" to the drawer.

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**14.11 Foreign Currency Finance**

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**12. Explain the major sources of foreign currency finance.**

The major source of foreign currency finance are:

**i) Foreign currency term loans from financial institutions:**

Financial institutions provide foreign currency term loans for meeting the foreign currency expenditures towards import of plant,

machinery and equipment and also towards payment of foreign technical know-how fees. The periodical liability of interest and principal remains in the currencies of the loans and is translated into rupees at the then prevailing rate of exchange for making payments to the financial institution.

## **ii) Export credit schemes**

Export credit agencies have been established by the governments of major industrialised countries for financing exports of capital goods and related technical services.

Two kinds of export credit are provided under this schemes. They are:

### **a) Buyer's credit:**

Under this arrangement, credit is provided directly to the Indian buyer for purchase of capital goods and technical services from the overseas exporter.

### **b) Supplier's credit:**

This is a credit provided to the overseas exporters for extending medium-term finance to Indian importers.

## **iii) External commercial borrowing:**

The Government of Indian firms to resort to external commercial borrowings for the import of plant and machinery subject to certain terms and conditions.

## **iv) Euro-currency loans:**

Most international firms can raise funds from the euro currency markets. Euro currency is any free convertible currency deposited in banks outside the country of its origin. Depositors place their savings in banks for short periods. Thus they hold short-term claims on banks. Banks sanction euro currency loans to companies on a long term period of time by using these deposits. The size of euro currency basis and are sanctioned mostly on the basis of floating interest rates.

A borrower can borrow in multiple currencies from the euro currency market and may choose to make payment of interest and principal in one or more currencies.

### **v) Issue in Foreign Domestic Market:**

Indian firms can also issue bonds and equities in the domestic capital market of a foreign country to tap the foreign country equity market.

### **13. Classify the various exports documents.**

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#### **14.12 Exports Documents**

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Documents used in foreign trade can be classified as under on the basis of the functions performed.

#### **i) Trade Documents:**

Trade documents facilitate the export and import trade. These documents include commercial invoices, bill of exchange, bills of lading, letter of credit, marine insurance policy and certificates.

#### **ii) Regulatory documents:**

The government of exporting country uses regulatory documents to regulate the export transactions and to see whether the provisions have been complied which include GR-I form, export policy, inspection certificate, shipping bill.

#### **iii) Export assistance documents**

Export assistance documents are required to claim the various assistances under the various export assistance schemes. Such documents include statement of exports, copies of shipping bills, shipment invoice and bank certificate.

#### **iv) Foreign documentation**

These documents are required by the importers to satisfy the requirements of his government. These are obtained by the exporter in his country and submitted to the importer for the purpose. These include certificate of origin, consular invoice, quality control certificate.

### **14. Give a brief account of the key documents used in foreign exchange transaction.**

**(OR)**

**State the particulars and significance of various documents used in the export trade.**

The following are the most frequently required documents for an export shipment.

### **i) Commercial Invoice**

Commercial Invoice is the seller's bill for the merchandise. This is the basic document in an export transaction. It contains information on the basis of which duty will be assessed and all other documents are prepared. It contains a description of the goods, the price per unit at a particular location, total value of the goods, packing specifications, terms of sales, letter of credit, identification marks and number of the packages, names and addresses of both buyer and seller, name of shipping vessel and the port of destination.

There is no standard form for a commercial invoice. The exporter can design his form, but the contents must comply with the regulations of the importing country. The commercial invoice is prepared and signed by the seller. It is submitted in triplicate. The main purpose of the commercial invoice is to check appropriateness of goods shipped to be consistent with those mentioned in other documents.

### **ii) Customs Invoice**

The commercial invoice prepared on a special form as per specifications of the customs authorities is known as customs invoice. The prescribed forms are bought from commercial stationery stores.

### **iii) Consular Invoice**

This document is required in some importing countries. This is a special type of invoice signed by the importer's consul located in the exporter's country. There are prescribed forms which have to be bought from the consul of the importing country and as copies 6 have to be completed.

