ADVANCED FINANCIAL MANAGEMENT **14MBAFM304**

No. of Lecture Hrs/week: 04 Exam Hrs. 03
Total No. of Lecture Hrs. 56 IA Marks: 50
Practical Component: 01 Hr/ Week Exam Marks: 100

Syllabus

MODULE 1

Working capital management

Determination of level of current Assets Sources for financing working capital. Bank finance for working capital (No problems on estimation of working capital) Working capital financing: Short term financing of working capital, long term financing of working capital. Working capital leverages

MODULE 2

Cash Management

Forecasting cash flows – Cash budgets, long-term cash forecasting, monitoring collections and receivables, optimal cash balances – Baumol model, Miller-orr model, and stone model. Strategies for managing surplus fund.

MODULE 3

Receivables Management

Credit management through credit policy variables, marginal analysis, and Credit evaluation: Numericalcredit scoring and discriminate analysis. Control of accounts receivables, Factoring.

MODULE 4

Inventory Management

Determinations of inventory control levels: Ordering, reordering, danger level. EOQ model. Pricing of raw material. Monitoring and control of inventories, ABC Analysis.

MODULE 5

Capital structure decisions

capital structure & market value of a firm. Theories of capital structure – NI approach, NOI approach, Modigliani Miller approach, traditional approach. Arbitrage process in capital structure. Planning the capital structure: EBIT and EPS analysis. ROI & ROE analysis. Capital structure policy.

MODULE 6

Dividend policy

Theories of dividend policy: relevance and irrelevance dividend decision. Walter‟s & Gordon‟s model, Modigliani & Miller approach. Dividend policies – stable dividend, stable payout and growth. Bonus shares and stock split corporate dividend behavior. Legal and procedural aspects of dividends Corporate Dividend Tax**.**

MODULE 7

Special issues in financial management

Corporate financial modelling Agency problem and consideration. Effect of inflation on Asset value, firm value, returns Financial planning – Basis of financial planning, sales forecast method, pro-forma P & L account method, pro-forma balance sheet method, determination of External Financing Requirement (EFR).

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Module-1
Working Capital Management

One of the most important areas in the day to day management of the firm is the management of working capital. Working capital refers to the funds held in current assets. Current assets are essential to use fixed assets. The requirements for current assets are usually greater than the amount of funds available through current liabilities

OPTIMUM INVESTMENT

The importance of adequate working capital can never be over emphasized. A firm has to be very careful in estimating its working capital. The effective management of working capital is the primary means of achieving the firm's goal of adequate liquidity. A very big amount of working capital would mean that the firm has idle funds. This results in over capitalization. Over capitalization implies that the firm has too large funds for its requirements, resulting in a low rate of return. If the firm has inadequate working capital, it is said to be undercapitalized. Such a firm runs the risk of insolvency. Shortage of working capital may lead to a situation where the firm may not be able to meet its liabilities. Hence it is very essential to estimate the requirements of working capital carefully and determine the optimum level of investment in it. At the optimum level of working capital the profitability will be maximum.

Concepts of working capital

Gross Working Capital:

The Gross working capital refers to investment in all the current assets taken together. Current assets are the assets which can be converted into cash within an accounting year or operating cycle and include cash, short-term securities, debtors, bills receivable and inventory.

2. Net working Capital:

The term 'net working capital' refers to excess of total current assets over total current liabilities. Current liabilities are those claims of outsider's which are expected to mature for payments within an accounting year and include creditors, bills payable and outstanding expenses. Networking capital can be positive (CA>CL) or negative (CA< CL). Net working capital is that position of current assets which is financed with the long term funds.

Need for working capital management

- In a typical manufacturing firm, current assets exceed one-half of total assets.
- Excessive levels can result in a substandard Return on Investment (ROI).
- Current liabilities are the principal source of external financing for small firms.
- Requires continuous, day-to-day managerial supervision.
- Working capital management affects the company's risk, return, and share price.

Importance

A firm needs funds for its day to day running. Adequacy or inadequacy of these funds would determine the efficiency with which the daily business may be carried on. It is to be ensured that

the amount of working capital available within the firms is neither too large nor too small for its requirements.

For the following reasons working capital should be adequate.

- To meet the short term obligations.
- To avail the market opportunities such as purchase of raw materials at the lowest price, with discount etc.
- To enable the firm to operate more efficiently and meet the raising turnover thus peak needs can be taken care off.
- To enable the firm to extend favourable credit terms to the customers.

Optimum working Capital

Current ratio, with acid test ratio to supplement it, has traditionally been considered the best indicator of the working capital situation.

A current ratio of 2 for a manufacturing firm implies that the firm has an optimum account of working capital.

This is supplemented by the Acid Test Ratio which should be at least one.

It is considered that there is a comfortable liquidity position if liquid current assets are equal to current liabilities.

Optimum working capital can be determined only with reference to the particular circumstances of a specific situation.

In a firm where the inventories are easily saleable and the sundry debtors are as good as liquid cash, the current ratio may be lower than 2 and yet firm may be sound. An optimum working capital ratio dependent upon the business situation as such, and the nature and composition of various current assets.

WORKING CAPITAL CYCLE

The working capital cycle/ Operating cycle refers to the length of time between the firms paying cash for materials etc., entering into the production process/inventory and the inflow of cash from sale of finished goods.

PHASES OF WORKING CAPITAL

The operating cycle (working capital cycle) in a manufacturing firm consists of the following events, which continues throughout the life of business.

Conversion of cash into raw materials

Conversion of raw materials into work in progress

Conversion of working progress into finished goods

Conversion of finished goods into accounts receivable through sales

Conversion of account receivable into cash (OR finished good into cash in the case cash sales)

The duration of the Gross operating cycle for the purpose of estimating working capital is equal to the sum of the durations of each of above said events. Net operating cycle is calculated as Gross operating cycle less the credit period allowed by the suppliers.

Types Of working Capital

From the point of view of time, the term working capital can be divided into two categories:

1. Permanent working capital:

It is that minimum level of investment in the current assets that is carried by the firm at all times to carryout minimum level of its activities. It also refers to the Hard core working capital.

2. Temporary working capital:

It refers to that part of total working capital, which is required by a business over and above permanent working capital. It is also called as variable or fluctuating working capital. Since the volume of temporary working capital keeps on fluctuating from time to time, according to the business activities it may be financed.

Hedging (or Maturity Matching) Approach

A method of financing where each asset would be offset with a financing instrument of the same approximate maturity

Financing Needs and the Hedging Approach

Fixed assets and the non-seasonal portion of current assets are financed with long-term debt and equity (long-term profitability of assets to cover the long-term financing costs of the firm).

Seasonal needs are financed with short-term loans (under normal operations sufficient cash flow is expected to cover the short-term financing cost).

- Self-Liquidating Nature of Short-Term Loans
- Seasonal orders require the purchase of inventory beyond current levels.
- Increased inventory is used to meet the increased demand for the final product.
- Sales become receivables.
- Receivables are collected and become cash.
- The resulting cash funds can be used to pay off the seasonal short-term loan and cover associated long-term financing costs.
- Risks vs. Costs Trade-Off (Conservative Approach)

<u>Long-Term Financing Benefits</u>

Less worry in refinancing short-term obligations
Less uncertainty regarding future interest costs

Long-Term Financing Risks

Borrowing more than what is necessary, Borrowing at a higher overall cost

Comparison with an Aggressive Approach

Short-Term Financing Benefits

Financing long-term needs with a lower interest cost than short-term debt

Borrowing only what is necessary

Short-Term Financing Risks

Refinancing short-term obligations in the future

Uncertain future interest costs

Result

Manager accepts greater expected profits in exchange for taking greater risk.

Combining Liability Structure and Current Asset Decisions

- The level of current assets and the method of financing those assets are interdependent.
- A conservative policy of "high" levels of current assets allows a more aggressive method of financing current assets.
- A conservative method of financing

  (all-equity) allows an aggressive policy of "low" levels of current assets.

Module-2
Cash Management

Cash management refers to a broad area of finance involving the collection, handling, and usage of cash. It involves assessing market liquidity, cash flow, and investments.

In banking, **cash management**, or **treasury management**, is a marketing term for certain services related to cash flow offered primarily to larger business customers. It may be used to describe all bank accounts (such as checking accounts) provided to businesses of a certain size, but it is more often used to describe specific services such as cash concentration, zero balance accounting, and automated clearing house facilities. Sometimes, private banking customers are given cash management services. Financial instruments involved in cash management include money market funds, treasury bills, and certificates of deposit

Baumol model of cash management helps in determining a firm's optimum cash balance under certainty. It is extensively used and highly useful for the purpose of cash management. As per the model, cash and inventory management problems are one and the same.

William J. Baumol developed a model (The transactions Demand for Cash: An Inventory Theoretic Approach) which is usually used in Inventory management & cash management. Baumol model of cash management trades off between opportunity cost or carrying cost or holding cost & the transaction cost. As such firm attempts to minimize the sum of the holding cash & the cost of converting marketable securities to cash.

Relevance

At present many companies make an effort to reduce the costs incurred by owning cash. They also strive to spend less money on changing marketable securities to cash. The Baumol model of cash management is useful in this regard.

Use of Baumol Model

The Baumol model enables companies to find out their desirable level of cash balance under certainty. The Baumol model of cash management theory relies on the trade off between the liquidity provided by holding money (the ability to carry out transactions) and the interest foregone by holding one's assets in the form of non-interest bearing money. The key variables of the demand for money are then the nominal interest rate, the level of real income which corresponds to the amount of desired transactions and to a fixed cost of transferring one's wealth between liquid money and interest bearing assets.

Assumptions There are certain assumptions or ideas that are critical with respect to the Baumol model of cash management:

- The particular company should be able to change the securities that they own into cash, keeping the cost of transaction the same. Under normal circumstances, all such deals have variable costs and fixed costs.
- The company is capable of predicting its cash necessities. They should be able to do this with a level of certainty. The company should also get a fixed amount of money. They should be getting this money at regular intervals.
- The company is aware of the opportunity cost required for holding cash. It should stay the same for a considerable length of time.
- The company should be making its cash payments at a consistent rate over a certain period of time. In other words, the rate of cash outflow should be regular.

Equational Representations in Baumol Model of Cash Management:

- Holding Cost = k(C/2)
- Transaction Cost = c(T/C)
- Total Cost = k(C/2) + c(T/C)

Where T is the total fund requirement, C is the cash balance, k is the opportunity cost & c is the cost per transaction.

Limitations of the Baumol model:
1.It does not allow cash flows to fluctuate.
2. Overdraft is not considered.
3. There are uncertainties in the pattern of future cash flows.

The Miller - Orr Model

The Miller-Orr Model provides a formula for determining the optimum cash balance (Z), the point at which to sell securities to raise cash (lower limit L) and when to invest excess cash by buying securities and lowering cash holdings (upper limit H).

Depends on:

- Transaction costs of buying or selling securities
- Variability of daily cash (incorporates uncertainty)
- Return on short-term investments

The Miller-Orr model

- Target Cash Balance (Z)

where: TC = transaction cost of buying or selling securities

V = variance of daily cash flows

r = daily return on short-term investments

L = minimum cash requirement

The upper limit for the cash account (H) is determined by the equation:

H = 3Z - 2L

where:

Z = Target cash balance

L = Lower limit

Managing Cash Balances

- Safety
- Liquidity
- Maximize pool of funds available for investment
  - Concentration Accounts
  - Zero-balance accounts
- Highest yield

Controlling Cash Collection & Disbursement

- Dual responsibility
- Receipts maintained in a location separate from cash & checks
- Certification of vouchers

Cash Budgeting

Properly preparing your cash budget will show how cash flows in and out of your business. Also, it may then be used in planning your short-term credit needs. In today's financial world, you are required by most financial institutions to prepare cash budgets before making capital expenditures for new assets as well as for expenditures associated with any planned expansion. The cash budget determines your future ability to pay debts as well as expenses. For example, preliminary budget estimates may reveal that your disbursements are lumped together and that,

with more careful planning, you can spread your payments to creditors more evenly throughout the entire year. As a result, less bank credit will be needed and interest costs will be lower. Banks and other credit-granting institutions are more inclined to grant you loans under favorable terms if your loan request is supported by a methodical cash plan. Similarly, businesses that operate on a casual day-to-day basis are more likely to borrow funds at inopportune times and in excessive amounts. Without planning, there is no certainty that you will be able to repay your loans on schedule. However, once you've carefully mapped out a cash budget, you will be able to compare it to the actual cash inflows and outflows of your business. You will find that this comparison will go a long way in assisting you during future cash budget preparation. Also, a monthly cash budget helps pinpoint estimated cash balances at the end of each month which may foresee short-term cash shortfalls.

Cash budgeting is a continuous process that can be checked for consistency and accuracy by comparing budgeted amounts with amounts that can be expected from using typical ratios or financial statement relationships. For example, your treasurer will estimate the payments made to your suppliers of merchandise or materials, the payments to employees for wages and salaries, and the other payments that you are obligated to make. These payments can be scheduled by dates so that all discounts will be taken, and so that no obligation will be overlooked when it comes due. Cash collections from customers can also be estimated and scheduled by dates along with other expected cash receipts. With careful cash planning, you should be able to maintain a sufficient cash balance for your needs and not put yourself in the position of holding excessive balances of nonproductive cash. In the normal course of operations in a merchandising business, for example, merchandise is purchased and sold to customers who eventually pay for the merchandise sold to them. Usually there is a time lag in business operations. It may be necessary to pay the suppliers for merchandise before the merchandise is sold to the customers. Before and during a busy selling season the demand for cash may be higher than the inflow of cash from operations. In this case it may be necessary to arrange short-term loans. When the selling season is over, cash collections from customers will be relatively large and the loans can be paid off.

Module-3
Receivables management

An asset designation applicable to all debts, unsettled transactions or other monetary obligations owed to a company by its debtors or customers. Receivables are recorded by a company's accountants and reported on the balance sheet, and they include all debts owed to the company, even if the debts are not currently due

Objective: the objective of receivables management is "to promote sales and profits until that point is reached where the return on investment in further funding receivables is less than the cost of funds raised to finance that additional credit (i,e, cost of capital):

Costs: the major categories of costs associated with the extension of credit and accounts receivable are: (i) collection cost (ii) capital cost (iii) delinquency cost and (iv) default cost

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

Delinquency cost: is cost arising out of failure of customers to pay on due date.

Default cost: are the overdue that cannot be recovered

Receivables management

Apart from the costs, another factor that has a bearing on accounts receivable management is the *benefit* emanating from credit sales.

The *benefits* are *the increased sales* and *anticipated profits* because of a more liberal policy

Accounts receivable management should aim at a trade-off between profit (benefit) and risk (cost). That is to say, the decision to commit funds to receivables (or the decision to grant credit) will be based on a comparison of the benefits and costs involved, while determining the optimum level of receivables.

The costs and benefits to be compared are marginal costs and benefits. The firm should only consider the incremental (additional) benefits and costs that result from a change in the receivables or trade credit policy. Despite uncontrollable factors that are bound to be, a firm can improve its profitability through a properly conceived trade credit policy or receivables management.

The firm's objective with respect to receivables management is not merely to collect receivables quickly, but attention should also be given to the benefit-cost trade-off involved in the various areas of accounts receivable management. The first decision area is credit policies.

The credit policy of a firm provides the framework to determine (a) whether or not to extend credit to a customer and (b) how much credit to extend. The credit policy decision of a firm has two broad dimensions (i) credit standards and (ii) credit analysis. A firm has to establish and use standards in making credit decisions, develop appropriate sources of credit information and methods of credit analysis.

Credit standards are basic criteria/minimum requirement for extending credit to a customer. The trade-off with reference to credit standards covers (i) collection costs (ii) the average collection period/cost of investment in accounts receivable(iii)level of bad debt losses and (iv) level of sales. These factors should be considered while deciding whether to relax credit standards or not. If standards are relaxed, it means more credit will be extended while if standards are tightened, less credit will be extended.

Credit analysis: besides establishing credit standards, a firm should develop procedures for evaluating credit applicants. The second aspect of credit policies of a firm is credit analysis and investigation. Two basic steps are involved in the credit investigation process (a) obtaining credit information and (b) analysis of credit information. It is on the basis of credit analysis that the decisions to grant credit to a customer as well as the quantum of credit would be taken.

Credit management

The important dimensions of a firm's credit policy are :

Credit policy variables:
Credit period
Cash discount
Collection effort
Credit standards
These variables are related and have a bearing on the level of sales, bad debt loss, discounts taken by customers and collection expenses

Credit standards

A firm has a wide range of choice in setting standard to be applied in accepting or rejecting an account for credit granting.

- At one end of the spectrum it may decide not to extend credit to any customer, however strong his credit rating may be
- At the other end, it may decide to grant credit to all customers irrespective of their credit rating.
- Between these two extreme positions lie several possibilities, often the more practical ones

In general, liberal credit standards tend to push sales up by attracting more customers. This is, however, accompanied by higher incidence of bad debt loss, a larger investment in receivables, and a higher cost of collection.

Stiff credit standards have the opposite effects. They tend to depress sales, reduce the incidence of bad debt loss, decrease the investment in receivables and lower the collection cost. the effect of relaxing the credit standards on residual income (income left after providing for the cost of capital) may be estimated as follows:

$\Delta RI = [\Delta S(1\text{-}V) - \Delta S\ bn](1\text{-}t) - k\ \Delta I$

ΔRI = change in residual income

ΔS = increase in sales.

V = ratio of variable costs to sales

bn = bad debt loss ratio on new sales

t = corporate tax rate

k = post-tax cost of capital

ΔI = Increase in receivables investment

$$\Delta I = \frac{\Delta S}{360} \text{ X ACP X V}$$

where $\frac{\Delta S}{360}$

average daily change (increase) in sales. The divisor here can with equal justification be 365, rather than 360;

ACP = Average collection period

$\Delta S(1\text{-}V)$ measures the increase in gross profit i.e. sales minus variable cost also referred to as contribution on account of incremental sales;

$\Delta S\ bn$ reflects the bad debt loss on incremental sales and

$\Delta S(1\text{-}V) - \Delta S\ bn](1\text{-}t)$ represents the post-tax operating profit arising from increase in sales after considering bad debt losses and

$k\ \Delta I$ measures the post-tax opportunity cost of additional funds locked in receivables.

The current sales of Pionee5 Company are Rs.100 million. The company classifies its customers into 4 credit categories. 1 through 4. Credit rating diminishes as one goes from category 1 to category 4. (Customers in category 1 have the highest credit rating and customers in category 4 have the lowest credit rating).

Pioneer presently extends unlimited credit to customers in categories 1 and 2, limited credit to customers in category3, and no credit to customers in category 4. As a result of this credit policy, the company is foregoing sales to the extent of Rs.10 million to customers in category 3 and Rs. 10 million to customers in category 4. The firm is considering the adoption of a more liberal credit policy under which customers in category 3 would be extended unlimited credit and customers in category 4 would be extended limited credit. Such relaxation would increase the sales by Rs.15 million on which bad debt losses would be 10 per cent. The contribution – margin

ratio, (1-V), for the firm is 20 per cent, the Average collection period , ACP is 40 days, and the post-tax cost of funds, k is 10 per cent. The tax rate for Pioneer is 40 per cent. Given the above information, what is the effect of relaxing the credit policy on net profit.

- The effect of relaxing the credit policy on the net profit would be:
- [15,000,000(1 – 0.80) -15,000,000 x 0.1]

  (1 – 0.4) minus

  0.10 x $\frac{15,000,000}{360}$ x 40 x 0.80

= 15,000,000(.2-.1)(.6) = 9,00,000 minus

0.1 x$\frac{15,00,000}{360}$ x40x0.8= 1,33,333 =Rs.7,66,667

Since the impact of change in credit standards on net profit is positive, the proposed change is desirable,

- The credit period refers to the length of time customers are allowed to pay for their purchases. It generally varies from 15 to 60days.
- Lengthening of the credit period pushes sales up by inducing existing customers to purchase more and attracting additional customers. This is, however, accompanied by a larger investment in debtros and a higher incidence of bad debt loss.
- Shortening of the credit period would have opposite influences. It tends to lower sales, decrease investments in debtors, and reduce the incidence of bad debt loss.

Since the effects of lengthening the credit period are similar to that of relaxing the credit standards, we may estimate the effect on residual income of change in credit period by using the same formula:

$$\Delta RI = [\Delta S(1\text{-}V) - \Delta S\ bn](1\text{-}t) - k\,\Delta I$$

Excepting Δ, the components of this formula are calculated as discussed earlier. Δ*I* , *here, is calculated as follows:*

$$\Delta I = (ACP_n - ACP_o)\,[\,S_o / 360\,] + V\,(ACP_n)\,\frac{\Delta S}{360}$$

ΔI = Increase in receivables investment

ACP_n = new average collection period (after lengthening the credit period)

ACP_o = old average collection period

ΔRI = change in residual income

S_o = existing sales

ΔS = increase in sales.

V = ratio of variable costs to sales

*b*n = bad debt loss ratio on new sales

t = corporate tax rate

k = post-tax cost of capital

On the right hand side, the first term represents the incremental investment in receivables associated with existing sales and the second term represents the investment in receivables arising from the incremental sales.

The incremental investment in receivables arising from existing sales is based on the value of sales, whereas the investment in receivables arising from new sales is based on the variable costs associated with new sales.

The difference exists because the firm would have collected the full sales price on the old receivables earlier in the absence of credit policy change, whereas it invests only the variable costs with new receivables.

Z Corporation currently provides 30 days of credit to its customers. Its present level of sales is Rs. 50 million. The firm's cost of capital is 10 percent and the ratio of variable costs to sales is 0.85. Z is considering extending its credit period to 60 days. Such as extension is likely to push sales up by Rs. 5 million. The bad debt proportion on additional sales would be 8 per cent. The tax rate for Z is 40 per cent.

What is the effect of lengthening the credit period on the net profit of Z.

The effect of lengthening the credit period on the net profit of Z would be: [5,000,000 x 0.15 – 5,000,000 x 0.08](0.6)] minus

$$0.10[(60 - 30) \times \frac{50{,}000{,}000}{360} + 0.85 \times 60 \times \frac{5{,}000{,}000}{360}]$$

= [750,000 – 400,000](0.6) – 0.10 [4,166,667 + 708333]

= 210,000 – 487,500

= - 277,500 negative . Hence do not proceed.

Cash discount

- Firms generally offer cash discounts to induce customers to make pr0mpt payments. the percentage discount and the period duringh which it is available are reflected in the credit terms. for eg credit terms of 2/10, net 30mean that a discount of 2 percent is offered if the payment is made by the tenth day; otherwise the full payment is due by the thirtieth day.
- Liberalizing the cash discount policy may mean that the discount percentage is increased and/or the discount period is lengthened. Such an action tends to enhance sales (because the discount is regarded as price reduction), reduce the average collection period(as customer pays promptly). And increase the cost of discount. The effect of such an action on residual income may be estimated by a formula.

$\Delta RI = [\Delta S(1\text{-}V) - \Delta DIS\ ](1\text{-}t) + k\ \Delta I$

Where ΔS = increase in sales

V = ratio of variable cost to sales

k = cost of capital

ΔI = savings in receivables investment

i.e. $= \underline{[\ S_o]}\ (ACP_o\ -\ ACP_n\ ) - V\ \underline{\Delta S}\ (\ ACP_n\ )$

$360 \qquad\qquad 360$

where S_o = sales before liberalising the discount terms

ACP_o = average collection period before liberalising the discount terms

ACP_n = average collection period after liberalising the discount terms

V = proportion of variable cost to sales

$\underline{\Delta S}$ = increase in sales as a result of liberalising the discount terms

ΔDIS = increase in discount cost

$= P_n(S_o + \Delta S\ )d_n - p_o S_o d_o$

P_n = proportion of discount sales after liberalising the discount terms

S_o = sales before liberalising the discount terms

ΔS = increase in sales as a result of liberalising the discount terms

d_n = new discount percentage

p_o = proportion of discount sales before liberalising the discount terms

d_o = old discount percentage

The present credit terms of Progressive Company are 1/10. net 30. Its sales are Rs.80 million, its average collection period, ACP is 20 days, its variable costs to sales ratio V, is 0.85, and its cost of capital, *k* , is 10 per cent. The proportion of sales on which customers currently take discount, *po*, 0.5. Progressive is considering relaxing its discount terms to 2/10, net 30. Such a relaxation is expected to increase sales by Rs 5 million, reduce to *ACP* to 14 days, and increase the proportion of discount sales to 0.8. Progressive's tax rate is 40 per cent.

Given the above information, explain what the effect of relaxing the discount policy on net profit would be:

[5,000,000(0.15) – 960,000] (1 – 0.4) + 0.10 x 1,168,055

= - Rs. 9,194

Since the impact of change in discount policy on gross profit is negative, it is not desirable to change the discount terms from 1/10, net 30 to 2/10, net 30

Collection effort

The collection programme of the firm, aimed at timely collection of receivables, may consist of the following:

Monitoring the state of receivables

Dispatch of letters to customers whose due date is approaching

Electronic and telephonic advice to customers around the due date

Threat of legal action to overdue accounts

Legal action against overdue accounts

A rigorous collection programme tends to decrease sales shorten the average collection period, reduce bad debt percentage, and increase collection expense.

A lax collection programme, on the other hand, would push sales up, lengthen the average collection period, increase bad debt percentage, and perhaps reduce the collection expense.

The effect of decreasing the rigour of collection programme on residual income may be estimated as follows:

$\Delta RI = [\Delta S(1\text{-}V) - \Delta BD](1\text{-}t) - k\,\Delta I$

where ΔRI = change in net profit

ΔS = increase in sales

V = variable cost to sales

k = cost of capital

ΔBD = increase in Bad debts cost

t = tax rate

ΔI = increase in investment in receivables

i.e. equal to $[S_o / 360] (ACP_n - ACP_o) + \underline{\Delta S} (ACP_n) V$

360

$\Delta BD = bn (S_o + \Delta S) - b_o S_o$

ABC Company is considering relaxing its collection effort. Its sales are R.40 million, its average collection period, *ACP* , is 20 days, its variable costs to sales ratio, V, is 0.80, its cost of capital, *k*, is 12 per cent , and its bad debt ratio is 0.05. The relaxation in collection effort is expected to push sales up by Rs. 5 million, increase the average collection period to 40 days, and raise the bad debts ratio to 0.06. ABC's tax rate is 40 per cent.

Given the above information what is the effect of relaxing the collection effort on net profits.

[5,000,000(0.2) – 700,000](0.6) minus

$0.12 [\underline{40,000,000}(40 – 20) + \underline{5,000,000} \text{ x } 40 \text{ x } 0.80]$

360 360

= - Rs. 140,000.

Since the effect on profit is negative, it is not worthwhile to relax the collection effort.

- Credit evaluation
- Proper assessment of credit risks is an important element of credit management. It helps in establishing credit limits. In assessing credit risks, two types of errors occur:

Type I error A good customer is misclassified as a poor credit risk

Type II error A bad customer is misclassified as a good risk

Both the errors are costly- first leads to loss of profit on sales to good customers and the second results in bad debt losses on credit sales made to risky customers.

Though misclassification errors cannot be eliminated wholly, a firm can mitigate their occurrence by doing proper credit evaluation. Three broad approaches are used for credit evaluation: viz. traditional credit analysis, numerical credit scoring and discriminant analysis.

- Traditional credit analysis

The traditional approach to credit analysis calls for assessing a prospective customer in terms of the " five c's of credit"

Character The willingness of the customer to honor his obligations. It reflects integrity, a moral attribute that is considered very important by credit managers

Capacity The ability of the customer to meet credit obligations from the operating cash flows

Capital The financial reserves of the customer. If the customer has difficulty in meeting his credit obligations from its operating cash flow, the focus shifts to its capital

Collateral The security offered by the customer in the form of pledged assets.

Conditions The general economic conditions that affect the customer to get information on the five c's , a firm may rely on the following:

financial statements- a searching analysis of the customer's financial statements can provide useful insights into the credit worthiness of the customer. The following ratios seem particularly helpful in this context: current ratio, acid test ratio, debt equity ratio, ebit to total assets ratio and return on equity.

bank references: is a good indirect source by banker to banker

experience of the firm: past experiences of dealing. If new the impression of the sales personnel is useful

*price and yield on securities:*for listed companies, valuable inferences can be derived from stock market data . Higher the price – earnings multiple and lower the yield on bonds, other things being equal, lower will be the risk.

For the sake of simplicity, only three c's character , capacity and capital are considered. For judging a customer on these dimensions, the credit analyst may use quantitative measures (like financial ratios) and qualitative assessments(like 'trustworthy')

Sequential credit analysis

The full logic of traditional credit analysis may be found to be redundant for certain customers. For example, if the character of a customer is found to be weak, it may be pointless to conduct the credit investigation further. Hence sequential credit analysis is a more efficient method. In this analysis, investigation is carried further if the benefit of such analysis outweighs its cost.

To illustrate, consider three stages of credit analysis: review of the past payment record, detailed internal analys, and, credit investigation by an external agency. The credit analyst proceeds from stage one to stage two only if there is no past payment history and hence a detailed internal credit analysis is warranted. Likewise, the credit analyst goes from stage two to stage three only if internal credit analysis suggests that the customer poses a medium risk and hence there is a need forf external credit analysis.

- Numerical credit scoring

It is more systematic than the traditional credit analysis. Such a system may involve the following steps:

Identify factors relevant for credit evaluation

Assign weights to these factors that reflect their relative importance.

Rate the customer on various factors, using a suitable rating scale (usually a 5 point scale or a 7 point scale is used)

For each factor, multiply the factor rating with the factor weight to get the factor score.

Add all the factor scores to get the overall customer rating index.

Based on the rating index , classify the customer.

Construction of a credit rating index(based on a 5-point rating scale)

Discriminant analysis

The nature of this analysis may be discussed with the help of a simple example. ABC Company manufactures gensets for industrial customers. It considers the following financial ratios of its customers as the basic determinants of creditworthiness: current ratio and return on net worth. The plot of its customers on a graph of these two variable are shown in the figure.

X represent customers who have paid their dues and O's represent customers who have defaulted. The straight line seems to separate the Xs from the Os – while it may not be possible to completely separate the Xs and Os with the help of a straight line, the straight line does a fairly good job of segregating the two groups. The equation of this straight line is

Z = 1 Current Ratio + 0.1 Return on equity

The higher the Z score, the stronger the credit rating.

Since this is the line which discriminates between the good customers (who pay) and bad customers (defaulters), a customer with a Z Score of more than 3 is deemed creditworthy(This number 3 is an arbitrary constant) We could use any other number just as well. The point to be emphasized is that the ratio of weights applied to current ratio and return on equity should be 10:1. In this example we considered a Z function of two variables. In most of the practical applications a Z function of several variables is considered.

- Risk classification scheme

On the basis of information and analysis in the credit investigation process, customers may be classified into various risk categories. A simple risk classification scheme is shown in the table .

The risk classification scheme described in the table is one of the many risk classification schemes that may be used. Each firm would have to develop a risk classification scheme appropriate to the needs and circumstances.

Once the credit worthiness of a customer has been assessed the next question is; should the credit be offered? If there is no possibility of a repeat order, the situation may be represented by a decision tree as shown in figure above.

In the figure, p is the probability that a customer pays his dues, (1- p) is the probability that the customer defaults. Rev is the revenue from sale, cost is the cost of goods sold. The expected pretax profit for the action 'offer credit' is

p (rev- cost) – (1 – p) cost

The expected profit for the action 'refuse credit' is zero. Obviously, if the expected profit of the course of action 'offer credit' is positive, it is desireable to extend credit, otherwise not.

- Repeat order
- Granting credit repeat order case

What happens when there is a repeat order? The figure illustrates the situation. The company is considering extending credit to a customer who is expected to place a repeat order (the repeat order, of course, would be accepted only if the customer does not default on the first order). One thing about this situation needs to be emphasised. Once the customer pays for the first order, the probability that he would default on the second order is less than the probability of his defaulting on the first order. In the case shown in the figure, the probability of default decreases from 0.1 to 0.05. The expected profit of offering credit in this case, ignoring the time value of money is

Expected profit on initial order + Probability of payment and repeat order x Expected profit on repeat order

$$\{p_1 (REV_1 - COST_1) - (1-p_1) COST_1\} + p_1 \times \{p_2 (REV_2 - COST_2) - (1-p_2) COST_2\}$$

Control of accounts receivable

Traditionally, two methods have been commonly suggested for monitoring accounts receivable; days' sales outstanding and ageing schedule. While these methods are popularly used, they have a serious deficiency: they are based on an aggregation of sales and receivables. To overcome the weakness of the traditional methods, the collection matrix approach has been suggested.

- Traditional methods of control of accounts receivable

Days' sales outstanding

the days' sales outstanding (dso) at a given time 't' may be defined as the ratio of accounts receivables outstanding at that time to average daily sales figure during the preceding 30days, 60days ,

90 days, or some other relevant period.

$$dso = \frac{\text{accounts receivables at time 't'}}{}$$

average daily sales consider the monthly sales and month end accounts receivable for a company

Traditional methods of control of accounts receivable if the dso is calculated at the end of each quarter, we get the following picture:

quarter	*days' sales outstanding*
First 320	
(150 + 156 + 158) ÷ 90	= 62 days
Second 320	
(150 + 170 + 180) ÷91	= 58 days
Third 360	
(190 + 200 + 210) ÷ 92	= 55 days
Fourth 420	
(220 + 230 + 240) ÷ 92	= 56 days

Looking at the DSO we see that it decreased slightly over last year, suggesting

that collections improved a little. According to this method, A/R are deeme to be

In control if the DSO is equal to or less than a certain norm. If the value of DSO exceeds the

Specified norm , collections are considered to be slow

- Ageing schedule

the ageing schedule (as) classifies outstanding accounts receivables at a given point of time into different age brackets. An illustrative example is given below:

Age group (in days)	*Percent of receivables*
0 – 30	35
31- 60	40
61- 90	20
> 90	5

The actual AS of the firm is compared with some standard AS to determine whether accounts receivable are in control. A problem is indicated if the actual AS shows a greater proportion of receivables, compared with the standard AS, in the higher age groups

- Collection matrix

the average collection period and the ageing schedule have traditionally been very popular measures for monitoring receivables. However, they suffer from a limitation in that they are influenced by the sales pattern as well as the payment behaviour of the customers. If sales are increasing, the average collection period and the ageing schedule will differ from what they would be if sales are constant. This holds even when the payment behaviour of customers remains unchanged. The reason is simple: a greater portion of sales is billed currently. Similarly, decreasing sales lead to the same results. The reason here is that a smaller portion of sales is billed currently.

in order to study correctly the changes in the payment behaviour of customers, it is helpful to look at the pattern of collections associated with credit sales. The next table shows an illustrative collection matrix.

- Collection matrix

Jupiter Ltd is selling its products on credit basis and its customers are associated with 5% credit risk . Its annual turnover is expected at Rs. 5,00,000 if credit is extended and if no credit is given the sales would be at 60% thereon. Suggest the profitability of extending credit and cash sales.

- Profitability on cash sales
- Evaluation of the Different Options in Credit Policy of XYZ Ltd

Factoring

A factor is a financial institution which offers services relating to management and financing of debts arising from credit sales.

Features: the key features of a factoring arrangement are as follows:

The factor selects the accounts of the client that would be handled by it and establishes, along with the client, the credit limits applicable to the selected accounts

The factor assumes responsibility for collecting the debt of accounts handled by it. For each account, the factor pays to the client at the end of the credit period or when the account is collected, whichever comes earlier.

The factor advances money to the client against not-yet –collected and not-yet-due debts. Typically, the amount advances is 70 – 80 percent of the face value of the debt and carries an interest rate which may be equal to or marginally higher than the lending rate of commercial banks.

Factoring may be on a recourse basis(this means that the credit risk is borne by the client) or on a non-recourse basis (this means that the credit risk is borne by the factor)

Besides the interest on advances against debt, the factor charges a commission which may be 1 to 2 percent of the face value of the debt factored

Factoring offers the following advantages which makes it quite attractive:

Factoring ensures a definite pattern of cash inflows from credit sales.

Continuous factoring may virtually eliminate the need for the credit and collection department

LIMITATIONS:

1. The cost of factoring tends to be higher than the cost of other forms of short-term borrowings
2. Factoring of debt may be perceived as a sign of financial weakness.

Module-4
INVENTORY MANAGEMENT

Inventory or **stock** refers to the goods and materials that a business holds for the ultimate purpose of resale (or repair).

Inventory management is a science primarily about specifying the shape and percentage of stocked goods. It is required at different locations within a facility or within many locations of a supply network to precede the regular and planned course of production and stock of materials.

The scope of inventory management concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods, and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment.

Inventory management involves a retailer seeking to acquire and maintain a proper merchandise assortment while ordering, shipping, handling, and related costs are kept in check. It also involves systems and processes that identify inventory requirements, set targets, provide replenishment techniques, report actual and projected inventory status and handle all functions related to the tracking and management of material. This would include the monitoring of material moved into and out of stockroom locations and the reconciling of the inventory balances. It also may include ABC analysis, lot tracking, cycle counting support, etc. Management of the inventories, with the primary objective of determining/controlling stock levels within the physical distribution system, functions to balance the need for product availability against the need for minimizing stock holding and handling costs.

There are three types of inventories: raw materials, work in process, and finished goods:

Raw materials are materials and components that are inputs in making the final product Work in process, also called stock in process, refers to goods in the intermediate stages of production. Finished goods consist of final products that are ready for sale.

While manufacturing firms generally hold all the three types of inventories, distribution firms hold mostly finished goods

<u>Importance of inventory management</u>

Inventories represent the second largest asset category for manufacturing companies, next only to plant and equipment. The proportion of inventories to total assets generally varies between 15 and 30 percent. Given substantial investment in inventories, the importance of inventory management cannot be overemphasized.

Though decisions relating to inventories are taken primarily by executives in production, purchasing and marketing depts, yet, as inventory management has important financial implications, the financial manager has the responsibility to ensure that inventories are properly monitored and controlled. He has to emphasize the financial point of view and initiate programmes with the participation and involvement of others for effective management of inventories.

Like any other asset, the holding of inventories constitutes an investment of funds. Determining the optimal level of inventory investment requires that the benefits and costs, including the opportunity cost of the funds invested, associated with alternative levels be measured and compared. To do this, it is necessary to determine the specific benefits and costs associated with holding the various types of inventories.

Financial managers usually do not have primary responsibility for managing a company's inventories, nevertheless, they are responsible for seeing that funds are invested in a manner consistent with shareholder wealth maximization. Normally, production and/or marketing management has primary responsibility for determining the specific quantities of the various types of inventories that a firm holds.

Good inventory control policy

A good inventory policy should consist of the following features:

There should be proper accounting and physical controls

The inventory should be stored properly to avoid the losses like breakage, spoilage, wastage, damage, deterioration, pilferage etc

Fixation of inventory levels like minimum, maximum, re-order levels and economic order quantity to ensure the optimum level of stocks.

Proper care should be taken to avoid stock-out situations.

Continuous supply of material should be ensured at the right time and right cost.

The investment in inventory should be optimised by avoiding over-stocking.

Regular monitoring of stock movements and reduce the investments in

Dormant and slow moving stocks.

Determination of inventory control levels;

Ordering, reordering and danger level

The two basic questions relating to inventory management ar

What should be the size of the Order ?

At what level should the order be placed ?

To answer the first question, the basic Economic Order Quantity (EOQ) Model is helpful. In the context of inventory management there are three types of costs which are : (i) ordering costs, (ii) carrying costs and (iii) shortage costs.

- Fixation of inventory levels

Various levels of inventory are fixed to see that no excess inventory is carried and simultaneously there will not be any stock outs. The following inventory levels are fixed for each item of stock:

RE-ORDER LEVEL: It is the level of stock availability when a new order should be raised. The stores department will initiate the purchase of material when the stock of material reaches at this point. This level is fixed between the minimum and maximum stock levels and the following formula is useful for the purpose:

Re-order level : Maximum Usage x Maximum Lead Time

MINIMUM STOCK LEVEL: It is the lower limit below which the stock of any stock item should not normally be allowed to fall. Their level is also called ‘ safety stock’ or ‘buffer stock level’. The main object of establishing this level is to protect against stock- out of a particular stock item and in fixation of which average rate of consumption and the time required for replenishment, i.e. lead time are given prime consideration.

Minimum stock level:

= Re-order level – (Average or Normal Usage x Average lead Time)

- FIXATION OF INVENTORY LEVELS

MAXIMUM STOCK LEVEL: It represents the upper limit beyond which the quantity of any item is not normally allowed to rise to ensure that unnecessary working capital is not blocked in stock items. Maximum stock level represents the total of safety stock level and economic order quantity. Maximum stock level can be expressed in the formula given below:

Maximum Stock level

= Reorder level + Economic order quantity –(Minimum usage x minimum lead time)

DANGER LEVEL: It is fixed below the minimum stock level and if stock reaches below this level, urgent action for replenishment of stock should be taken to prevent stock out position.

Danger level = Average Consumption x Lead Time for Emergency purchases

AVERAGE STOCK LEVEL: It is the average of minimum and maximum stock levels.

Average stock level: (Minimum Stock level + Maximum Stock level) / 2 OR

= Minimum stock level + ½ of Re-Order Quantity

Stock movements and fixation of stock levels

Ordering costs:

Relating to purchased items would include expenses on the following:

Requisitioning

Preparation of purchase order/documentation

Expediting/intermittant cost of chasing orders, rejecting faulty goods.

Additional costs of frquent or small quantity orders

Transport costs

Receiving and placing in storage relating to items manufactured in the company would include the following:

Requisitioning

Set-up and tooling costs associated with each production run

Receiving and placing in storage

Carrying costs: generally are abour 25 percent of the inventories sold and include expenses on the following:

Interest on capital locked up in inventory

Required rate or return on investment incurrent assets

Storage costs (rent ,lighting, heating, refrigeration, airconditioning etc,)

Handling costs

Stores staffing, equipment maintenance and running costs.

Audit, stock taking or perpetual inventory costs

Insurance and security costs

Obsolescence and deterioration costs

Pilferage and damage costs and

Shortage costs/stock out costs:

Arise when inventories are short of requirement for meeting the needs of production or the demand of customers. Inventory shortage may result in one or more of the following:

Lost contribution through the lost sales caused by the stock out

Loss of future sales because customers go elsewhere

Loss of customer goodwill

Cost of production stoppages caused by stock outs of wip or raw material

Labour frustration

Over stoppages

Less efficient and uneconomic production schedules

Extra costs associated with urgent replenishment of small quantities

Measurement of shortage costs is difficult because of its both long term and short term effect as it is somewhat intangible in nature.they are associated with running out

- ECONOMIC ORDERING QUANTITY

The Primary Objective of Inventory Management is to find out and maintain optimum level of investment in inventory to minimise the total costs associated with it. The EOQ is the optimum size of the order for a particular item of inventory calculated at a point where the total inventory costs are at a minimum level for that particular stock item. The EOQ is an optimum quantity of materials to be ordered after consideration of the three categories of costs – Ordering costs, Carrying costs and Stock-out costs. Stock out costs are difficult to incorporate in this model since they are based on qualitative and subjective judgment. The safety or buffer stock has no bearing on the EOQ, only on the timing of orders

The basic eoq model is based on the following assumptions:

The forecast usage/demand for a given period, usually one year, is known

The usage/demand is even throughout the period

Inventory orders can be replenished immediately and there is no delay in placing and receiving orders.

Thre are two distinquishable costs associated with inventories- cost of ordering and costs of carrying and cost of carrying.

The cost per order is constant regardless of size of order.i.e. there is no price discounts.

The cost of carrying is a fixed percentage of the average value of inventory.

EOQ formula:

The total costs of ordering and carrying inventories are equal to:

$$TC = \frac{U}{Q} X F + \frac{Q}{2} X P X C$$

where U = annual usage/demand

Q = Quantity ordered

F = Cost per order

C = percent carrying cost

P = price per unit

TC = Total costs of ordering and carrying

The first term on the right hand side is the ordering cost, obtained as a product of the number of orders (U/Q) and the cost per order (F).The second term on the right hand side is the carrying cost, obtained as the product of the average value of inventory holding (QP/2) and the percentage carrying cost (C). The carrying cost varies directly with the order size (since the average level of inventory is one-half of the order size), whereas the ordering cost varies inversely with the order size.. The total cost of ordering and carrying is minimised when

$$Q = \sqrt{\frac{2FU}{PC}}$$

It is a useful tool for inventory management. It tells us what should be the order size for purchased items and what should be the size of production run for manufactured items

ORDER POINT: The standard EOQ model assumes that materials can be procured instantaneously and hence implies that the firm may place an order for replenishment when the inventory level drops to zero. In the real world , however, procurement of materials takes time and hence the order level (order level and reorder level refer to the same thing) must be such that the inventory at the time of ordering suffices to meet the needs of production during the procurement period..

If the usage rate of materials and the lead time for procurement are known with certainty, then the ordering level would simply be : lead time in days for procurement x average daily usage

When the usage rate and lead time are likely to vary, the re-order level should be highe than the normal consumption period requirement during the procurement period to provide a measure of safety in face of variability of usage and lead time. Put differently , the reoder level should be equal to: normal consumption x safety stock

safety stock& level of safety stock:

In a simple situation, where only the usage rate is variable and the maximum usage rate can be specified, the safety stock required to seek total protection against stock out is simply:

(Maximum usage rate - Average usage rate) x Lead Time

When both the lead time and usage rate vary, which is often the case, and the range of variation is wide, complete protection against stock-out may require an excessively large safety stock. For eg, if the lead time varies between 60 days and 180 days with an average value of 90 days. And the usage rate varies between 75 units and 125 units per day with an average value of 100 units per day, a safety stock of 13,500 units is required for complete protection again stock out. This has been worked out as follows:

{Maximum possible usage (i.e. Max daily usage x max lead time)}
minus

{(Normal Usage (i. e .Average daily usage x Average lead time)}

125 x 80 - 100 x 90 = 13,500

ORDER POINT FORMULA: The following formula would be helpful for calculating the reorder point:

Reorder point : $S(L) + F\sqrt{SRL}$

Where S = usage

L = Lead time needed to obtain additional inventory when the order is placed

R = Average quantity period

F = stock out acceptance factor. To illustrate the computations of the reorder level from the following data pertaining to ABC Company where S = 20 units/day L = 60 days,

F= 1.2 and R= 500 units Re-order level =

$20 \times 60 + 1.2\sqrt{20 \times 500 \times 60} = 2{,}130$ units

- OTHER FACTORS

In real world there are some more additional considerations that ought to be taken into account. These may relate to one or more of the following:

- Anticipated scarcity
- Expected Price change
- Obsolescence risk
- Government restrictions
- Marketing considerations.

Pricing of Raw Materials. The important once in use are:

- FIFO method
- Weighted Average Cost method

VALUATION OF STOCKS

There are three important types of inventories carried by a manufacturing organisation:

(i) raw material inventory

(ii) work-in-process inventory, and

(iii) finished goods inventory

The valuation of work in process and finished goods inventory depends on (i) method used for pricing materials, and (ii) the manner in which fixed manufacturing overhead costs are treated

Module-5
Capital Structure

Capital Structure refers to the combination or mix of debt and equity which a company uses to finance its long term operations. Raising of capital from different sources and their use in different assets by a company is made on the basis of certain principles that provide a system of capital so that the maximum rate of return can be earned at a minimum cost. This sort of system of capital is known as capital structure.

Total Required Capital

- From Shares
  - Equity Share capital
  - Preference Share Capital
- From Debentures

Factors Influencing Capital Structure

Internal Factors

- Size of Business
- Nature of Business
- Regularity and Certainty of Income
- Assets Structure
- Age of the Firm
- Desire to Retain Control
- Future Plans
- Operating Ratio
- Trading on Equity
- Period and Purpose of Financing

External Factors

- Capital Market Conditions
- Nature of Investors
- Statutory Requirements
- Taxation Policy
- Policies of Financial Institutions
- Cost of Financing
- Seasonal Variations
- Economic Fluctuations
- Nature of Competition

Optimal Capital Structure

The optimal or the best capital structure implies the most economical and safe ratio between various types of securities. It is that mix of debt and equity which maximizes the value of the company and minimizes the cost of capital.

Essentials of a Sound or Optimal Capital Structure

- Minimum Cost of Capital
- Minimum Risk
- Maximum Return
- Maximum Control
- Safety
- Simplicity
- Flexibility
- Attractive Rules
- Commensurate to Legal Requirements

Basic Ratio
Sound or Optimal Capital Structure requires (An Approximation):

- Debt Equity Ratio: 1:1
- Earning Interest Ratio: 2:1
- During Depression: one and a half time of interest.
- Total Debt Capital should not exceed 50 % of the depreciated value of assets.
- Total Long Term Loans should not be more than net working capital during normal conditions.
- Current Ratio 2:1 and Liquid Ratio 1:1 be maintained.

Point of Indifference
(EBIT-EPS Analysis)

- It refers to that EBIT level at which EPS remains the same irrespective of different alternatives of debt equity mix.
- At this level of EBIT, the rate of return on capital employed is equal to the cost of debt and this is also known as break-even level of EBIT for alternative financial plans.

Conclusion

- If the Expected EBIT is much more than the Point of Indifference Level - ?
- If the Expected EBIT is lower than the Point of Indifference Level - ?
- If the Expected EBIT is even less than the Fixed Cost - ?

- Point of Indifference of EBIT - Ascertainment
- Point of Indifference :

$$\frac{(X-R1)(1-T)-PD}{N1} = \frac{(X-R2)(1-T)-PD}{N2}$$

Here,

X = EBIT at Indifference Point

R1 = Interest in Alternative 1

R2 = Interest in Alternative 2

T = Tax Rate

PD = Preference Dividend

N1 = No. of Equity Shares in Alternative 1

N2 = No. of Equity Shares in Alternative 2

Theories of Capital Structure

- Net Income (NI) Theory
- Net Operating Income (NOI) Theory
- Traditional Theory
- Modigliani-Miller (M-M) Theory

Net Income (NI) Theory

- This theory was propounded by *"David Durand"* and is also known as "Fixed 'