CORPORATE FINANCE

Definition and Meaning of Financial Management

According to Weston and Brigham, the definition of financial management is: “Financial management is an area of financial decisions-making balancing individual motives and enterprise goal".”

According to Dr. S. N. Maheswari, the definition of financial management is: “Financial Management is concerned with raising financial resources and their effective utilization towards achieving the organizational goals.” The main objective of financial management is to acquire finance at low interest and utilize the same finance for maximization of profit. It is treated as the most important functional area of total business management. It is said that “Without adequate finance, no business can survive and without efficient financial management, no business can prosper and grow.”

Financial management consists of:

- Proper planning of finance,
- Efficiently organizing of finance,
- Effective channelization of finance,
- Have strict control over finance.

Role of FMs in India/Functions of FMs /Objectives of Financial Management

1. Proper Mobilization of Funds: In financial management, funds can be mobilized (collected) from various sources. There must be a balance between owned fund and borrowed funds. Too much emphasis on borrowed funds can put a burden on repayment and debt servicing.

2. Proper Utilization of Funds: In financial management, funds collected from various sources should be put into productive use. Optimum utilization of funds can be done by minimizing wastages, avoiding unviable projects, having a shorter credit period, avoiding unnecessary blockage of funds in inventory, etc.

3. Earning more Profits: In financial management, earning more profits is one of the primary goals of the firm. The finance manager should ensure that the firm generates profits not only for short term but also for long term. Profit is necessary for fair dividend-payment, proper wages, growth and diversification, etc.

4. Maintaining Liquidity: In financial management, it is necessary to keep balance between inflows and outflows of funds properly. If outflows exceed inflows, sooner or later the organization may face the liquidity problems.

5. Maximizing Shareholders Wealth: In financial management, a firm should ensure a fair return to shareholders by way of regular dividend, bonus issues, etc. If the company is performing well, then there are increases seen in the value of share's vise-versa.

6. Reserves: An important aim of financial management is to build up necessary reserves for facing unforeseen contingencies. The entire profit earned by an organization is not distributed among shareholders, but a part of it retained for future purposes.

7. Increase in Overall Efficiency: In financial management, proper allocation of funds for various activities within the organization results in overall efficiency.

8. Generates Goodwill: One of the objectives of financial management is to generate good name and reputation. The goodwill of the firm helps it to survive not only in short-run, but also to succeed in the long-run.

NATURE OF FINANCIAL MANAGEMENT

Nature of financial management is concerned with its functions, its goals, trade-off with conflicting goals, its indispensability, its systems, its relation with other subsystems in the firm, its environment, its relationship with other disciplines, the procedural aspects and its equation with other divisions within the organisation.

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 organisation.

ii) The central focus of financial management is valuation of the firm. That is financial decisions are directed at increasing/maximization/ optimizing the value of the firm.

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

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, i.e., investment, rising of capital, distribution of profit, are performed in all firms - business or non-business, big or small, proprietary or corporate undertakings. Yes, financial management is a concern of every concern.

vi) Financial management is a sub-system of the business system which has other subsystems like production, marketing, etc., in systems arrangement financial sub-system is to be well-coordinated with others and other sub-systems 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 type of funds or on investing in a particular type of activity, etc., affect financial decisions, of the business. Financial management is, therefore, highly influenced/constrained by external environment.

viii) Financial management is related to other disciplines like accounting, economics, taxation operations research, mathematics, statistics etc., It draws heavily from these disciplines.

ix) There are some procedural finance functions - like record keeping, credit appraisal and collection, inventory replenishment and issue, etc., these are routine and are normally delegated to 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 forget that the strength of a chain depends on its weakest link.

ORGANISATION OF FINANCIAL FUNCTIONS

Financial functions simply refer 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.

Finance functions are classified on two dimensions - managerial" and operative. The managerial financial functions include planning, organisation, direction, coordination and control of the operative functions. The operative functions include investment function, financing function and dividend function.

Each one of the 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. We may put this way. The investment function deals with the 'asset side' of balance sheet and financing function with the 'liabilities side' of balance sheet. Dividend function deals with how much of profit to be distributed as dividend and how much 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, there is interplay of managerial and operative functions.

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 investments 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, pay back 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 eighth with the overall balancing of various investments 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, organisation, coordination and control is needed in every decision area.

b) Financing and Liability Management Function: The financing function refers to raising necessary funds for backing up the investment function. Financing function is dealing 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, form, 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 mat 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 *ate* 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 to be distributed as dividends to the shareholders? In other words, what should be the pay-out ratio? What should be the retention ratio? Dividend payment is necessary, for shareholders expect a return on their shareholding for they can invest / spend the dividend income; for maintaining or enhancing the value of the shares in the market, for dividend declaration has a financial signaling effect and so on. Retaining the profits back in the business itself may become necessary because; the company can invest more profitably than the shareholders; the company can get established and can modernize, diversify and expand using the retained profits; the share holders are expecting capital gain rather than current income; and because the cost of raising new capital form the public is costlier and time consuming. So, there are conflicting issues in paying dividend as well as in retaining the earnings. A well thought out plan of action is called for. Hence the significance of the dividend functions.

There is another classification of finance functions. Treasurer functions 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.

GOALS OF FINANCIAL MANAGEMENT

Goals provide the foundation for any managerial activity. They aid the ends toward which all activities are directed. The purpose and direction of an organisation 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 relationships 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% every year, reducing cost of capital by 1%, maintaining the debt-equity ratio at 3:2 and so on. Let us examine all these in detail.

Types of Goals

The 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 organisation. Maximization of return on investment and market value per share may be tenned as official goals. Operative goals indicate what the organisation is really attempting to do. They are focused and help in choice making. Expected return on investment, cost of capital, debt-equity norms, eic dong with time horizon are specified or their acceptable ranges/limits are static 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.

The 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 returns. 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.

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 one 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 factors is called for profit maximization.

This objective is a favoured one for the following reasons:

1st profit is a measure of success in business. Higher the profit greater is the degree of success. 2nd profit is a measure of performance. Performance efficiency is indicated by the quantum of profit, 3rd profit making is essential for the growth and survival of any undertaking. Only profit making business can think of tomorrow and beyond. It can only 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. 4th 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 the light operational inefficiency. You cannot conceal your inefficiency, if profit is made the criterion of efficiency. 5th profit making is not a sin. Profit motive is a socially desirable goal, as long as your means are good.

However, profit maximization is net very much favoured. Certain limitations are pointed out. First, 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 the profit has to be clear. Second, profit maximization in the long-run or in the short-run is to be stated clearly. Long-run or in the short-run profit orientations differ in the 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 today 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 3 year time span given below.

Year	**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 businesses. But, evidently, unit-2 is the best of the three, followed by Unit-1 and Unit-3 in that order. Fifth, profit maximization might lead to unfair means being adopted. The 'end' through and 'means' is no good. Ethics is business dealings may be undermined any 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 sales, capacity utilization, production or capital invested. Profit when expressed in relation to the above size or scale factors it 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 = Return or Profit / 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 profit 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 unfavorable scores of this objective again are the same as those of the profit maximization objective except one aspect. 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 profit maximization goal on this score. But as other limitations continue, this objective too gets only a 'qualified' report as to 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 currents 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 bankers would help maintaining 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 the opposite directions, they are conflicting goals and have to be balanced.

Solvency Maximization

Solvency is long run liquidity. 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 a 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 is 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 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.

Minimization of Risk

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 utilisation, liquidity, solvency, market value and the like are referred to risk. Business risk and financial risk are prominent among different risks. 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 maximizing 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 reducing business risk. So, diversification of investments, as against concentration, helps in reducing business risk.

Financial risk arises when you depend more on high-geared capital structure and your cash flows and profits before interest and tax (PBJT) vary. To minimize financial risk, the quantum of debt capital be limited to the serviceable level, which depends on the minimum level of PBJT and the cash flow. Of course, debt payment scheduling and rescheduling may help in financial risk reduction and the

creditor must be agreeing 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 is 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 bankruptcy cost arises. So, debt capital has, besides the actual cost, another dimension of cost - the hidden cost. So, minimizing cost of capital means minimizing the total of actual and hidden costs.

This is a good goal. 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 heir financial pursuit, want no dilution of their enjoinment of fruits of equity ownership. Dilation takes place when you increase the capital base. By seeking debt capital control dilation is minimized. Also, by rights issue of equity dilation 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 had 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. Yes, controlling power has to be distributed. Especially, in Indian context one need not be a 51% owner to exercise full control. Even with as little as 26% or 30% equity holding maximum control can be exercised. This is bad. So, such control better is not controlled. So, there is need and score for sharing of controlling power. The present scenario is a fulfillment 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 CFi, CF_2, CFs.... CF_n, where the subscripts l,2,3...n are periods when cash flows realised. Let, the cash investment at time zero be T. The present value i.e. the discounted value of CFi, CFi, CF_3..., CF_{to} at the discount rate V is given by:

$$\sum_{t=1}^{n} CFt / (1+r)^t \text{ or}$$

$$\frac{CF}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF}{(1+r)^3} + \ldots\ldots + \frac{CF}{(1+r)^n}$$

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 inflow 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 risk is there and it is increasing witH the level of return generally. So, by ignoring risk, you cannot maximize profit for ever 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 risky 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, one is related to the other: i.e. there is the relativity criterion too. So, wealth maximization goal comes clear off all the limitations 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, therefore, a super-ordinate goal.

Maximization of economic value added

A modern concept of finance goal is emerging now, called as 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 and CCC is cost of combined capital. CCC = Interest paid on debt capital plus 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 RELATIONSHIP

Risk is the 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 mat were so, the concept of risk gets vanished. You put your money with nationalized banks in different schemes. Your return at the maximum would be 10% or so, but you are sure this return would be given to you with no drawback 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% 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% 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% return. Yes, 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 promises 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 the 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 more unproductive assets and less return. So, less risk - less return situation arises. More solvencies mean 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. Rf + Rp, where, E(R) is expected return, Rf is risk-tree return as in the case return on good bonds and Rp is risk premium, i.e. additional return expected for any additional dose of risk assumed and Rp varies with risk level.

SOURCES OF LONG-TERM FINANCE

Long-term capital is capital with maturity exceeding one year. Long-term capital 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.

Long-term sources of finance consist of ownership securities Equity shards and preference shares and creditor-ship securities (debentures, borrowing from the financing institutions and lease finance).

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 the joint stock companies. These are of two classes: Ownership securities; and Creditor-ship securities.

Ownership Securities

Ownership securities consist 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

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

Equity Shares

Equity shares are instruments to raise equity capital. The equity share capital is tie backbone of any company's financial structure. Equity capital represents ownership capital. Equity shareholders collectively own the company. They enjoy the reward 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 shareholders' liability, unlike the liability of the owner 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, iif 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 shareholders* return of income, i.e. dividend is of fluctuating character and its magnitude directly depends upon the amount of profit made by a company in a particular year.

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

Advantages of Equity Share Capital

i) Equity share capita] constitutes the 'corpus' of the company. It is the ‘heart’ to the business.

ii) It represents permanent capital. Hence, there is no problem of refunding the capita]. 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 shareholders 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 oorrowmg 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 Capial

i) Cost of issue of equity shares is high as the limited group of risK-seeking investors need to be attracted and targeted. Equity shaiv attract only those classes of investors who can take risk. Conservative and cautious investors do not to subscribe for equity issues, Su underwriting commission, brokerage costs and other issue expense are high for equity capital, raising up issue cost.

ii) The cost of servicing equity capital is generally higher than the cos' issuing preference shares or debenture since on account of higher n the expectation of the equity shareholders is also high as compared preference shares or debentures.

iii) Equity dividend is payable from post-tax earnings. Unlike intent paid on debt capital, dividend is not deductible as an expense from, profit for taxation purposes. Hence cost of equity is hi«be: Sometimes, dividend tax is paid, further rising 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 low be which leads to drastic full 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 liJcely to result in over capitalization of the company.

Preference Shares

Preference shares are those which carry priority rights in 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.

Types of Preference Shares

There are many forms of preference shares. These are:

i) Cumulative preference shares

ii) Non-Cumulative preference shares

iii) Participating preference shares

iv) Non-participating preference shares

v) Convertible preference shares

vi) Non-convertible preference shares

vii) Redeemable preference shares

viii) Non-redeemable preference shares

ix) Cumulative convertible preference shares

Cumulative and non-cumulative

In the case of cumulative preference shares, the unpaid dividend goes on accumulating until paid. The unpaid dividends on cumulative preference shares become payable out of the profit of the company in the subsequent years. Only after such arrears have been paid off, any dividend can be paid to other classes of shares. In case of non-cumulative preference shares, the right to claim dividend lapses if there is no profit in a particular year. Thus, the non-cumulative preference shareholders are not entitled to claim arrears of dividend. As a result, the dividend coupon on non-cumulative preference shares is more than that of cumulative preference shares.

Participating and non-participating

The preference shares which are entitled to participate in the surplus of profits of the company available for distribution over and above the fixed dividend are called as participating preference shares. Non-participating preference shares do not have such rights.

Convertible and convertible

Convertible preference shares are convertible into equity shares as per norms of issue and conversion. Non-convertible preference shares are not converted. Convertibility is resorted to enhance attractiveness of the instrument to prospective investors, who prefer equity to preference shares.

Redeemable and Irredeemable

Redeemable preference shares are those which can be redeemed during the life time of the company, while irredeemable preference shares can be redeemed only when the company goes for liquidation.

Cumulative Convertible

Cumulative convertible preference shares have both the features of cumulativeness of unpaid dividend and convertibility. These features make the preference shares more preferred.

Merits of Preference shares

i) The 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 ^>nly 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 many declare higher rates of dividend for the equity shareholders by trading 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 tap 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 Jower 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 future.

x) Preference shares have variety and diversity, unlike equity shares, Companies have thus flexibility in choice.

Demerits of Preference Shares

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-deductible expense.

iii) In the 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 a equity shareholders in whose hands the control is vested.

v) Preference shares have to attraction. Not even 1% of total corporate capital is raised in this form.

vi) Instead of combining the benefits of equity and debt, preference shar capital, perhaps combines the banes of equity and debt.

Debentures

A debenture is a document issued by a company as an evidence of a 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 aij 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 assets of the company.

Types of debentures

Debentures can be various types. They are:

i) Registered debentures
ii) Bearer debentures or unregistered debentures
iii) Secured debentures
iv) Unsecured debentures
v) Redeemable debentures
vi) Irredeemable debentures
vii) Fully convertible debentures
viii) Non-convertible debentures
ix) Partly convertible debentures
x) Equitable debentures
xi) Legal debentures xii) Preferred debentures
xii) Fixed rate debentures
xiii) Floating rate debentures
xiv) Zero coupon debentures
xv) Foreign currency convertible debentures

Registered debentures : Registered debentures are recorded in a^register *of* debenture-holders with full details about the number, value and types of debentures held by the debenture-holders. The payment of interest and repayment of capital is made to the debenture-holders whose names are entered duly in the register of debenture-holders. Registered debentures are not negotiable. Transfer

of ownership of these type of debentures cannot be valid unless the regular instrument of transfer is sanctioned by the Directors. Registered debentures are not transferable by mere delivery

Bearer or Unregistered debentures: The debentures which are payable to the bearer are called bearer debentures. The names of the debenture-holders are not recorded in the register of debenture-holders. Bearer debentures are negotiable. They are transferable by mere delivery and registration of transfer is not necessary.

Secured debentures: The debentures which are*secured by a mortgage or change on the whole or a part of the assets of the company are called secure,: debentures.

Unsecured debentures: Unsecured debentures are those which do not cam ... charge on the assets of the company. These are, also, known as 'naked' debentures.

Redeemable debentures: The debentures which are repayable after a certain period are called redeemable debentures. Redeemable debentures may be bullet-repayment debentures (i.e. one time be payment) or periodic repayment debentures.

Irredeemable debentures: The debentures which are not repayable during the life time of the company are called irredeemable debentures. They are also known as perpetual debentures. Irredeemable debentures can be redeemed only in the event of the company's winding up.

Fully convertible debentures: Convertible debentures can be converted intoj equity shares of the company as per the terms of their issue. Convertible debenture-holders get an opportunity to become shareholders and to take part inj the company management at a later stage. Convertibility adds a 'sweetner' to thej debentures and enhance their appeal to risk seeking investors.

Non-Convertible debentures: Non-convcnible debentures are not convertible Thev remain as debt capital instruments.

Partly convertible debentures: Partly convertible debentures appeal to investors who want the benefits of convertibility and non-convertibility in one instrument.

Equitable debentures: Equitable debentures are those which are secured by deposit of title deeds of the property with a memorandum in writing to create a charge.

Debentures: Legal debentures are those in which the legal ownership of property of the corporation is transferred by a deed to the debemure holders, security for the loans.

"Referred debentures: Preferred debentures are those which are paid first in the event of winding up of the company. The debentures have priority over other Ventures.

"Fixed rate debentures : Fixed rate debentures cany a fixed rate of interest \Now-a-days this class is not desired by both investors and issuing institutions.
"Floating rate debentures : Floating rate debentures cany floating interest rate coupons. The rates float over some bench mark rates like bank rate, LIBOR etc.

Zero-coupon debentures: Zero-coupon debentures do not carry periodic interest coupons. Interest on these is paid on maturity. Hence, these are also called as deep-discount debentures.

Foreign Currency convertible debentures: Foreign currency convertible debentures are issued in overseas market in the currency of the country where the floatation takes place. Later these are converted into equity, either GDR, .VDR or plain equity.

Merits of debentures

i) Debentures provide funds to the company for a long period without diluting its control, since debenture holders are not entitled to vote.

ii) Interest paid to debenture-holders is a charge on 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 redeemable basis, the company can avoid over-capitalisation bv refunding the debt when the financial needs are no longer felt.

v) In a period of rising prices, debenture issue is advantageous. The burden of servicing debentures, which entail 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

Demerits of Debentures

i) Debenture interest and capital repayment are obligatory payments. 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) Debenture 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 considerably. In case of such company raising funds throifgh debentures may lead to considerable fluctuations in the rate of dividend payable to the equity shareholders.

Financing through equity shares and debentures - Comparison

A company may prefer equity finance (i) if long gestation period is involved, (ii) if equity is preferred by the market forces, (iii) if financial risk perception is high, (iv) if debt capacity is low and (v) dilution of control isn't a problem or does not rise.

A company may prefer debenture financing as compared to equity shares financing for the following reasons:

i) Generally the debenture-holders cannot interfere in the management of the company, since they do hot have voting rights.

ii) Interest on debentures is allowed as a business expense and it is tax deductible.

iii) Debenture financing is cheaper since the rate of interest payable on it is lower than die dividend rate of preference shares.

iv) Debentures can be redeemed in case the company does not need the funds raised through this source. This is done by placing call option in the debentures.

v) Generally a company cannot buy its own snares but it can buy its own % debentures.

vi) Debentures offer variety and in dull market conditions only debenture; help gaining access to capital market.

Convertible Issues

A convertible issue is a bond or a share of preferred stock that can be converted at the option of the holder into common stock ot ihe same company. Once converted into common stock, the stock cannot be exchanged again for bonds or preferred stock. Issue of convertible preference shares and convertible debentures are called convertible issues. The convertible preference shares and convertible debentures are converted into equity shares. The ratio of exchange between the convertible issues and the equity shares can be stated in terms of either a conversion price or a conversion ratio.

Significance of convertible issues : The convertible security provides the investor with a fixed return from a bond (debenture) or with a specified dividend from preferred stock (preference shares). In addition, the investor gets an option to convert the security (convertible debentures or preference shares) into equiu shares and thereby 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 short with, butj market wants equity. So, convertible issues 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 dulj authorized by the articles of association of the company.

Convertible debentures: Convertible debentures provide an option to holders to convert them into equity shares during a specified period at particular price. The convertible debentures are not likely to have a goc investment appeal, as the rate of interest for convertible debentures is lesser 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 issuea By convertible debentures, a company gets relatively cheaper financial resource for business growth. Debenture interest constitutes tax deductible expenses. So, till the debentures 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.

SOURCES OF WORKING CAPITAL

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 accounts, loans and advances from directors and group companies etc. are external short-term sources. Companies can also issue debentures and invite public deposits for working capital which are external long term sources. Equity funds may also be used for working capital. 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 suppliers. 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 invoice is the basic document. In the acceptance credit system a bill of exchange is drawn on the buyer who accepts and returns the same. The bill of exchange evidences the debt. Trade credit is an informal and readily available credit facility. It is unsecured. It is 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 upto certain limit, the limit being subjected to examination and revision year after year. Interest is charged 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 setded. **Overdraft facility** is given to current account holding customers t^ overdraw the account upto 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 will the banker. This is a popular form.

Finance companies abound in the country. About 50000 companies exist at present. They provide services almost similar to banks, though not they are 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 business and trades. They change exorbitant rates of interest by very much understanding.

Public deposits are unsecured deposits raised by businesses for periods exceeding a year but not more than 3 years by manufacturing concerns and not more than 5 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% of paid up capital + free services for deposits solicited from public

is prescribed for non-banking manufacturing concerns. The rate of interest ceiling is also fixed. This form of workim capital financing is resorted to by well established companies.

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 prevail advances from customers may be insisted. In certain cases to ensure performance of contract in advance may be insisted.

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 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 usance 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 fiinds.

COST OF CAPITAL

Capital, like all resources, involves a cost. Business organizations when mobilizing capital incur cost and later when serving the capital incur servicing cost. The former known as floatation cost is one-time and includes underwriting and brokerage commission, cost of printing and selection of prospectus, financial advertisement costs, etc. Floatation. Higher the issue size less is the floatation cost varies. In boom sentiments the cost is lower and vice versa. The servicing cost is recurring and includes dividend, interest etc. paid periodically. While interest rates are fixed and payment of

interest is compulsory, dividend rates are varying and dividend payment is not a legal binding on the management. Yet, companies pay dividend lest share price shall fall. Cost of capital is computed considering the above factors. The components of cost of capital consist of risk-free rate premium for financial risk, premium for business risk and the like.

Concepts of cost of capital

There are several concepts of cost of capital. Cost of capital is the minimum return expected by investors in financial investments. The minimum return expected by debenture holders is the cost of debt, by the shareholders is the cost of equity and so on. The firm must provide this minimum return in order to motivate the public to subscribe to the debentures or shares, as the case may be. Cost of capital is the minimum return that should be earned by a business (so as to be in a position to satisfy the providers of capital). If 16% return is expected by investors in bonds of a company, the company must earn at least 16% on the funds mobilized through issue of bonds. Hence minimum return expected by investors and minimum return to be earned by a company both mean one and the same.

Cost of capital may refer to specific cost or combined cost of capital. Specific cost of capital refers to cost of each component of capital, like share capital, debt, etc. combined cost of capital is the overall cost of all funds employed by a business.

Actual and imputed cost concepts need to be looked into. Actual cost of capital refers to the out of pocket cost of capital. In the case of debentures payment of interest is an actual expenditure. So cost of debenture is generally less as to shares in the initial years dividend payment may not be there. But, a capital appreciation might be there in the stock market due to potentials of the scrip. So, equity capital in this context has an inputted

Cost of capital may be of the opportunity cost type. The retained earnings belong to shareholders but are not capitalized. Yet, they involve a cost, an opportunity cost which means what the shareholders could have earned had these been distributed as dividend or capitalized by means of bonus share issue.

Cost of capital may be marginal cost and average cost. Marginal cost is the cost of additional capital that may be raised, whereas average cost is the combined cost of total capital employed.

Cost of capital can be pre-tax or post-tax cost. Debenture interest is deducted while computing income for tax purposes. So, debentures' post-tax cost is lower than pre-tax cost. Accordingly, overall cost of capital also can be classified into pre-tax and post-tax overall cost of capital.

Cost of capital may be explicit or implicit cost. Explicit cost o capital is similar to out-of-pocket cost. It is an accounting cost. Implicit cost hidden and it may not involve actual payment and hence may not be directly accounted for.

Cost of capital may be classified into past and future costs. Post cost is irrelevant for decision making, while future cost is relevant. For funds raised already the floatation cost is a past cost, whereas future interest/ dividend commitments are future cost.

Computation of cost of capital

Now computation specific and overall cost of capital is attempted.

Cost of debt (K, or K_b)

Debt capital is a predominant method of corporate financing. Debt may be short-term or long-term debt. Short term debt takes over several forms like bank loan, bank cash credit and bank overdraft, trade credit, bill discounting, etc. The rate of interest applicable to bank loan, cash credit, overdraft and bill discounting is the pre-tax cost of those credit forms. The post tax cost of these forms of financing is obtained by multiplying pre-tax cost of capital by (1-Tax rate)

Cost of trade credit

Regarding trade credit, the supplier may prescribe a payment term such as, 5/30, net 60 days which means, a cash discount of 5% if payment is made within 30 days, else full payment by the 60th day. It means on a transaction of Rs. 100, Rs. 95 payment is enough if payment is made by 30^{th} day, otherwise Rs. 100 be paid by the 60th day. That is, failing to pay Rs. 95 by 30^{th} day entails payment of Rs. 100 by 60^{th} day, or Rs. 5 interest for 30 days, on a capital of Rs. 95. So, interest rate comes to: 100 x 5 x 360 /95 x 30 = 63%, Failing to take advantage of cash discount results in heavy interest cost. This is an opportunity cost.

Cost of Debentures

Debentures are debt instruments. These are issued by companies with interest rate coupon depending on the market rate of interest and the credit rating of the issuing company. Suppose irredeemable debentures of Rs, 100 with a coupon of 14% are issued by a company at a net

issue price of Rs. 98, The company pays 40% tax. The pre tax and post tax cost of debentures can be computed.

$$K_d \text{ (Pre-tax)} = \frac{\text{Coupon Interest}}{\text{Net Price}} \times 100 \quad \times 100 = 14.3\%$$

K_d (Post-tax) = K_d (Pre-tax) x (1-Taxrate)

= 14.3% (1 – 4)

= 8.58%

For redeemable debentures the cost of debt is computed differently. Let the net issue price be Rs. 98 and redemption price after 8 years be Rs. 102. The coupon rate is 17% p.a, then the cost of debt will be:

Actually, the above formula is an approximation of the formula:

$$K_d(\text{Pre-tax}) = \frac{\text{Annual Coupon Interest + Redemption Premium/ No. of years to redemption)}}{\text{(Issue Price + Redemption Price)/2}} \times 100$$

$$= \frac{\text{Rs. 17 + (102-98)/8}}{(98+100)/2} \times 100 = \frac{\text{Rs.17.5}}{100} \times 100 = 17.5\%$$

Actually, the above is an approximation of:

$$\text{Rs.98} = \frac{\text{Rs.17}}{(1+r)} + \frac{\text{Rs.17}}{(1+r)} + \ldots\ldots + \frac{\text{Rs.17}}{(1+r)^8} + \frac{\text{Rs.100}}{(1+r)^8}$$

Where ‘r’ is the pre-tax cost of debt This is the present value model. The general form is:

$$P = \frac{I_1}{(1-r)} + \frac{I_2}{(1+r)^2} + \frac{I_3}{(1+r)^3} + \ldots + \frac{I_n}{(1+r)^n} + \frac{A}{(1+r)^n}$$

K_d (Post-tax) = K_d (Pre-tax) (I -Tax rate)

= 17.5% (1-40%) - 17.5% (0.6)

= 10.5%

Where interest payments are made semiannuaJly or quarterly, the effective cost will be slightly higher. Assuming a semi-annual interest payment and using the present value model, the pre-tax cost of debt is the value of 'r' in the formula.

$$Rs.98 = \frac{Rs.8.5}{(1+r/2)^2} + \frac{Rs.8.5}{(1+r/2)^{16}} + \ldots\ldots + \frac{Rs.8.5}{(1+r/2)^{16}} + \frac{Rs.8.5}{(l-r/2)}$$

The general form here, is :

$$P = \frac{I}{(l-r/2)} + \frac{I_2}{(1+r/2)^2} + \frac{I_3}{(1+r/2)^3} + \ldots + \frac{I_n}{(1+r/2)^n} + \frac{A}{(1+r/2)^{2n}}$$

Cost of debt that we have seen is the explicit or out of pocket cost. There may be an implicit cost due to restrictive covenants imposed, bankruptcy cost in the event of forced winding up and so on. Explicit cost varies with credit standing and market factors. With higher credit rating, larger issue size and booming market sentiment, explicit cost decreases and vice versa.

Cost of Term Loans

The pre-tax cost of term loans is the combinational interest rate/ [The post-tax cost is pre-tax rate multiplied by (1-tax rate).

Cost of Preference Shares (Kps)

In the case of irredeemable preference shares, the cost of capital is given by

$$K_{ps} = \frac{\text{Coupon divided}}{\text{Issue Net Price}}$$

Say Rs. 200 face value preference shares carry a dividen4 rate of 1 5% p.a. Issue expenses amounted to 3%. Then the K_{ps} is :

$$\frac{Rs.30}{(Rs.200-3\%)} \times 100 = \frac{30}{194}$$

No tax benefit is available to the company on preference dividend paid. Hence 1 5 .4% is the effective cost. Sometime back dividend tax was levied. This enhanced the cost of preference share capital.

If the preference shares are redeemable preference shares, adopting the present valuation model, cost of preference share can be computed by solving for 'r' in the usual equation:

$$P = \frac{D_1}{(1+r/2)} + \frac{D_2}{(1+r/2)^2} + \ldots + \frac{D_n}{(1+r/2)^n} + \frac{A}{(1+r/2)^n}$$

Where, P = net issue price, Dl, D2, ... Dn are dividends for 1st through nth years, A = redemption price, n = number of years to maturity and r discount rate (ie., the cost of capital). An approximation for the above model is

$$K_{ps} = \frac{D + \dfrac{\text{Redemption Premium}}{\text{No. of years to maturity}}}{\text{(Issue price + Redemption price)/2}} \times 100$$

Let us take an example. Issue Price (P) = Rs. 96. Coupon dividend is 17% Redemption at a premium of 2% after 6 years. Then

$$K_{ps} = \frac{\text{Rs.17} + (102-96)/6}{(\text{Rs.}96+102)/2} \times 100 = \frac{18 \times 100}{99} = 18.2\%$$

Cost of Equity (K_e)

There are several cost models relating to equity capital. These are dividend approach, dividend plus growth approach and earnings approach. These are explained below.

D/P Approach

Dividend Approach (D/P), assumes a constant dividend per share (DPS) continually for an infinite period. Then K_e = D/P, where 'D' is the fixed [DPS and 'P' is current price. A company's equity share gives Rs. 5 dividend p.a. an infinite time to come and its price is Rs. 50 at present. Then K_e (D/P) x 100 = (5/50) x 100 - 10%. Constant dividend model is not realistic. Hence the above method lacks practical significance.

D/P + Growth Approach

Dividend plus growth (D/P + g) approach assumes a constantly ig dividend, at 'g' rate p.a. Here, K = (D_1/P) + g, where D_1 is the dividend ted one year from now, P is the current price and 'g^1 is the annual growth lividend expected to contanue infinitely.

Let's take a case. A company has declared Rs. 1.00, Rs. l.10 and Rs. 1.21 for the past three years. The current market price is Rs. 12. The cost of equity is K_e = (D_1/P) + g.

A look at the annual dividends of the past indicates a 10% in dividend. So, 'g' = 10% D_1 = Dividend one year hence = Rs. 1.21 + 10% Rs. 1.21 +.121 = Rs. 1.331. So,

$$K_e = \frac{\text{Rs.1.331}}{12} \times 100 + 10\% = 11.1\% + 10\% = 21.1\%$$

Cost of Convertible Debentures (Kcd)

Cost of convertible debentures is to be calculated adopting present value model. Present value of interest payable upto conversion and present value of shares that may be allotted on conversion should be equated to issue price of the convertible debenture. The discount rate that equates the two is the cost of convertible debenture.

A company has issued convertible debentures carrying a coupon rate of 12% p.a, at a net issue price of Rs. 90 (ie., at 10% discount). After three years each convertible debenture is to be converted into an equity share. The equity dividends for the last three years were Rs. 5, Rs, 5.50 and Rs. 6.05 and the; current market price is Rs. 80. To find the cost of convertible debenture we must know the of shares that will be given at the end of the 3rd year in lieu of the debent. That is equal to: Expected dividend 4 years hence. And this is equal to D_4 g.K-(D_l/P) + g.

Dl = dividend per share one year hence = Last year dividend growth for 1 year. Growth, g - 10% p.a (you can easily know this by a glance over the past DPS, viz., Rs. 5, Rs. 5.5 and Rs. 6.05. So, Dl = Rs. 6.05 + 10% Rs. 6.66. K_e = Rs. (6.66/Rs. 80) x 100 + 10% = 8.3% + 10% = 18.3%. Expected dividend 4 years hence = Rs. 6.05 (1 + g) 4 = Rs. 6.05 x (1.1)4 = Rs. 8.87. Value of the share at the time of conversion = 8.87 / (18.3% -10% = Rs. 8.37 / 8.3% = Rs. 107.

Now we can use the present value model to get the convertible debentures. As per the model, current net issue price is the value of future cash earnings in the form of interest for 3 years and value share receivable at the end of 3rd year from now. That is:

$$\text{Rs. 90} = \frac{I}{} + \frac{I_2}{} + \frac{I_3}{} + \frac{107}{} \quad \text{or,}$$

$$\frac{}{(1+r)} \quad \frac{}{(1+r)^2} \quad \frac{}{(1+r)^3} \quad \frac{}{(1+r)^3}$$

$$\text{Rs. 90} = \frac{\text{Rs.12}}{(1+r)} + \frac{\text{Rs.12}}{(1+r)^2} + \frac{12}{(1+r)^3} + \frac{107}{(1+r)^3}$$

where 'r' = cost of convertible debenture. We can get the value of Y by trial and error method. It may be arrived at through the approximation formula as well.

$$K_{CD} = \frac{\text{I + (Premium / No. of Years)}}{\text{Average of issue and redemption price}} \times 100 = \frac{12 + (107-90)73}{(90+107)/2} \times 100$$

$$= \frac{12 + 5.67}{98.5} \frac{17.67}{} \text{ X } 100 = \frac{17.67}{98.5} \times 100 = 18\%$$

Cost of Retained Earnings (K_r)

Retained earnings are accumulated profits and free reserves belonging to equity shareholders. Though it has no explicit cost, opportunity cost is involved. It is not cost free, though it may appear to be so. The business musi earn at least what the shareholders can earn on this sum if it is distributed as dividend. Say a company has Rs. 10,00,000 retained earnings. Assume it declares the whole sum as dividend. The shareholders receive dividends Rs. 10,00,000. But they are assessed to tax on the dividends. Let us assume the marginal rate of taxation of the shareholders is 30%. So, 30% of Rs. 10,00,000 is paid as tax. So only a sum of Rs. 7,00,000 is left with the shareholders. Let us assume they invest in various financial assets earning an overall return of 18% p.a. Cost of investment amounted to 3%. That is, of the Rs. 7,00,000, 3% is spent on incidentals to investment and that only, Rs. 6,79,000 are invested earning 18%. The return would be Rs. 1,22,220. That is, shareholders make an earning of Rs. 1,22,220 on the dividend of Rs. 10,00,000 received. If the company does not pay dividend, it must at least earn Rs. 1,22,220 on the Rs. 10,00,000 retained earnings, equal to what the shareholders can earn. This is the breakeven of parity return. The rate comes to 12.222%. So, K_r = 12.222%.

It can be calculated adopting the formula; $K_r = K_e (1\text{-}TR) (l\text{-}FC)$, where, Ke= cost of equity, or minimum return expected by equity investors, TR = marginal tax rate of shareholders and FC = floatation cost. K_r - 18% (1- 30%) (1-3%) = 18% (.7) (.97) = 12.222%.

Weighted Average Cost (Ko)

When different sources of capital are employed, overall or weighted average cost of capital can be calculated. This gives an idea about the average return that the firm must earn on its investment.

To compute the weighted average cost of capital two factors are cost of individual sources of capital. The latter has been dealt at so far. The former is a simple concept. But there are several alternatives of weights. Book weights, market weights and marginal weights are the alternative forms of weights.

Book weights method uses book weight of individual sources of capital. Book weight = book value of source divided by total book value of all; sources capital employed. Book weights are definite and historical but devoid of realism as current market values are not reflected. Hence K_0 computed on this basis may lead to deflated K_0 and investment decisions based on such K_0 may prove to be fatally wrong.

Market weights method uses market value based weights individual sources of capital. Market weight - market value of a source; capital employed divided by total market value of all sources of employed. Market weights are realistic, but subject to fluctuation. So, weight based K_0 is also fluctuating. Sometimes market values may not. known. Hence the difficulty.

Formula: $K_0 = \sum W_t K_t$, where W_t and K_t are respectively the weight and cost of the t^{th} source of capital

An example may be taken up now to further discuss KO

Source of capital	Cost	Book Value	Market Value
		Rs.	Rs
Equity share capital	18%	8,00,000	28,50,000
Retained earnings	15%	10,00,000	—
Pref. Share capital Debentures	14%		
	12%	4,00,000	4,50,000
			27,00,000
	(Tax rate 50%)	28,00,000	
		50,00,000	60,00,000

The book weight and market weight based KO values are computed below:

Source	Ko.-Book Weight (K)(Wt)	Ko.-Market Weight (K)(Wt)
Eq.share capital	18%x8/50=2.88%	18x285/600=8.55%
Retained earnings	15%x10/50=3.00%	—
Pref.share capital	14%x4/50=1.12%	14%45/600=1.05%
Debentures	6%x28/50=3.36%	6x270/600=2.70%
	K_0 10.36%	K_0 12.30%

(Post-tax K_d = 6% at 50% tax rate)

Marginal weight method becomes relevant when additional capital is raised from more than one source, If only one source is used to raise additional capital, specific cost of that source is the overall cost of marginal capital raised. In other situations using marginal weights, the marginal overall cost of capital is calculated. Acceptance or rejection of new investment proposals is done by comparing marginal rate of return of the new investment with the marginal cost of additional capital funding the investment. The marginal ROI should at least be equal to marginal K_0.

A concern is considering an investment proposal requiring an investment of Rs. 50,00,000 and promising an ROI of 14% Debt capital to the tune of Rs. 30,00,000 is available at 18% (The tax rate is 45%). Balance of capital is to be financed through retained earnings. Ke - 25%. Marginal tax rate of share holders is 20%. Floatation cost is 2%. Can the project be taken up?

Marginal cost of capital = Marginal Wt. + Marginal Wt. Cost

cost debt of retained profit

Marginal cost of debt = 18% (1-45%)= 9.9%

Marginal cost of K_r, = K_e (1-20%) (1-2%)

= 25% (0.8) (0.98) =19.6%

Overall marginal cost = ∑ marginal cost x marginal weight

= 9.9%x0.6 + 19.6%xO.4

= 5.94% + 7.84% = 13.78%

The project's ROI at 14% is greater than the marginal cost of capital at 13.72%. Hence the project may be accepted. As long as marginal ROI > MCC, that project can be taken up.

Uses of Cost of Capital:

To know whether capital has been mobilized cost effectively, cost of capital data are useful Cost of capital of firms of like nature can be compared and efficiency or inefficiency in capital mobilization can be spotted. Cost of capital is used as the acceptance - rejection criterion of investment proposals. If the return on investment is higher than the cost of capital, the proposal is to be accepted and vice versa. Cost of capital is the minimum target return that a firm must earn to remain in business. Cost of capital should be closely monitored and moderated, if need be by altering the capital structure, if possible.

LEVERAGE

Introduction:

For selecting a target debt-equity mix the firm analyses a number of factors. One such factor is leverage. Capital structure decision involves a choice between risk and expected returns. Use of more and more debt capital raises the Riskiness of the firm's earning stream but it tends to provide a higher expected rate of return to the shareholders. In this chapter, we consider the various aspects of leverage and risks in planning the capital structure of a firm.

Type of Leverage:

The term leverage in general refers to a relationship between two interrelated variables. In financial analysis it represents the influence of one financial variable over some other related financial variable. These financial variables may be costs, output, sales revenue, Earnings before interest and tax (EBIT), Earning per share (EPS) etc.

There are three commonly used measures of leverage in financial analysis. These are:

i) Operating Leverage
ii) Financial Leverage
iii) Combined Leverage

Operating Leverage

Operating leverage results when fluctuations in sales are accompanied by disproportionate fluctuations in operating profit. This is due to existence of fixed costs in the cost structure of a firm. The absence of fixed cost in the total cost structure of a firm will not lead to disproportionate change in profit due to a given change in sales. So, no fixed costs no operating leverage.

Measurement of Operating leverage:

Operating Leverage or Degree of Operating Leverage

= Contribution. ÷ Operating Profit or EBIT
= % change in operating profit ÷ % Change in sales volume

Financial Leverage:

Financial leverage indicates the effect on earning created by the use of fixed-charge securities in the capitalization plan. In other words, financial leverage results when fluctuation in EBIT is accompanied by disproportionate fluctuation in the firm's earning per shares. This is due to existence of fixed financial charges that arise out of use of fixed interest bearing securities in the capitalization plan. If a firm does accompanied by a similar change in EPS. So, no fixed financial charges no financial leverage.

Measure: Financial Leverage or Degree of Financial Leverage

= EBIT÷ (EBIT – Interest)
= (% change in EPS) ÷ (% change in EBIT)

Combined Leverage

Measuring Total Risk i.e. combined leverage

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{Contribution}}{\text{EBT}} = \text{FL} \times \text{OL}$$

A few combinations of DOL, DFL & DCL are stated below:

DOL	DFL	Combined impact or Combined Leverage
Low i.e. low fixed Cost structure	Low i.e. low level of Debt capital	It indicates that the management is taking a very cautious approach towards debt financing. It is difficult to maximise the return of the shareholders in this case. It should be avoidable.
High i.e. high fixed cost structure	High i.e. high level of debt financing	This is a very risky combination & known as high-geared combination due to high leverage. The chance of accident in this case is also very high due to much dependency on loan capital. Hence, this situation should be avoided
High	Low	In this case the high-risk situation is partly diluted as low interest of debt capital will offset the burden of fixed cost or low DFL adjust the high DOL. But aggressive debt policy cannot be

		adopted in this case & as a result the return to the shareholder is not maximized.
Low	High	This situation is ideal for return maximisation. As fixed cost is low, but high interest has maximise the return to share holders at a minimum risk.

DIVIDEND POLICY

The term 'dividend' refers to that portion of company's net earnings that is paid out to the equity shareholder (not for preference shareholders, since they are entitled to have a fixed rate of dividend). Dividend policy of a firm decides the portion of earning is to be paid as dividend to ordinary shareholders and the portion that is ploughed back in the firm for investment purpose. The total net earning of equity may be paid as dividend (100% dividend payout ratio), which may consequently result in slower growth and lower market price or a part of net earnings may be paid as dividends, higher capital gains and higher market price. When a company uses part of its net earning for dividend payment then, the remaining earning are retained. Thus, there is an inverse relationship between retained earning and payment of cash dividend –the larger the cash dividend and lesser the retention, smaller the cash dividends and larger retentions. Hence, the alternative use of net earnings or net profit dividends and retained earning are competitive and conflicting.

Dividend decision affects the value of the firm. The cash available for the payment of dividends is affected by the firm's investment decision, and financing decision. A decision, which is related to investment leads to less cash available for payment of dividends. Thus, there is a relation between investment decision and financing decision. Distribution of net earning between dividends and retention would obviously affect owner's wealth. The firm has to pay dividends to share holders if dividends lead to the maximization of wealth for them, otherwise the company should retain them for financing profitable investment opportunities.

TYPES OF DIVIDEND

Dividend division of a firm is taken after taking into consideration, its operation and financial condition. When there are variations in these conditions the firm may require to adopt the one that

is suitable for the present conditions. What are the different types of dividend policies available to the financial manager? The types of dividend policies are as follows:

Stable Dividend Policy: The term “stability” refers to the consistency or lack of variability in the stream of dividend payments. In more precise terms, stable dividend means payment of a certain minimum amount of dividend regularly. There are three distinct forms of stability, they are:

- **Constant Dividend per Share:** A company that follows this policy will pay a fixed amount per share as dividend. For example, Rs. 2 as a dividend on the face value of share of Rs. 10 each. The level of earnings would not affect this policy or the dividend payments. This type of dividend policy is more suitable for the company whose earnings are stable over a number of years. Stability of dividend does not mean stagnation in dividend payout. In fact, the prime feature of this policy is to study positive change.

- **Constant Payout Ratio:** The ratio of dividend to earning is known as payout ratio. On payout ratio. It is also known as constant percentage of net earnings. In this policy a fixed percentage of earnings are paid as dividend each year. Here the ratio is fixed or fixed constant, but dividend per share varies according to the fluctuations in the earnings. For example, if a company follows a 30 per cent payout ratio it means for everyone rupee of net earnings, Re. 0.30 paid as dividends. Assume if a company earned Rs. 10 last year and Rs. 15 in the current year. Then the dividend amount for last year is Rs. 3(10 * 30 / 100) and Rs. 4.5 (15 * 30 / 100) for the current year. The relationship of EPS and DPS is shown below

This policy is stable for a company that is not confident of getting stable earnings.

- **Stable Rupee Dividend plus Extra Dividend:** Under this policy the management fixes the minimum dividend per share to reduce the possibility of net paying dividend. An extra dividend is paid in the years of prosperity. This type of policy is more suitable to the company having minimum earnings and over the minimum, the earnings may fluctuate.

FACTORS INFLUENCING DIVIDEND POLICY

The determinants of dividend policy will vary from firm to firm. The following are the various factors that have a bearing on the dividend policy

1) **Nature of earnings:** The nature of business has an important bearing on the dividend policy. The industrial units that are having stability of earnings may formulate (adopt) stable or a more consistent dividend policy than other, which are having unstable earnings, because they can predict easily their earnings. Firms that are involved in necessities suffer less from stable incomes than the firms that are involved in luxury goods. The industries/firms that are having instable earnings should follow a variable or low dividend policy.
2) **Age of company:** The age of company has more impact on distribution of profits as dividends. A newly started and growing company may require much of its earnings for financing expansion programs or growth requirements and it may follow rigid dividend policy, where in, most of the earnings are retained while an old company. With good track record and good name in the public can formulate a clear cut and more consistent dividend policy. This type of companies may even pay 100 per cent dividend payout ratio and the required amount for growth can be raised from the Public.
3) **Liquidity position of company:** Generally dividends are paid in the form of the cash hence it entails, cash. Although a firm may have sufficient profits to declare dividends, but it may not have sufficient cash to pay dividends. Thus, availability of cash and sound liquidity of a company depends very much on the investment and financial decisions of a firm, while in turn determining the rate of expansion and the manner of financing. If cash position of a firm is weak, stock dividend will be better and if cash position is good it can go for payment of dividend by cash.
4) **Equity shareholders preference for current income:** Legally, the Board of Directors has discretion to decide the distribution of the earnings of a firm. The shareholders who are legal owners of the firm appoint the (BOD's). Hence, directors have to take into consideration owners' preference, while deciding dividend payment. Shareholders' preference for current dividends or capital gains, that is, depend on their economic status and the effect of tax differential on dividends and capital gains. When shareholders' have more preference in current dividend than capital gains, the firm may be required to follow liberal dividend policy,

on the other hand if shareholders have preferred capital gains(it may be due to tax or economically sound) than the current dividend, then the firm may be required to retain more earnings.

5) **Requirements of institutional investors:-**Institutional investors like LICs, GICs, mutual funds (UTI) have investment policy, which says that these types of institutes have to invest only in companies that have a continuous dividend payment record with stability. These purchase large blocks of shares for relatively, to hold a long period of time. Hence, they represent a significant force in the financial markets, and their demand for company's securities may increase the share price and there by owners' wealth. To attract institutional investors firms may require following stable dividend policy. Apart from theoretical postulates for the desirability of stable dividends, there are also many empirical studies, classic among being that of Lintner, to support the viewpoint that companies pursue a stable dividend policy. Most firms are in favor of stable dividend per share but they are very careful not to raise dividends per share a level that can safely be sustained in, the future. This cautious creep up of dividends per share result in, stable dividend per share pattern during fluctuating earnings per share periods, and a rising step function pattern of dividends per share during increasing earnings per share periods.

6) Legal Rules: Legal rules restrictions are significant as they provide framework within which dividend policy is formulated. In other words, dividend policy of a firm has to be evolved within the legal framework and rules and regulations. The legal rules have to do with capital impairment rule, net profits and insolvency.

- **Capital Impairment Rule:** First these provisions require that, the dividend can be paid from earnings either from current year's earnings or from past years earnings and be reflected in the earned surplus. If the firm pays dividend out of capital, that adversely affects the security of its lenders. The purpose of this rule is to protect creditors by providing sufficient equity base because they have originally relied on that base. Therefore, the financial manager should keep in mind the legal rules while declaring dividends.
- **Net Profits:** This rule is essentially a result of the earlier rule. A firm can pay cash dividends within the limits of current profits plus accumulate balance of retained earnings. According to

Sec. 205 of the Companies Act, 1956, dividends shall be declared or paid only from current profits or past profits after recovery of depreciation. But Central Government is empowered to any company to pay dividend for any financial year out of the profits of the company without providing depreciation. A firm can take profits of past year if the current year's profits are not sufficient to maintain stable dividend policy. If there are any losses that are to be carried forward, they should be set apart from current years earnings before declaration of dividends. So financial manager has to strong within the boundaries, at the same time has to consider many financial variables and constraints in deciding the amount that is to be paid as dividends.

- **Insolvency Rule:** A firm is said to be insolvent in two cases. One, in a legal sense, the recorded value of liabilities exceeding the recorded value of asset, or second, as in a technical sense, as the firm's inability to pay its creditors as obligations came due. If the firm is insolvent in either sense, it is prohibited the payment of dividends. The rationale of this rule is to protect the creditors.

7) Contractual Requirements: Generally lenders may put conditions in a bond indenture or loan agreement often includes a restriction of the payment of dividend. This is done to protect their interest when the firm is experiencing low liquidity or profitability. The restrictions may be in three forms. First, firms may be prohibited from paying dividends in excess to a certain percentage say 10%. Secondly, a ceiling in terms of net profits that may be used for dividend payment may be laid down. Say 50% of net profits or a given absolute amount of net profits can be paid as dividends. Finally, dividends may be restricted by insisting upon a minimum of earnings to be retained. Reinvestment reduces debt equity ratio, which enhances the margin of pillow for the lenders. Therefore, keeping in mind all the restrictions of lenders dividend declaration should be done.

8) Financial Needs of the Company: This is one of the key factors, which influence the dividend policy of a firm. Financial needs, means funds required for foreseeable future investment. The determined funds may be determined with the help of long-term financial forecasts. A firm that has sufficient profitable investment opportunity should follow low dividend payout ratio. On the other hand, a firm that has no profitable investment opportunities or few investment opportunities adopts high dividend payout ratio because owners' can reinvest

dividends elsewhere at higher rate of return then the firm can do, and nominal retention of profits is required to replace the modernize firm's assets.

9) Access to the Capital Market: Access to the capital market means the firms ability to raise funds from the capital market. A company, which has easy access to the capital market provides that flexibility in deciding dividend policy. Easy access is possible only to the companies that are well established and hence here a profit track record. Generally dividend policy and investment decisions are interrelated, but in this situation they are generally they are independent. The management may tempt to declare a high rate of dividend that attract investors and maintain existing shareholders.

On the other hand, a firm that has difficulty in accessing capital market to raise required funds, will not be able to pay more dividends. It has to depend on internal funds, so management should follow a conservative dividend policy by maintaining a low rate of dividend and plough back a sizeable portion of profits to face any contingency. Likewise, the lending financial institutions advance loans in stiffer terms, it may be desirable to rely on internal sources of financing and accordingly conservative dividend policy should be pursued.

10) **Control Objective:** Control over the Company is also an important factor, which influences dividend policy. When a firm distributes more earnings as dividends in the form of cash it reduces its cash position. As a result, the firm will have to issue shares to the public to raise funds required to finance investment opportunities that leads to loss of control, since, the existing shareholders will have to share control with new owners. Financing investment projects by the way of internal source avoids loss of control. Hence, if the shareholders and management of the firms are reluctant to dilution of control, thus the firm should retain more earnings for investment programmes, by following conservative dividend policy.

11) **Inflation:** Inflation is the state of economy in which the prices of products or goods have been increasing. It is a factor which that influences dividend policy indirectly. Indian accounting system is based on historical costs. The funds accumulated from depreciation may not be sufficient to replace the absolute assets or equipment, since depreciation is provided based on historical costs. Consequently, to replace assets and equipments, firm has to

depend upon retained earnings, this leads to the payment of low dividend, during inflation period.

12) Dividend Policy of Competitors: Keeping one eye on competitors' dividend policy is very important. If the firm wants to retain the existing shareholders or it want to maintain share price in the market, and if it is planning to raise funds from public for expansion programs, it has to pay dividends at par with its competitors. Hence, it is one of the factors that influence dividend policy of a firm.

13) **Past Dividend Rates of the Company:** This is the factor that influences the dividend policy of an existing company. Owners and prospective investors prefer stability in dividends. Stability of dividend means the payment of dividend regularly, at a constant dividend per share. Generally a firm tries to maintain stability in dividends that is based on past dividend rates of the company. Hence, directors will have to keep in mind the past dividends rates.

14) **Others:** Apart from the above discussed, there are some other factors, which influence dividend policy of a firm, such as trade cycles, corporate taxation policy, attitude of investors group and repayment of loan.

DIVIDEND POLICY IN RELATION TO INDIAN COMPANIES

Dividends are payments made by a company or corporation to its shareholders, usually after making profits. The company may allocate some of its profits for future business development or as reserves and pay another portion to its shareholders. There are no fixed rules for paying dividend, but it is usually the board of directors who recommend such a dividend. It could be paid quarterly, half yearly, annually or even as an interim dividend. The amount paid will be added to the recipient's total income for tax purposes.

When someone buys a stock in the market, he obviously wants to make a profit out of it. When he receives a dividend from the stock he bought, it is an additional source of profit. Not all the companies declare dividends not all the companies uniformly declare it, even if they manage to.

There is a saying in stock market language: “Never buy a stock thinking that you will get excellent dividend.” True in many cases. Past performance or dividend may not get repeated in future.

In this article let us see how a person, with about 100,000 Indian rupees of investment in April 2006, may have ended up. The selection of companies is at random and the author is no way connected with them nor has any interest or disinterest in them

DIVIDEND POLICIES

Now the dividend policies may be discussed. 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 diverse nature are available. Prominent of them are dealt with below.

Dividend policies based on form of dividend

From the point of view of form, dividend policies could be: cash dividend policy, scrip dividend policy or combined policy. Cash dividend policy stipulates that dividends are payable in cash only. This is the most predominant method. Indian laws recognize only this form as dividend. Scrip dividend policy underlies payment of dividend through issue of fully-paid-up bonus shares. Well established companies make bonus issues. Conservation of firm's liquidity, to make the balancesheet to present a realistic picture of its capital base, to widen baies in the shares market, to finance expansion programmes, to enhance 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 based 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 suggested. And its strong points are already discussed. The via media 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 divided or varying payout ratio policy, varying dividend or fixed payout ratio 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 dd 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 the DPS fluctuates. Perhaps this may be due to that 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 changing 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 other hand 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 down-swing in EPS is more or less constant, the DPS is scaled down.

When an upswing in EPS is expected to be maintained for a reasonably long time, the DPS is scaled up.

Chart 7.1

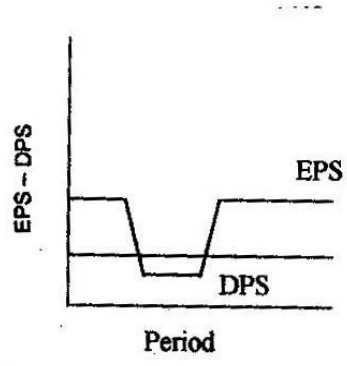
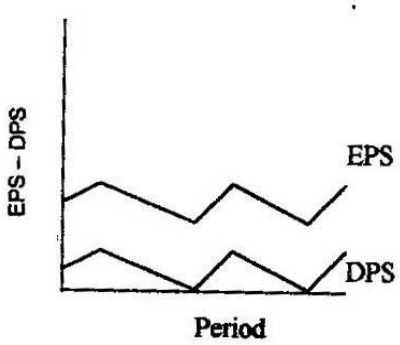


Chart 7.2



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 hill up or valley down.

Dividend policies based on timing

From the timing point of view we have regular and **irregular, interim and annual and immediate and no-immediate** dividend policies. Regular dividend policy implies that payment of dividend is a regular feature. The irregular dividend policy implies the opposite. Shareholders definitely prefer the former to the latter policy. Interim dividend policy is that the company declares dividend more man once in a year. As and when disposable profits are available dividend is declared. Annual dividend policy means that only once in a year dividend is paid Immediate dividend policy means that the company pays 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 the internal funds may be used. Cost of fresh external capital may be high and that no-dividend policy is adopted. Generally, few companies adopt this policy. But they have to be very cautious in this regard.

FACTORS INFLUENCING DIVIDEND DECISION

Scores of factors affect dividend decision. These are enumerated below with brief explanation.

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 meager profits, while one company may skip the payemnt 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 commercial sense, yet mere 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, 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 still there may be a balance in profit. Whether this residue is to remain in the Profit and Loss Account itself or any higher percentage of profit is to be transferred to reserves depends largely on the practical consideration and policy of the management. In a particular years 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) <u>Magnitude and Trend in EPS</u>

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 company 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 profit to warrant a dividend declaration, it may confront with a week 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 later case the company borrows money for the sake of pursuing regular dividend policy. At the same time, one could visualize totally a different phenomenon. There may be adequate profits and sufficiency of cash for payment of dividend. Here, the payment of dividend depends on the policy of management. The company may require funds to finance an expansion programme, and the directors 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

The impact of dividends on market price of shares, though cannot be precisely measured, still one could gauge the influence of dividend on the market price of shares. 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 few years and has plans 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 plan may lead to dilution of control of the dominating group. So, low dividend payout is favoured by Board.

vii) Type of Shareholders

When the shareholders of the company prefer current dividend rather man capital gain a high payment is desirable. This happens so, when the shareholders are in low tax brackets, they are less moneyed and require periodical income or they have better investment avenues than the company. Retired persons, economically weaker sections and similarly placed investors prefer current income i.e. dividend. If, on the other hand, majority of the shareholders are moneyed people, and want capital gain, then low payout ratio is desirable. This is known as clinentele effect on dividend decision.

viii) Industry Norms

The industry norms have to be adhered to the extent possible. It most firms in me 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 get stabilized and think of growth and expansion.

x) Investment opsportunities 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 vjce 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, that consideration is also significant.

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.

xii) Financial signaling

Dividends are the best medium to tell shareholder of better days ahead of the company. When a company enhances the target dividend rate, it overwhelmingly signals the shareholders that their company is on stable growth path. Share prices immediately react positively.

DIVIDEND THEORIES

DIVIDEND AND VALUE NEXUS

Dividend is the current return provided on share capital. Payment the rate of dividend affect market value of shares. Since wealth, i.e.. rising the market of shares, is a foremost objective agement, the impact of dividend decision on market valuation nee. Generally, regular and stable dividend has a positive effect on share profit prices. The portion of profit that is retained also affects the share price. This is an internal finance available free of floatation cost and time. This money when utilized profitability, the benefits do go the shareholders. So, retained jet share value. Hence dividend decision affects valuation of v is held by Graham and Dodd, James Walter and Myron Gordon.

Graham and Dodd would say that liberal dividends as against niggardly dividends have overwhelmingly positive effect on stock prices. Walter and observe that the firm's cost of capital, the internal rate of return, and the dividend payout ratio (i.e.. the per cent of profit paid as dividend together influence market value of shares. Modigliani and Miller would say that value of firm depends on the firm's investment decision and not on the dividend (as well as the financing decision). This view is referred to as "the dividend irrelevance" in valuation. So, the dividend-valuation nexus is yet an

DIVIDEND THEORIES

James Walter's Theory

This theory holds that market value is influenced by dividend decision. The value of the share (P) is given by:

P = [D + (E-D) r/k] » k where,

P = Price per share,
D = Dividend per share
E = Earningsp
r = internal rate
k = cost of capital and
E-D = retained earnings per share.

As per this theory, the present value of an infinite stream of D, i.e., and the present value of an infinite stream of returns from retained ings, i.e.., [(E-D)r/k]»k. constitute the value of the share. So both the dend paid and the returns from retained earnings affect share value.

The assumptions of the theory are:

a) Cost of capital (k) of the firm remains constant

b) Return on investment (f) remains constant

c) Firm has an infinite life and

d) Retained earnings are the only source of finance.

According to Walter, a company can increase its share price by declaring less dividend when its internal rate of return (r) is greater than its cost of capital (k); and by declaring more or 100% dividend when its Y is less than it 'k'. If r=k, the share value remains the same whatever the value of D. So when r>k, (here the firm is called a growth firm), less dividend or a nil payout ratio brings the optimum result. For a declining firm i.e.., when r<k, the optimal payout ratio is 100%. For a normal

firm, i.e.; when r=k, there is no optimal payout ratio, as dividend payout does not effect value of the share. Below is presented the working of Walter's model, in table below.

WALTER'S MODEL - AN EXPLANATION

Growth firm r>k	Normal firm r=k	Declining firm r<k
r = 20% k = 10% E = Rs.5	r = 20% k = 20% E = Rs.5	10% k = 20% E = Rs.5
If D = Rs.5 P = [54<5-5).2/. 1] /. 1 = Rs.50	If D = Rs.5 = [5 + (5-5).2/.2] /.2 = Rs.25	If D = Rs.5 = [5 + (5-5). I/.2] / .2 = Rs.25
If D = Rs.3 P = [3+(5-3).2/. 1] /. 1 = Rs.70	If D = Rs.3 = [3 + (5-3).2/.2] / .2 = Rs.25	If D = Rs.3 = [3 + (5-3). 1/.2] / .2 = Rs.20
If D = Rs.3 P = [0+ (5-0).2/.l] / .1 = Rs.100	If D = Rs.3 = [0 + (5-0).2/.2] / .2 =Rs.25	If D = Rs.3 = [0 + (5-0).I/.2J / .2 = Rs.12.5

From the above explanation you know that when i>k, value increases 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

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 lakhs (There is no debt capital).

Earnings of the firm Rs. 2,00,000

Dividend paid Rs. 1,50,000

Price - earnings ratio 12.5

Number of shares outstanding 20,000. The firm is expected to maintain its current rate of earnings on investment.

i) What is the value of share?

ii) What should be the price-earning ratio at which dividend payout ratio will have no effect on the value of 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 = Rs.2,00,000/20,000 = Rs,10; D = 1,50,000/20,000 = Rs.7.5,

k = inverse of price - earnings ratio - 1/12.5 - 8% and

r - earnings/capital = Rs. 2,00,000 / 20,00,000 = 10%.

$$P = \frac{7.50 + (Rs.10 - Rs.7.5) \times (10\%/8\%)}{8\%}$$

$$= \frac{7.50 + (Rs.2.5) \times (1.25)}{8\%}$$

$$= \frac{7.50 + 3.125}{8\%} = \frac{Rs.\ 10.625}{8\%} = Rs.132.81$$

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 divided payout ratio would be optimum as at this ratio, the value of the share would be maximum. This is shown in the following calculations:

$$P = \frac{0 + (Rs.\ 10 - 0) \times (10\%\ /8\%)}{8\%}$$

$$= \frac{(10)\ 1.25}{8\%} = \frac{Rs.\ 12.50}{8\%} = Rs.\ 156.25$$

ii) P/E ratio of 10 times would have no effect on the value of the share because at this rate k=10%. You know K = 1/PE Ratio - 1/10 = .1 = 10% you know r = 10%. Hence r = k.

iii) If the P/E 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

$$7.50 + (Rs.\ 10 - Rs.\ 7.5) \times (10\%\ /\ 12.5\%)$$

$$P = \frac{\text{————————————————————————}}{12.5\%}$$

$$= \frac{7.50 + (\text{Rs. } 2.5) \times (0.8)}{\text{————————————————}}{12.5\%}$$

$$= \frac{7.50 + 2.00}{12.5\%} = \frac{\text{Rs. } 9.5}{12.5\%} = \text{Rs. } 76$$

For 100% payout,

$$P = \frac{10 + (\text{Rs. } 10 - \text{Rs. } 10) \times (10\% / 12.5\%)}{12.5\%}$$

$$= \frac{10 + 0}{12.5\%} = \frac{\text{Rs. } 10}{12.5\%} = \text{Rs. } 80$$

So, 100% payout is optimal.

GORDON'S Theory

Myron Gordon's theory of share valuation using dividend capitalisation 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 ratio and rate of return and g<k

d) the firm has an infinite life and

e) there is no tax.

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 ratio

I-b = dividend payout ratio

k = cost of capital

br = growth rate (retention ratio x r)

Actually the above model is the dividend capitalisation approach which was dealt with when we studied cost of capital in an earlier lesson. Y_1 (l-b) is equal to D_1 and br = g.

(You remember we formulated there an equation, $P_0 = D_1 / (k_e-g)$ from which we deduced that, ke = $(D_1/P_0) + g$ in the lesson on cost of capital).

The nature of influence of dividend decision on the share price of growth firm, normal firm and a declining firm is dealt below under Gordon's theory, in table 7.2

GORDON THEORY - AN EXPLANATION

Growth firm	Normal firm	Declining firm
r>k	r=k	r<k
r = 20% or .2 k =10% or.l E = Rs.5	r = 20% or .2 k = 20% or .2 E = Rs.5	r =10% or.l k = 20% or .2 E = Rs.5
If D = Rs.5 i.e.., b=0 P = [5(1-0)] / [.1-0] = Rs.50	If D = Rs.5 i.e.., b=0 P = [5(1-0)] / [.2-0] = Rs.25	If D = Rs.5 i.e.., b=0 P = [5(1-0)] / [.2-0] = Rs.25
If D = 4, i.e.. b=.2 P = [5(1-.2)] / [.1-0.4] = 4/.06 = 67	If D = 4, i.e.. b=.2 P = [5(1-.2)] / [.2-0.4] = 4/.16 = 25	If D = 4, i.e.. b=.2 P = [5(1-.2)] / [.2-.02] = 4/.18 = 22
If D = 3, i.e.. b=.4 P = [5(1-.4)] / [.1-0.8] = 3/.02 = 150	If D = 3, i.e.. b=.4 P = [5(1-.4)] / [.2-0.8] = 3/.12 = 25	If D = 3, i.e.. b=.4 P = [5(1-.4)] / [.2-0.4] = 3/.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 value remains same. For the declining firm as ‘b’ increases ‘p’ decreases. All these results are on the same lines as these found with the 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 would know on comparison of the two tables 7. 1 and 7.2.

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 a lower payout ratio. 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

The following information is available in respect the rate of return on investments (r), the capitalisation rate (Ke) and earnings per share (E) of a manufacturing company:

r = (i) 12% (ii) 1 1 % (iii) 8%

Ke = 11%

E = Rs.20

Determine the value of its shares as per Gordon's model each alternative, assuming I) 10%, ii) 40% and iii) 70% payout ratios.

Solution

According to Gordon's model, the value of ^{e} ^ $_{1S}$ given by the following formula:

$$P = \frac{Y(l-b)}{K-br}$$

Alternative (i) when r = 12%

a) Payout ratio 10%; so, retention ratio 90%

br = (g) = 0.9x0.12 = 0.108

$$P = \frac{Rs.20(1-.9)}{0.11-0.108} = \frac{Rs.2}{0.002} = Rs.\ 1{,}000$$

b) Payout ratio 40%; so, retention ratio 60%

br = (g) = 0.6 x 0.12 = 0.072

$$P = \frac{Rs.20(1-.6)}{0.11-0.072} = \frac{Rs.8}{0.038} = Rs.\ 210.52$$

c) Payout ratio 72%; so, retention ratio 30%

br = (g) = 0.3 x 0.12 = 0.036

$$P = \frac{Rs.20(1-.3)}{0.11-0.036} = \frac{Rs.14}{0.074} = Rs.\ 189.19$$

Alterntive (ii) when r= 11%

a) Payout ratio 10%; so, retention ratio 90%

br = (g) = 0.9 x 0.11 = 0.099

$$P = \frac{Rs.20(1-.9)}{0.11-0.099} = \frac{Rs.2}{0.011} = Rs.\ 181.82$$

b) Payout ratio 40%; so, retention ratio 60%

br = (g) = 0.6 x 0.11 = 0.066

$$P = \frac{Rs.20(1-.6)}{0.11-0.066} = \frac{Rs.8}{0.044} = Rs.\ 181.82$$

c) Payout ratio 70%; so, retention ratio 30%

br = (g) = 0.3 x 0.11 = 0.033

$$P = \frac{Rs.20(1-.3)}{0.11-0.033} = \frac{Rs.14}{0.077} = Rs.\ 181.82$$

Alterntive (ii) when r= 10%

a) Payout ratio 10%; so, retention ratio 90%

br = (g) = 0.9 x 0.10 = 0.090

$$P = \frac{Rs.20(1-.9)}{0.11-0.090} = \frac{Rs.2}{0.02} = Rs.\ 100$$

a) Payout ratio 40%; so, retention ratio 60%

br = (g) = 0.6 x 0.10 = 0.060

$$P = \frac{Rs.20(1-.6)}{0.11-0.060} = \frac{Rs.8}{0.050} = Rs.\ 160.00$$

a) Payout ratio 10%; so, retention ratio 30%

br = (g) = 0.3 x 0.10 = 0.030

$$P = \frac{Rs.20(1-.3)}{0.11-0.030} = \frac{Rs.14}{0.080} = Rs.\ 175.00$$

Thus far, the theories that support 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 as 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 increases 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 ir 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.

MM Theory

Now the M-M theory is taken up. According to this theofy dividend - valuation nexus does not exist. Miller and Modigliani advanced their theory in 1961. 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 dividend decision is not significant in the context of ssaFe-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 follows, it makes no difference on the value of the share.

MM Prove their argument quantitatively as follows:

$$Po = \frac{1}{1+k} (D_1 + P_1) \quad \ldots(1)$$

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 year - end dividend and 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 :

$$nP_0 = \frac{1}{} [n D_1 + (n+m) P_1 - m P_1] \quad ....(2)$$

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, (nDi), i.e.., $X - n D_1$

$$\text{So, } mP_1 = I - (X - nD_1) \qquad \ldots.(3)$$

By substituting the value of mPj as in equation 3 in the equation 2 above, we get

$$nP_0 = \frac{1}{1+k}\left[nD_1 + (n+m)\,P_1 - (I-(X-nD_1))\right]$$

$$= \frac{1}{1+k}\left[nD_1 + (n+m)P_1 - I + (X-nD_1)\right]$$

$$= \frac{1}{1+k}\left[(n+m)P_1 - I + X\right] \qquad \ldots.(4)$$

In the equation (4), when 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 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 that M-M theory tells that dividend decision does not alter the value of share, unlike the case with Walter, Gordon and Graham-Dodd theories.

Illustration

A Ltd's cost of equity is 10%. Its outstanding shares is 1,00,000, valued each Rs.40. The company plans to invest Rs. 13,60,000 one year hence. Its expressed earnings is Rs.3,00,000 and likely dividend one year after is Rs.2 per share. Show dividend irrelevance as per MM theory.

Solution

$$\text{Weknow, } P_0 = \frac{1}{1+k}(P_1 + D_1)$$

$$\text{Rs.40} = \frac{1}{1+10\%}(P_1+2)$$

$$\text{Rs.40} = \frac{1}{1.1}(P_1+2)$$

$$\text{Rs.44} = P_1+2 \quad \text{or} \quad P_1 = 42.$$

Amount required for new financing = $I - (X - n D_1)$

= 13,60,000 - (3,00,000 - 2,00,000)

= 12,60,000 at 1 year end.

No. of shares needed to be issued = Rs. 12,60,000 / Rs.42 = 30,000 shares. So M = 30000. Value of the firm

$$V = nP_0 = \frac{1}{1.1}[n D_1-(n+m)P_1 - I + X - n D_1]$$

$$= \frac{1}{1.1}[2,00,000+(1,00,000+30,000)42-13,60,000+3,00,000- 2,00,000]$$

$$= \frac{1}{1.1}[2,00,000+ 54,60,000 -12,60,000]$$

$$= \frac{1}{1.1}(44,00,000) = 40,00,000$$

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 V 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 :

$$Rs.40 = \frac{P_1 + \text{zero}}{1.1} \quad \text{or } P_1 = Rs.44$$

Amount needed to finance 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:

$$\frac{\text{Rs. 10,60,000}}{\text{Rs.44}} \quad \text{Shares}$$

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 below. 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 that these 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 upto Rs. 10000 is fully exempt, whereas capital gain attracts a flat 20% tax in the case of individual assesses. So, investor preferences between dividend and capital gain differ. Sixth, investment decisions are not always rational. Some, sub-marginal 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 constrains might affect investment decisions and rationing of capital, then becomes a relevant issue as it affects the availability of funds. Eighth, in the equation (4) 'D_1' is not there. So dividend does not influence value, according to M-M. But in the equation there is P_1 which is influenced by TV as in equation (3). M-M theory is wrong on this count.

WORKING CAPITAL MANAGEMENT

INTRODUCTION

The capital required for a business is of two types. These are fixed capital and working capital. Fixed capital is meant for taking up capital expenditures while working capital is for meeting revenue expenditures. Fixed capital is the capital required for acquiring fixed assets such as land, building, plant, machinery, fixtures, fittings, etc. working capital refers to the capital (i.e. funds) needed to meet day-to-day operations of the business, like payment for purchase of raw materials, payment of wages and salaries, payment of recurring overhead expenses and so on. Forecasting and managing working capital arc somewhat more difficult than that of fixed capital. This is due to

variability and variety in respect of working capital needs of a business. Careful management of working capital is needed, for poor working capital management would lead ti> closure of business. It is said while faulty fixed capital management has lead u closure of units in 10s, faulty working capital management has lead to closure o 100s of units. Hence the significance of working capital management.

MEANING AND CONCEPTS OF WORKING CAPITAL

James C. Van Home defines working capital management as the administration of the firm's, current assets and the financing needed to support current assets. As was already referred to working capital is the day-to-day requirement of funds. For day-to-day operations, a business needs to carry certain amount of raw material of all sorts so that commencement of production is not delated (for want of raw materials), certain amount of work-in-process so that produc ion operations go smoothly, certain amount of finished goods so that supply to ».ie market is not hampered by fluctuations in production, certain amount of book debts so that sales take place continuously and certain amount of cash and bank balance for meeting daily routine payments and for providing for any unforeseen contingencies, jn other words, working capital refers to the investment in the current assets of the business. Working capital is also referred to as revolving capital as current assets and current liabilities are converted from one form to other and again converted back to original form and reconverted into other on and on. Hence it is called revolving capital or floating capital.

Concepts of Working Capital

There are several concepts of working capital- We just saw that working capital means investment in the different current assets. Here two interpretations are possible. These are: i) The value of all the current assets and ii) The value of all current assets minus the value of all current liabilities, because to the extent of current liabilities, the firm's investment in current assets stands reduced. Accordingly we have two concepts of working capital, viz., **Gross concept** and **Net concept.**

Gross working capital refers to investment in all current assets -raw materials, work-in-progress, finished goods, book debts, bank balance and cash balance. The gross concept of working

capital is significant in the context of measuring working capital needed, measuring the size of the business, continued and smooth flow of operations of the business and the like.

Net working capital refers to the excess of current assets over current liabilities. That is, value of current assets minus value of current liabilities (current liabilities include trade creditors, bills payable, outstanding expenses such as wages, salaries, dividend payable and tax payable, bank overdraft, etc.) The net concept of working capital is significant in the context of financing of working capital, the short term liquidity aspects of the business, and the like.

KINDS OF WORKING CAPITAL

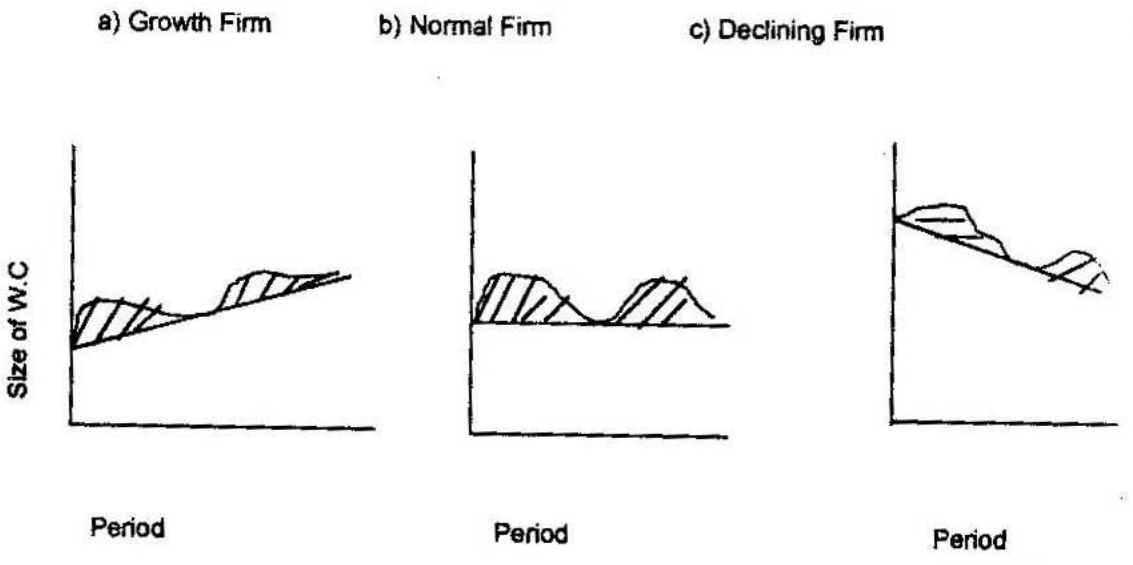
There are two kinds of working capital. These are i) permanent working capital, ii) temporary/varying working capital.

Permanent Working Capital refers to the minimum amount of all current assets that is required at all times to ensure a minimum level of uninterrupted business operations. Some minimum level of raw materials, working process, bank balance, finished goods, etc. a business has to carry all the time irrespective of the level of manufacturing/marketing operations. This level of working capital is referred to as core working capital or core current assets. Van Home defines permanent working capital as the “amount of current assets required to meet a firm's long-term minimum needs”. You should note, that the level of core current assets is not, however, a constant sum all the times. For a growing business the permanent working capital will be rising, for a declining business it will be decreasing and for a stable business it will be remaining more, or less stay-put. So permanent working capital is perennially needed one though not fixed in volume. This part of the working capital being a permanent investment, needs to be financed through long-term funds.

Temporary or varying working capital varies with the volume of operations. If fluctuates with scale of operations. This is additional working capital required during up seasons over the above the fixed working capital. During seasons more production/sales take(s) place resulting in larger working capital needs. The reverse is true during off-seasons. As seasons alternate, temporary

working capital moves up and down like tides. Van Home defines temporary working capital as the "amount of current assets that varies with seasonal requirements". Temporary working capital can be financed through short term funds, ie, current liabilities. When the level of temporary working capital moved up, the business might use short-term funds and when the level of temporary working capital recedes, the business might retire its short term loans.

Chart below gives the graphic versions of permanent and temporary working capital for growth, normal and declining firms.



et us see what is g, execution and antum of current assets, the size of individual items of current assets and the operating cycle. These may be planned, adopting any of the following approaches, viz. industry norm approach, economic mode approach and strategic choice approach.

Under the **Industry norm approach** the size and composition of current assets are determined according to the convention or norms adopted by die firms in the industry. For instance, 2 months' production requirements of raw materials, 1 month's production needs of work-in-process, 3 months' sales t'o. finished stock, 2 months' credit to customers, etc. may be norms. And yoi, follow the norms. When this approach is adopted, automatically total volume arid component size of currents assets become proportional with level of activity. But this approach is not scientific. It is a rule of thumb. But we cannot say it is a wrong course.

Under the **economic model approach,** for each item of current assets the economic lot/order size is worked out. Economic lot size is that quantity of inventory where the sum of both the costs of carrying and costs of ordering is the least. When all the optimal quantities are added up you get the optimal size of investment in current assets. This approach is good for it satisfies one criterion of efficiency of working capital management. The level of working capital should be neither too much nor too low. If it is too much, more capital is locked up and the business loses interest, incurs loss on account of obsolescence, pilferage, pays more towards storage and insurance. Perhaps more bad debts could also result. If the size is too low, there is a hand-to-mouth living. There may result some lost sales, customer dissatisfaction and desertion, haste purchases, sub-optimal production runs, etc. So; an optimal investment in current assets is needed. The economic model approach helps in finding this optional size. But this approach is based on a set of assumptions, which may render the results of the approach subject to 'ifs' and 'buts'.

In the **strategic choice approach** which is more pragmatic, the management decides the level of investment in each type of current asset case by case taking into account the cost and benefits involved. No rule of thumb or predesigned plain models are used. Managerial consideration, competitors' strategies, business exigencies and other relevant factors are used in deciding the size and components of working capital.

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 much coincide with credit period foi sales for better liquidity. These are basically three approaches to financing working capital. These are: 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 ; The former uses long term funds not only to finance permanent current assets, but also a part of temporary current assets, while the later uses short term funds to finance a part of permanent current assets. Risk preferences of management shall decide the approach to be adopted. The risk neutral will adopt the hedging approach, the risk averse 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:

Fig 3.1 : Impact of Financing Approaches

Factors	Conservative	Aggressive	Hedging
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

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 essentially 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.

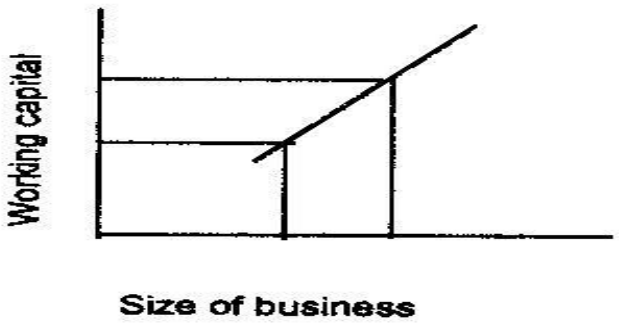
FACTORS AFFECTING WORKING CAPITAL

The level of working capital is influenced by a score effectors. In this section let us examine the influencing factors.

Nature of Business is one of the factors. Usually in trading businesses the working capital needs are higher as most of their investment is found concentrated in stock. On the other hand, manufacturing/processing business need a relatively lower (compared to that of trading business/level of working capital. The terms of 'higher' and 'lower' used above are relative and not absolute. That is, of the total capital employed in the businesses a higher or lower, as the case may be, portion is employed in current assets.

Size of Business is also an influencing factor. As size increases, an absolute increase in working capital is imminent and vice versa Chart 3.2 gives a graphic version.

Chart 3.2 : Size of business and working capital



Size of business

Credit terms are important factors affecting the size and components of workings capital. Consider these:

i) buy on credit and sell on cash, working capital is lower

ii) buy on credit and sell on credit, working capital is medium

iii) buy on cash and sell on cash, working capital is medium

iv) buy on cash and sell on credit, working capital is higher

In situation (i) referred to above it is likely, the firm has more cash and more trade creditors and in situation (iv) it might be having less cash and more trade debtors. Hence the impact of credit terms on size and composition of working capital.

Credit policy influences the working level. A liberal credit policy if adopted more trade debtors would result and when the same is tightened size of debtors gets slim.

Credit periods also inflv [i]nce the size and composition of working capital. When longer credit period is allowed to customers as against the one extended to the firm by its suppliers, more working capital is needed and vice versa In the former case, there will be a relatively higher trade debtors and in the latter there will be a higher trade creditors.

Collection policy is another influencing factor. A stringent collection policy might not only deter away some credit seeking customers, also force existing customers to be prompt in settling dues resulting in lower level of working capital. The opposite is true with a liberal collection policy.

Collection procedures do influence the level of working capital. A decentralised collection of dues from customers and centralised payments to suppliers, shall reduce the size of working capital. Centralised collections and centralised payments or decentralised collections and decentralised payments would lead to a moderate level of working capital. But with centralised collections and decentralised payments, the working capital need will be the highest.

Seasonally of production is another influencing factor. Agriculture and food/fruit processing and preservation industries have a seasonal production. During seasons when production activities are in their peak working capital need is high.

Seasonally in supply of raw materials affects the size of working capital. Industries that use raw materials which are available during seasons only, like flour and rice-milling industries, have

to buy and stock wheat, paddy, etc. They cannot afford jto buy these items in a phased way, since either supplies become tardier or prices become higher. From the point of view of quality of raw materials also, it pays to buy in bulk during the seasons. Hence the high level of working capital needed.

Seasonality of demand for finished goods is yet another factor. In the case of products like umbrella, rain-coats, text books and to some extent some of the consumer durables like textile, jewellery, etc. the demand is seasonal, climate and festival oriented. But the production has to be continuous throughout, though the off-take is skewed. There happens a pile up of finished goods, resulting in higher working capital.

Trade cycle is another influencing factor. Trade cycle refers to the periodic turns in business opportunities from extremely peak levels, via a slackening to extremely trough levels and from there, via a recovery phase to peak levels, thus completing a cycle. There are four phases of a trade cycle. These and their features are:

i) **boom period:** more business, more production, more working capital
ii) **depression period:** less business, less production, less working capital
iii) **recession period:** slackening business, stock pie-up, more working capital
iv) **recovery period:** recouping business, stock moves fast, less working capital.

Inflation has a bearing on level of working capital. Under inflationary conditions generally working capital increases, since with rising prices demand reduces resulting in stock pile-up and consequent increase in working capital.

Level of trading is another factor. There are two levels of trading, viz. over trading and under trading. Over trading means the business wants to maximize turnover with inadequate stock level, hastened production cycle and swiftest collection from debtors. Eventually the working capital will be lower. It is no good, however, for the business is starved of its legitimate working capital needs. Under trading is the opposite of over-trading. There is lethargy and overt lags. There results a higher

work-capital. This is no good either, since the working capital is not effectively utilized. It is wastage of capital.

Length of the manufacturing process is an important factor influencing the level of working capital. The time lapse between feeding of raw material into the machine and obtaining of the finished goods from out of the machine, is what is described as the length of the manufacturing process. It is otherwise known as the conversion time. Longer this time period, higher is the volume and value of work-in-process and hence higher is the working capital and vice-versa.

System of production process is another factor that has a bearing. If capital intensive, high technology automated system is adopted for production, more investment in fixed assets and less investment is current asses are involved. Also, the conversion time is likely to be lower, resulting in further drop in the level of working capital. On the other hand, if labour intensive technology is adopted less investment in fixed assets and more investment in current assets (especially work-in-progress due to inclusion of an enhanced wage component and prolonged processing) result.

Finally **rapidity of turnover** comes. There is a negative correlation between rapidity of turnover and size of working capital. When sales are fast and swift, lower is the investment in working capital. Actually stock of inventory is very minimum. But, when sales are happening far and in-between, i.e. rather slow, as in the case of jewellery, elaborate investment in working capital results. Thus faster sales lead to lower working capital and vice-versa.

CASH AND LIQUIDITY MANAGEMENT

Management of cash and liquidity is concerned with providing sufficient cash for meeting cash needs of a business as and when needed. It involves synchronizing outflows and inflows of cash. Outflows of cash are of several types. Redemption of debt, retirement of debentures, repayment of bank loans, payment of taxes, interest, dividend etc. are capital account outflows of cash. Payment of wages, for purchases, for overhead expenses, etc. are operating cash flows.

Similarly, inflows are of several types. Issue of shares and debentures, raising of debt and public deposit, receipt of dividend/interest on inter corporate investment, etc. are capital type of cash inflows; cash sales, realisation from debtors, etc. constitute operating cash inflows. A matching of cash inflows with cash outflows is essential. But this is not possible to the complete extent. So, occasionally outflows might exceed inflows resulting in cash deficiency and occasionally cash inflows may exceed cash outflows-resulting in surplus. ^Managing cash deficiency by holding reserve cash managing cash surplus by going for investment of excess cash are essent functions of cash management. Van Home defines cash management "efficient collection, disbursement and temporary investment of cash".

Objectives of Cash Management

Cash is a barren asset. Holding too much of cash involves cost. There is loss of interest. But more liquidity is there. Holding too little of cash also involves a cost as day-to-day operations may be hindered reducing liquidity. Profitability may be high as there is no idle cash. Businesses need both profitability as well as liquidity. Hence optimum cash level need to be maintained. Determining and maintaining such optimum balance of cash is the prime objective of cash management.

The objectives of cash management may be elaborated as;

i) to provide cash to meet day-to-day needs of the business.

ii) to provide'cash to meet business contingencies T.

iii) to provide cash to profit from speculative trades iv) to match inflows of cash with outflows of cash v) to tide over cash deficiency ably.

iv) to profitably employ excess cash, if any, vii) to ensure that there is neither paucity of cash nor excess cash balance.

v) to maintain good relations with bankers so that they do not hesitate to come to the help of the firm, if need be.

vi) to ensure prompt collection of dues to the firm from varied parties.

vii) I to ensure that payments are effected timely taking advantage of cash discounts, etc if that is profitable to do so.

Motives for Holding Cash

Individuals and institutions have a preference to hold cash. This is as liquidity preference, to use the language of J.M.Keynes. What are the motives behind this liquidity preference? These are given as: transaction motive, precautionary motive and speculative motive.

Transaction motive of cash holding refers to cash holding for meeting transaction needs of the business. To pay for purchases, for labour, for overheads and others, a firm needs to carry cash. Depending on the size of operation, the cash-credit composition of transactions and the like, the holding of cash for meeting transactions shall vary.

In a general sense, the main motive for holding cash is to promptly pay off creditors as and when dues to them mature for payment. This is the transaction motive. Advance retirement of debts to take advantage of cash discount, if any, allowed is another transaction motive. To make cash deposit with suppliers, to ensure uninterrupted supply cash may be needed. This is again transaction motive.

Precautionary Motive of cash holding refers to holding of cash for meeting unforeseen business contingencies. Due to a sudden pick up a demand or fall in debt collections or cash sales, or urgent expenses cash need my rise. A business must provide for such contingencies. Businesses that ar inctioning in a volatile market, that are subject to seasonal pulls and pressures, lat face fast rate of

fashion changes, that face stiff competition and the like hold ,iore cash for meeting unforeseen contingencies.

Speculative Motive of cash holding refers to cash holding to profit from price fluctuation. If prices of inputs are expected to rise in the future, a firm with strong cash base may buy now for sale later and profit thereby. Similarly, if j prices are expected to fall, a firm may short sell (selling without holding) nowj and buy later at lower price and may profit thereby. This profiteering by the by the price movement is known as speculation. Some management, especially the and cash rich do speculate and gain. It is a risky affair. So, only the able shrewd do the speculation.

Apart these liquidity motives, a firm may be required to hold as compensation balance with banks. A minimum credit balance needs to maintained in bank accounts. This is known as compensation balance, quantum of compensation balance varies with banks. Foreign and the newly formed private sector banks in India demand a high minimum credit balance in account

MANAGEMENT OF RECEIVABLES

Receivables are important current assets. Businesses have receivables, i.e., dues from credit customers. To increase sales, to earn more, to meet the competitors, to achieve break even volumes, to gain a foot hold in the market, to help the customers on whom the business fortune is intimately in nexus and to develop a strong brand, receivable, ie., credit sales, is vital. Maintaining accounts receivable involves cost. Administrative cost, capital cost, collection cost, bad-debt cost, etc., are diverse costs involved. As in any financial decision matching costs with benefits is needed here too. And what is the optimum level of accounts receivable is to be decided. Too little of accounts receivable, that is very limited credit sales reduces sales, loss of customer to the competitor's camp, reduced profit and so on. Of course no bad debt, less capital locked up in accounts receivables resulting lower capital cost etc., are benefits. But, a little more risk can be taken and profits can be inflated. Too much of accounts receivables lead to scale advantage and hence y-ore profit, but costs of added bad-debt, capital cost, etc., are involved. Perhaps by reducing accounts receivables costs can

be steeply reduced, when benefits are not similarly decreasing. Therefore optimum investment in accounts receivable has to be planned and achieved.

Credit Policy

Policy is a guide line to action. Policy establishes guideposts or limits for actions. Credit policy, therefore, refers to guidelines regarding credit sales, size of accounts receivables, etc. Credit policy has a few variables. Credit standard, credit period, credit terms and collection policies are the policy variables.

Credit standard refers to classification of customers on the basis of their credit standing and stipulation of credit eligibility of different classes of customers. The high rated customers may be extended unlimited credit, the moderate credit standing class may be extended a limited credit facility and the rest may not be given any credit facility at all. Credit period refers to how long credit, is allowed. Longer credit period might help drawing more customers and vice versa Credit terms refer to discount incentive for prompt payment. Even though a longer credit period may be allows, prompt payment by offering, cash discount can be ensured. 2/30, net 45 means, 2% cash discount for payment within 30 days, failing which full payment by the 45th day of transaction. Collection Policy refers the seriousness or otherwise with which collection is dealt with, especially the delinquent customers. It may be harsh or warm.

Credit policy can be liberal or stringent **Liberal credit policy** adopts a lenient credit standard (i.e., almost all are extended credit), longer credit period, higher cash discount for a longer entitlement period and informal and accommodative collection procedure. **Stringent credit policy** does not opposite. Both policies have advantages and accompanying costs. Hence, choice must be exercised by individual firms after assessing the net effect of liberalizing or tightening up the credit policy.

Lenient Vs. Stringent Credit Policy

An analysis of effects of lenient and stringent credit policies is depicted below in a table form.

Factors	Lenient policy	Stringent policy
Sales	More	Less
Capital locked up	More	Less
Customer base	More	Less
Competitive edge	More	Less
Profit	More	Less
Customer goodwill	More	Less
Capital cost	More	Less
Bad debt loss	More	Less
Administrative cost	More	Less
Collection cost	More	Less
Discount allowed	More	Less

Lenient credit policy enhances benefits as well as costs. Stringeni reduces both benefits and costs. Hence the problem of choice. Hence the need for detailed evaluation for decision making. Evaluation needs to be done in respect each and every credit policy variable. The same is done in the rest of this lesson.

Credit Standard

Illustration

A firm classified its customers into 4 classes-the nil risk, the less risk (1 to 2% bad debt), moderate risk (2 to 5%) and the high risk (bad-debt exceeding 5%). It extended unlimited credit for the less risk and insisted cash dealings with the rest. Its current sales (So) amdunt to Rs. 50 lakh p.a. Average collection period (ACP) is 60 days. SeHing: price and variable cost of sales (V) are Rs. 10 and Rs. 7. Cost of capital (K) is 12% p.a. The firm is considering extending credit facility to the moderate risk class, as a result of which sales will rise to Rs. 60 lakh (Sn) p.a. Bad debts which are currently 0.5% of sales will rise to 1% of sales. In the credit standard relaxation welcome?

Solution

The impact of the credit standard deviation can be studied in terms of benetfts and costs. Here, the benefit is contribution on additional sales.

C = Additional Sales x Contribution Ratio

$$(\text{Rs.60 lakh} - \text{Rs.50 lakh}) \times \frac{\text{Sales} - \text{Variable cost}}{\text{Sale}}$$

$$= \text{Rs.l01akh} \times \frac{10-7}{10} = \text{Rs.3 lakhs}$$

The additional costs are ii) cost of capital additionally locked ip and ii) additional bad debt.

Additional Cost of Capital = Addl. Capital x cost of capital

$$= \frac{(\text{Add. Sales X ACP XV})}{360} \times K$$

$$= \frac{\textbf{Rs. 10,00,000 x 60}}{}$$

360

= Rs. 14,000

Additional Bad Debt = Bad debt on proposed - Bad debt on Present policy

= (Rs. 60,00,000 X 1/100) = (Rs. 50,00,000 X 1/200)

= Rs. 60,000 -Rs. 25,000

= Rs. 35,000

The net benefit = Addl. Contribution - Addl. Capital Cost - Addl. Bad Debt

= Rs. 3,00,000 - Rs. 14,000 - Rs. 35,000

= Rs. 2,5 1,000

The credit relaxation is good for the business.

A formula approach can be adopted here.

AP = (AS X CR) - (AC X k) - ABD, where AP is change in profit, AS - change: in sales, CR - Contribution ratio, AC - Change in capital, k - cost of capital, ABD - Change in bad debts.

If AP is positive, change is advised.

Credit Period

Credit period relaxation or tightening may be effected. The effect such change in policy can be evaluated and decision taken.

Illustration

A firm is giving 2 months credit to its credit customers. It proposes to reduce the credit period to 45 days. Present sales are Rs, 60,00,000, CR is 10%, present bad debt is 1% of the sales and cost of capital is 15%. The effect of credit period contraction is expected to be a 15% fall in sales and bad debt to sales getting reduced to 0.75% of 1 %. Assess the policy.

Solution

Here the benefits are reduced capital cost and reduced bad debt; The cost is reduced contribution.

Reduced Capital Cost = (Old Capital in Receivable - New Capital inj Receivable) X K

= (S_0 X ACPo/360) - (S_n X ACP_n/360 X 45/360) X K

= (60,00,000 X 60/360) - (51,00,000 X 45/360) X 15/100

= Rs, 54,375.

(S_n = New Sales, S_0 = Old Sales, ACP_n = New Collection Period, ACP_0 - Old Collection Period)

Contribution Loss = Reduction in sales X CR

= Rs. 9,00,000X10/100

= Rs. 90,000.

Reduction in Bad debt - (S_0 X Old Bad debt ratio) - (S_n X New Bad debt ratio)

= (60,00,000 X 1/100) - (51,00,000 X 75/10,000)

60,000 - 38,250 = Rs. 21,750.

The net effect is = Benefit - Cost

= (54,375 + 21,750) - 90,000

= 76,125 - 90,000 = - Rs. 13,875.

There is reduced profit So the policy change is not good.

Credit Terms

Credit terms refer to cash discount rates, eligibility period for availing cash discount, the maximum credit period allowed and so on. Credit policy is made liberal by increasing the cash discount rate and/or lengthening the eligibility period and the same is made stringent by decreasing both the cash discount rate and time to avail the same. There are both costs and benefits in each move. Hence evaluation is to be done for each proposed move and decision taken.

Illustration

A firm is currently allowing: 2/20, net 45 days. Its current sales are Rs. 60 lakhs, 50% of accounts are cleared by 20th day, the balance on 45th day. There is no bad debt. It is considered that, a 2/30, net 45 days will boost sales to 72 lakhs and 90% sales getting collected by 30th day. A 1% bad debt on additional sales is expected. The contribution to sales ratio is 20%. The cost of capital is 20%. Ascertain the utility of the above move.

Solution

(i) Additional Contribution = Addl. S x CR - 12,00,000 x 20/100

= Rs. 2,40,000

(ii) Old ACP = 50% of 20 days + 50% of 45 days = 32.5 days,

(iii) New ACP - 90% of 30 days + 10% of 45 days = 31.5 days.

(iv) Decrease in capital locked up with old customers =

$$= 60,00,000 \times \frac{(32.5-31.5)}{360}$$

= Rs. 16,667

(v) Capital locked in Addl. S = $12,00,000 \times \frac{31.5}{360} \times \frac{80}{100}$

= Rs.84,000

(vi) Net addl. Capital locked up = Rs. 84,000 - Rs. 16,667 = Rs. 67,333

(vii) Cost of capital locked up = Rs, 67,333 x .2 = Rs. 13,467.

(viii) Discount availed earlier

= 60,00,000 x 50% x 2% = Rs. 60,000

(ix) Discount availed after policy change

= 72,00,000 x 90% x 2% = Rs. 60,000

(x) Addl. Discount now allowed

= Rs. 1,29,600-Rs. 60,000

(xi) Bad debt likely to occur

= Addl S x 1% = 12,00,000 x 1% = Rs. 12,000

(xii) Change in profit = Addl. Contribution - Addl. C x K - Addl. Discount - Bad debt

Rs. 2,40,000 - Rs. 13,467 - Rs. 69,000 - Rs. 12,000

= Rs. 1,44,933

The policy change gives a net benefit of Rs. 1,44,933 additional profit.

Collection Efforts

Collection efforts refer to the extent of seriousness of measures taken to collect dues from customers. Firms may be liberal with customers or very stringent. In the later situation each account is closely monitored, normal remainders are sent initially and if still payments do not forthcome conditional remainders are made. This would involve additional cost. There may be reduced sales too. But capital lock up will be slim and bad debts small. If a liberal attitude is adopted

bad debts and capital cost shall be higher, sales higher with reduced administrative cost Collection efforts should not be stringent nor too general. Individual cases must be considered on merits and relaxation or lightening up may be undertaken.

Illustration

A firm is thinking of tightening its collection policy. The details are: Current sales 3,60,000 units on credit. Price Rs.32 per unit. The variable and average cost per unit are Rs. 25 and Rs. 29 respectively. The ACP is 58 days with a bad debts of 3%. Collection expenses Rs. 1,00,000. A tightening of collection efforts is considered which will result in a sale contraction to 3,55,000 units, additional collection amount Rs. 2,00,000, bad debts 1% and ACP 40 days. Cost of capital 20%. Ascertain whether the tightening up is in the overall interest of the firm?

Solution

(i) Loss of contribution = Reduction in units x contribution per unit

= 5,000 x (32 - 25) = Rs, 35,000

(ii) Addl. Collection Cost = Rs. 2,00,000.

(iii) Total Cost of the Decision = (I) + (ii) = Rs. 2,35,000

(iv) Capital locked up as per Existing plan

$$\text{Existing plan} = \frac{3,60,000}{360} \times 58 \times \text{Average cost per unit}$$

= Rs. 16,82,000.

(v) Capital locked up as per New project

$$\text{New Project} = \frac{3,60,000 \times 40 \times 29}{360} \quad \frac{5,000 \times 40 \times 25}{360}$$

= Rs.l 1,60,000 - Rs. 13,900 - Rs. 11,46,100

(vi) Reduction in Capital Locked up = Rs, 16,82,000 - Rs. 11,46.100

= Rs. 5,35,900

(vii) Capital cost of Savings = Rs. 5,35,900 x .2 = Rs. 1,07,180

(viii) Reduction in bad debt

= 3% of 3,60,000 x 32 - 1% of 3,55,000 x 32

= 3,45,600- l,13,600 = Rs. 2,32,000

(ix) Total benefits of the decision = (vii) + (viii) = 3,39,180

(x) Net benefit - (ix) - (iii) - Rs. 1,04,180

The tightening of the credit collection is ;hoix'ibre advantageous to the firm.

INVENTORY MANAGEMENT

Inventory is an important current asset, the management of which is dealt now. What is inventory? What are its varieties? Inventory is the buffer between two related sequential activities. Between purchase and production, between the beginning and completion of production, and between production and marketing buffers are needed. Buffer means a cushion to fall back on. Production should not suffer due to some difficulty in purchase of raw materials. Marketing should not suffer due tg some difficulty in production. If the business has some stock of raw materials, a temporary difficulty in purchase will not effect production since the stock of raw materials can be used. If there is a stock of finished goods marketing will not be effected duetto any temporary hurdle in production. The stocks of$_r$raw materials and finished goods, therefore serve as buffers absorbing the difficulties in purchase and production respectively. So, inventory takes different forms. Stocks of raw materials, work-in-process and finished goods are prime inventory. Stocks of consumable stores (like cotton waste, lubricants,) maintenance materials (tools, jigs, etc), and packing materials are some secondary inventory. A business has to carry certain amount of inventory. Carrying too much or too

little of inventory is bad. Inventoiy management is concerned with deciding of right quantity. You will see how this right quantity is determined in the course of this lesson.

Inventory management refers to the planning and control of the size of individual items of materials that is carried on by a business. Take any business firm-trading or manufacturing. Many and diverse materials are dealt with/used by the firm. Quite a lot of money is locked up in these materials carried as stock. Several factors account for this. The nature of the business, the size of the business, the seasonality of production/consumption of the production, the seasonality of raw material availability, the terms of purchase/sale, the length of the production cycle, the dependability of transport facilities, the inventory policy of the business, the costs of emergency action courses, the lead time and the lead time consumption needs and the probabilities associated therewith etc, influence the size of inventory. To elaborate a little, trading and most manufacturing businesses, large businesses, seasonal businesses (like those in the manufacture of umbrellas, rain-coats, etc), businesses using raw materials which are available only during certain seasons (like flour mills, edible oil mills, etc), businesses which buy on cash and sell or credit terms, businesses with longer production cycle (where the time gap between beginning of production process and its completion is more), businesses with uncertain transport infrastructure, businesses pursuing cautious inventory policy (which cany more stock relative to their level of operation), businesses where emergency purchases cost heavily, and businesses with large/ fluctuating lead time and lead time requirements carry a lot more inventory than other businesses.

Well, coming back to determination of the optimum size of inventory, due regard given to all the above said factors, different questions arise. There are i) How much to order every time? ii) When to order or what is the re-order level? What should be the safety stock? What stock-out probabilities and levels are acceptable? Inventory management has to find optimal/satisfying answers to these and the size of inventory is thus determined.

The quantum of inventory carried depends on the motives of the organisation. There are principally three motives, namely, transaction motive, precautionary motive, and speculative motive. Inventory carried in order to facilitate smooth running of day-to-day operations (production and sales) comes under the first category. Inventory held to avoid slock-outs due to unforeseen

contingencies (like spurt in demand, increase in rate of usage, delay in arrival of ordered inventory, etc) comes in the second category. When excessive inventory is held taking advantage of favourable price trends in the market, such excessive inventory is called inventory held for speculative motives

Inventory requirements for meeting the transactional and precautionary needs can be planned with fair degree of accuracy given the rate of usage, lead time, the level of insurance against stock-out that is considered prudent and other relevant information. With the help of these information the maximum, minimum and reorder level of stock and the optimum quantity of stock to be ordered each time can be ascertained, the stock level and optimum order quantity plans help achieving the objective of inventory management.

Importance of inventory Management

Inventory forms a significant segment of current assets. For manufacturing businesses a chunk of their current asset is in inventory. For durable goods manufacturers work-in-process constitutes a good portion of their current assets. For trading businesses finished goods account for a good portion of current assets. In manufacturing businesses roughly 30% to 70% of current assets is in inventory of one form or the other. In trading businesses the maximum range can even approach 100% and the maximum may never fall below 50% or so. So large funds are kept invested in inventory. As these funds are not free of costs and investible funds are limited, every business has to see that it carries only just enough inventory which must ensure that:

i) the increasing demand of the customers is met,

ii) there is no lost sales (i.e., sales that could have been made but for stock availability) and there is no loss of consumer goodwill,

ii) the production operations go smoothly,

iii) there is no pile-up of stock of any item and consequent loss due to obsolescence, theft, etc, and

iv) there is no lock-up of more than adequate capital inventory.

These objectives are conflicting. The first three objectives call for more investment in inventory, while the rest pull in the opposite. Herein the management has to play its role and balance these divergent objectives and set the optimal level of investment in inventory. Hence the significance of inventory management.

Inventory Costs

There are three types of costs. These are: Ordering costs (costs associated with placing orders), cost of materials and carrying costs. Ordering costs include cost of stationery, postage, telegram, etc in placing an order, and cost of administration of the purchase organisation. Ordering costs are generally assumed to be fixed per order and directly proportional with the number of orders. Cost of materials is the purchase price, plus transport and insurance during transit. Carrying costs include space cost, storage costs, insurance, taxes, obsolescence, theft and pilferage, wastage and loss, the interest on capital locked-up, etc. If you carry more inventory all the above costs will be increasing, though not proportionally and vice versa. Besides, if you carry less inventory there are also costs like high unit price for the inherent smaller order siz^s, contribution on sales lost, cost of lost consumer patronage, and so on. Fof any given level of inventory, these three components of carrying costs are present in some proportional-mix.

Inventory management aims at reducing both the ordering cost and carrying cost. As these move in opposite directions, minimizing the total of both these costs is the crux of the whole of inventory management exercises. Economic order quantity technique of inventory management is based on this minimization effect.

Inventory Levels

Better inventory management is possible by setting inventory levels, like maximum level, reorder level and minimum level.

Maximum stock level represents the quantity of inventory beyond which the stock should never move up. Reorder level refers to the level of stock at which an order for replenishing the inventory has to be placed. Minimum level or safety level is the stock level below which the size of inventory should not normally fall. Lead time, lead time consumption and the economic order quantity (EOQ) determine these inventory levels. Lead time refers to the time lapse between order placement and receipt of goods. Lead time consumption refers to the requirement/demand during the lead time. Lead time is not a constant factor, neither lead time consumption is. So, minimum, average and maximum lead times and minimum, average and maximum lead time usage rates (per period) are found from experience. EOQ is a fixed quantity which the square root of twice the period (say a year) requirement of material times ordering cost per order divided by carrying cost of a unit of material per period (a year). You may refer to cash management, where EOQ was computed.

The different inventory levels are given by:

i) Reorder stock level = Maximum lead time x maximum usage rate

or

Minimum stock + (Average lead time X average usage rate)

ii) Maximum stock level = Reorder level + EOQ - (Minimum lead time X Minimum Usage rate)

iii) Minimum stock level = Reorder level - (Average lead time X Average Usage rate)

iv) Average stock level = Minimum level + ½ of EOQ

or

(Minimum level + Maximum level1)/2

v) Danger stock level = Minimum usage rate X Emergency lead time.

Inventory Management Techniques

Several inventory management techniques are available. The above referred to EOQ and inventory levels are themselves are some techniques of management of inventory under conditions of certainty and uncertainty. These are presented right now. Then the ABC control technique is presented.

EOQ Technique

When an organisation is operating under conditions of absolute certainty, inventory planning is relatively a simple affair. By 'conditions of certainty', it is meant that the rate of usage of or demand for the item of inventory in question is stable, the lead rime is fixed, and the supplier of the item is able to execute orders any time. When all these conditions are satisfied, it would be enough if the organisation maintains adequate inventory for its transactional needs. In other words, there is no need to hold inventory for meeting contingencies. All that it needs to do is to determine the optimum reorder quantity and the reorder-level. Under certainty business conditions there is no need to carry any safety stock at all and the minimum stock level is zero. The maximum stock level shall be equal to the reorder-quantity. To determine the optimum order quantity the costs of inventory are considered. Inventory holding involves two types of costs, namely, carrying costs and non-carrying costs. Whatever the level of inventory held there would involve certain amount of both these costs. Carrying costs refer to cost of capital locked up in inventory, space and storage, insurance, tax, etc. Non-carrying costs refer to ordering costs, lost sales, lost quantity discounts, etc. At optimum order quantity the two costs together are the minimum.

Given the total quantity needed during a certain period of time be 'A' units, the quantity to be ordered be 'Q' units each time, the cost of carrying one unit of inventory being 'C^f rupees per period and the cost of placing an order be 'O' rupees, the total carrying costs would be QC/2 and total ordering costs would be AO/Q.

At optimum order quantity the total inventory cost i.e. *(AO/Q)* -(QC/2) would be the least. By differentiating (AO/Q) + (QC/2) with respect to

quantity and setting the same as equivalent to Zero, we get —

$$-\frac{AO}{Q^2} + \frac{C}{2}$$ by putting this is equal to zero, we get Q

$$\frac{AO}{Q^2} = \frac{C}{2}$$

i.e.; $2AO = Q^2C$

i.e.; $Q^2 = 2AO/2$

i.e.; $Q = \sqrt{2AQ / C}$

Stock level techniques

When rate of usage and lead times are varying, then we say there is uncertainty (Other uncertainties like price fluctuations, seasonal factors, etc., are not considered). In such cases effective inventory management needs two factors to be satisfied, namely, investment in inventory does not exceed a certain limit and stock oat situation does not arise. In other words, the maximum stock level and minimum stock level are to be scientifically fixed taking into account various factors. In situations of this nature, the maximum, average and minimum lead times and usage rates are first computed. Then the different levels of stocr are determined.

Reorder level - Maximum lead time X Maximum usage rate

Maximum level - Recorded level + optimum order quantity -

(Minimum lead time X Minimum usage rate)

Minimum level or Safety level - Recorded level - (Average lead time X Average usage rate)

Continuing our example given in the very beginning, let us assume the following.

	Usage Rate (UR) in units	Lead Time in days (LT)
Maximum	120	11
(MAX)		
Average (AYR)	100	7
Minimum MIN)	80	5

Assuming an opening inventory of 2000 units the order schedule, usage and inventory levels, under the most pessimistic, most optimistic and most likely levels of usage rate and lead time would be as given in Table-4. In the most pessimistic situation the stock level just prior to receipt of the reorder quantity is zero, but there is no stock-out. However, as stock level approaches 'Zero' there is the potential danger of running out of stock, i.e., as it reaches the danger level, urgent measures to procure materials are called for. Investment in inventory is best utilised here. In the most optimistic case, the usage rate is less and the delivery of order quantity is most prompt, resulting in relatively maximum stock position throughout. There is more safety here, but at the same time there is piling up the stock. In the most likely situation, there is neither fasi depletion nor pile up of stock. Fair level of safety and turnover of stock are ensured.

Table 4

Details	Most pessimistic situation	Most optimistic situation	Most likely situation
1. Assumption on usage	Max. LT & Max UR	Min. LT & Min. UR	AVR.LT& AVR.UR
2. Opening Stock	2000	2000	2000
3. Less usage to reorder level	680 (reached in 5 days)	680 (reached in 8 ½ days)	680 (reached in 6.8 days)

4. Reorder level (Max.LT & Max UR) (New order is placed)	1320	1320	1320
5. Less usage- until the receipt of the ordered quantity	1320 (11 x 120)	400 (5 x 80)	700 (7 x 100)
6. Balance just prior to receipt of ordered quantity	0	920	620
7. Add: receipt of ordered quantity	1200	1200	1200
8. Present stock position	1200	2120	1820
9. Implications	Potential danger of running out of stock	Stock turn over is very small and cost of stock is more	Fail degree of usage and safety are assured
10. Time of next order	Immediate, since present stock level is below reorder level	Relatively long after since the present stock level is the maximum level	After some breathing time since we present stock lies between the recorder level and the maximum

It could be seen from the above that the end stock position is influenced by the consumption during the lead time i.e., (URXLT). In the above analysis the cases, with varying levels of consumption having different impact on the end stock. The levels of consumption could be anything given by AVR LT X, MAX UR, AVR LTXMIN UR, MAX LTXAVR UR, MAX LTXMIN UR, MIN LTXAVR UR OR MIN LTXMAX UR. But in all these cases the consumptions would fall within the limits set by the most

pessimistic and most optimistic situations. Hence, the organisation will not run out of stock, though the stock carried may be slightly excessive in certain cases.

ABC technique

Here, inventory items are analysed into three categories on the basis of total annual cost of each item. 'A' category consists of inventory items whose value outweighs their volume, i.e. value is more, several-fold, than the volume, 'C' category consists of inventory items whose volume outweighs their value, i.e. volume is more, several fold, than value. The 'B' category comes in the middle with moderate volume and moderate value. A rough and ready count puts that 'A' category accounts for 70% of value but only 10% of volume, B category accounts for about 20% of value and 20% volume and 'C' for 10% of value and 70% of volume. In the computation volume percentage different authors adopt different methods. Some count the number of items while others take head-counts of individual items.

'A' category is subjected to closer planning and control Less planning and control is attached to 'C' Regarding 'B' category a via-made course is adopted. The reasons for this are not far to seek. By closer control of 'A' category inventory costs are reduced. Table 5 gives the planning and control approaches to the different categories of inventory.

ABC CONTROL TECHNIQUE

Aspect	A Category	B Category	Category
1. Nature			
a. Total Value	High	Medium	Low
b. Volume	Low	Medium	Low
2. Order			
a. Size	Low	Medium	High
b. Number	More	Medium	Few

3. Storage			
a. Care	More	Medium	Less
b. Records	Complete	Some	Few
4. Issue			
a. Procedure	Stringent	Moderate	Lenient
b. Quantity	Low	Moderate	Large
5. Overall			
a. Planning	More	Medium	Low
b. Control	More	Medium	Low

Safety stock and stock out cost concepts

Safety stock is the minimum stock which the business must cany so that no stock-out situation arises. If the inventory levels are set and adhered to stock-out situations (i.e. out of stock positions) would not arise. But in actual practice however some organisations would like to take the risk of running out of stock, by making a trade off between the costs of stock out situations and the benefits of carrying lesser safety stock. A lesser safety stock level other than the one so far we considered may be followed by the organisation. In determining this reduced level of safety stock the costs of carrying different levels of minimum stock and the associated stock out costs are taken into account. The least cost alternative is chosen.

Principally there are two methods of calculating the optimum safety stock level. The first method assumes a fixed amount of stock out cost irrespective of the level of shortage in stock and the second method assumes a varying amount of stock out cost depending on the extent of shortage in stock. The two methods are adopted here. With hypothetical figures the "modus operandi' of the two methods is explained. Curiously enough almost similar results are obtained, though the results need not necessarily be so.

Computation of stock-out cost and determination of optimal stock

In method I the stock out costs are computed by taking into account the probabilities of stock-out at different levels of safety stock and the cost of stock out. The stock out cost is assumed to be constant. The probability times the stock out cost gives the expected stock out cost. The logic of the assumption that stock-out cost is constant per occurrence is maintained here since the efforts involved to replenish stock in the case of run-out situation are same irrespective of the quantity of shortage assuming that perfect market conditions are prevailing. Here with a hypothetical stock-out cost of Rs. 40,000 per occurrence and with a probability distribution as given in Table 6.

TABLES 6

UNIT AND STOCK OUT COST PER OCCURANCE Rs. 46000

Safety Stock (S)	Probability of stock-out (P)	Carrying cost (SXRs.20) (Rs.)	Expected stock out cost (PXRs.40000) (Rs.)	Total cost (Rs.)
620	0.0	12400	0	12400
500	0.03	10000	1200	11200
400	0.07	8000	2800	10800
300	0.13	6000	5200	11200
200	0.19	4000	7600	11600
100	0.25	2000	10000	12000
0	0.33	0	13200	13200
1.00				

The expected stock-out costs for different alternative levels of safety stock are computed in Table 6. T^e- least cost safety stock level is 400 units.

Method II assumes that stock-out costs vary with the quantity of stock-out and the probability of stock-out situations given the safety stock. The quantity of stock-out is equal to the excess of consumption during lead time over i the normal consumption and the safety stock held. The

point to be noted here is that safety stock is held tameet the excess in consumption over and above the normal consumption. In other words enough stock to meet normal consumption is always to be carried on and this stock is distinct from the safety stock. We have to consider an example here. Let the rates of usage and lead time with their probability factors as under.

Consumption				**Lead time**
	Units per day	Probability	Days	Probability
Maximu m	120	.2	11	.25
Normal	100	.6	7	.5
Minimum	80	.2	5	.25

Note that the usage and lead times are the same as those used in an earlier section of the lesson. The only addition is the probability factor. In table 7 the extent different safety stock levels, corresponding reorder point, lead time inventory requirement, extent of stock out and probability of stock out are given.

TABLE 7

EXTENT AND PROBABILITY OF STOCK-OUT

Safety stock (S)	Corresponding reorder point = (700+S)	Lead time requirement (Cases exceeding Col. 2 only)	Extend of Stock-out	Probability of Stock-out
620	1320	Nil	Nil	-
500	1200	1320	120	.05
400	1100	1320	220	.05
300	1000	1320	320	.05
		1100	100	15

200	900	1320	420	.05
		1100	200	.15
100	800	1320	520	.05
		1100	300	.15
		880	80	.05
		840	40	.1
0	700	1320	620	.005
		1100	400	.15
		880	180	.05
		840	140	.1

When the reorder point is fixed at 1320 units (i.e. normal consumption during normal lead time + Full safety stock level = 700 + 620 units) there is no stock-out at all, as it should be. When the reorder point is fixed at 1200 units (i.e. normal usage 700 -f reduced Safety stock, 500), the stock-out will be to the extent of 120 units with a joint probability of .05, i.e. .2 X .25. With successive lesser safety stock, different levels of stock out arises with different joint probability factors. Table 7 gives these figures in detail.

Now the cost of stock out has to be ascertained. The stock out cost per unit of shortage may be taken as Rs. 200. It may be noted that stock-out cost per unit shortage is more since a shortage in stock even by one unit causes stoppage of production, loss of customer goodwill, closure and resetting of production, and so on. Fixed expenses cannot be cut, though no utility is derived from them during the period. Hence stock-out cost per unit of shortage is much more than the cost of a unit of inventory. In manufacturing undertakings this is largely the case. In trading concerns the stock-out costs may be lower.

Table 8 gives the cost of different alternative levels of safety stock. The expected stock-out, the probability and stock-out cost per unit, viz., Rs. 200. Of these three factors, the first and

second are in Table 7 and the third one is assumed. The summarised values are given in Table 8. The carrying costs are obtained as usual, namely Safety Stock X Rs. 20. The least cost alternative is found to be 400 units of safety stock. In the first method also we got the same result, though the two approaches may differ in the results.

TABLES 8

COST COMPUTATION FOR DIFFERENT LEVELS OF SAFETY STOCK

Safety Stock (S)	**Expected Stock-out cost (Rs.)**	**Carrying cost (SXRs.20) (Rs.)**	**Total**
620	0	12400	12400
500	1200	10000	11200
400	2200	8000	10200
300	6200	6000	12200
200	10200	4000	16200
100	15800	2000	17800
0	22800	0	22800