The invoice is in the language of the importing country stipulated that this invoice should not contain errors of any kind and erasures and strikeouts in typing or changes or additions in pen and ink are not allowed.

Countries like USA, Canada, Philippines, Mexico, Taiwan, Turkey and Liberia require consular invoice.

### **iv) Certificate of Origin**

This certificate has to be obtained by the buyer without which permission to import may be refused in some countries. The main aim of this document is to certify that a particular goods was originally produced

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or manufactured in a particular country. This certificate also establishes the right of the product to preferential duties to which it may be entitled. This document is required in countries where preferential system of tariff is provided to goods from certain countries. A certificate of origin can also be useful to control the implementing of export quotas that have been established by international agreement such as coffee.

#### **v) Certificate of value**

This certificate is intended to confirm the invoice value shown in the commercial invoice. The exporter has to sign this certificate of value stating that the invoice contains a true and full statement of the price paid for the goods. A certificate of value is one of the forms of invoice prescribed for shipments to most commonwealth countries.

#### **vi) Certificate of Health (or) Sanitary Certificate**

Certificate of health is required by many countries when animals, animal products, plants, plant products and the like are exported. These certificates confirm that the goods are free from diseases, They do not contain insects or pests and the food products have been prepared according to the prescribed standards. It is issued by the department of agriculture or the department of health of the exporting company.

#### **vii) Certificate of Inspection, Analysis or Weight**

This certificate is issued by one of the authorised inspect agencies in the exporter's country.

#### **viii) Packing List**

This list is prepared, when the quantity, weight or contents of the individual units in a shipment vary. It enables the receiver to check the shipment and sorting out the packages and in weighing the goods. There is no specific form prescribed for this purpose.

#### **ix) GR-I Form**

It is a declaration form prescribed by the R.B.I. This document is filled in and submitted by the exporter declaring that the foreign exchange to be realised in lieu of goods exported will be deposited with the RBI. The form is prepared in duplicate. The original copy has to be submitted to the customs authorities at the port of shipment. The duplicate copy of the form is submitted to the negotiating bank along with other documents after shipment of the goods. These forms are sent back to the RBI by the customs authorities and by the bank.

**x) GR-3 Form**

GR-3 form is used to get the permission of RBI when the exporter wants to retain the proceeds in the exporting country with agents or branches abroad.

**xi) Bill of Lading**

Bill of Lading is the most important document in export trade. It is prepared by the exporter in a prescribed form. The form is to be obtained from the shipping company and filled in with the necessary information relating to the goods shipped and the same is to be signed by the shipping company. The original copies signed by the shipping company become negotiable title to the goods covered by the bill. It is necessary that the importer must have the original bills of lading before he can obtain the goods. Therefore, the exporter has to send them on the same ship or in advance by airmail.

**xii) Letter of credit**

Letter of credit, popularly known as LOC, is the most important form in the export trade. It is a promise by the overseas importer through his banker where letter of credit is opened by him, to the exporter through his banker to pay the proceeds on the receipt of documents certifying the shipment of goods. The exporter should carefully examine the terms and conditions of the LOC.

**xiii) Airway Bill**

An Airway Bill is a receipt issued by an airline for the carriage of goods. It is also known as air consignment note. It is not in a negotiable form and the same is indicated in the bill itself. The consignee's name is mentioned in the bill and the goods are delivered to him. The consignor can retain control over the goods until payment is made. The airway bill is issued in three parts. The first part is marked "for the carrier". It is signed by the consignor or his agent. The second part is marked "for the consignee" and it is signed by the consignor and the carrier or his agent. The third part is marked "for the consignor" and it is signed by the carrier or his agent and handed over to the consignor when the goods are accepted by the carrier as air freight.

**xiv) Marine Insurance Policy**

Marine Insurance policy is also an important document in case of export trade. The policy is generally taken at the time when the goods are ready for shipment. The policy can be used as a collateral security by the exporter when he wants advance against credit.

**15. Explain the various types of foreign exchange exposure.**



Foreign exchange exposure may be classified into three broad types such as i) Transaction exposure ii) Translation exposure iii) Economic exposure

### **i) Transaction Exposure**

When a firm has a payable or receivable denominated in a foreign currency, a change in the exchange rate will alter the amount of local currency received or paid. Such a risk or exposure is referred to as transaction exposure.

### **ii) Translation exposure**

Translation exposure relates to the change in accounting income and balance sheet statements caused by the changes in exchange rates. That is the translation exposure results from the need to translate foreign currency assets or liabilities into the local currency at the time of finalising accounts.

### **iii) Economic exposure**

According to Van Horne, James C, economic exposure is defined as the "Change in the value of a company that accompanies an unanticipated change in exchange rates". Economic exposure is considered the most important as it has an impact on the valuation of a firm.

Since economic exposure emanates from unanticipated changes, its measurement is not as precise and accurate as those of transaction and translation exposure; it involves subjectivity. According to Shapiro "it is based on the extent to which the value of the firm - as measured by the present value of the expected future cash flows - will change when exchange rates change".

## **16. What are the techniques used in managing foreign exchange risk?**

Foreign exchange risk management is the process through which finance managers try to eliminate or reduce the adverse impact of unfavourable changes in the foreign exchange rates to a tolerable level. For which the following devices are commonly employed :

i) Spot exchange transaction ii) Forward contracts iii) Currency futures iv) Currency options and v) Swaps

### **i) Spot exchange transaction**

Spot exchange transaction occur when currencies are traded for immediate delivery.

## ii) Forward contracts

Forward contracts are widely used by business firms to hedge against adverse exchange rates. Business firms enter into a forward contract to buy or sell foreign currency in exchange for home currency, normally at a specific future date, at a predetermined exchange conversion rate. The forward rate is agreed by the parties at the time of making of the contract and remains fixed irrespective of future exchange rate fluctuations.

## iii) Currency futures

These are more popularly known as "Futures Contracts" and are traded at the future markets. A futures contract is a standardized agreement to buy or sell a pre-specified amount of foreign currency in the futures market at some specified future date between the parties to the contract

Interest rate futures

Apart from currency futures, interest rate futures represent another major technique available to business firms. Interest rate futures can be used to hedge or reduce risk of a rise in interest rates in the future.

## iv) Currency options

Currency option is a financial instrument that provides its holder a right but no obligation to buy or sell a pre-specified amount of a foreign currency at a pre-determined rate in the future. While the buyer of an option wants to avoid the risk of adverse changes in exchange rate, the seller of the option is prepared to assume the risk.

Options are of two types, namely call option and put option.

### Call option

In a call option the holder has the right to buy a specific currency at a specific price on a specific maturity date or within a specified period of time. However, the holder of the option is under no obligation to buy the currency. Such an option is to be exercised only when the actual price in the forex market, at the time of the exercising option, is more than the price specified in call option contract.

### Put option

A put option confers the right but no obligation to sell a specified amount of currency at a pre-fixed price on or up to a specified date. Obviously, put options will be exercised when the actual exchange rate on the date of maturity is lower than the rate specified in the put option contract.

## **v) Swaps**

Swaps are exchange or swap of debt obligations between two parties. In general, currency swaps are arranged between two firms or parties through a bank.

Swaps are of two types namely, interest rate swaps and currency swaps.

### **Interest rate swaps**

An interest rate swap is a transaction involving an exchange of one stream of interest obligations for another. Typically, it results in an exchange of fixed rate interest payments for floating rate interest payments. Occasionally, it involves an exchange of one stream of floating rate interest payments for another.

### **Currency swap**

In a currency swap, both the principal and interest in one currency are swapped for principal and interest in another currency. On maturity, the principal amounts are swapped back.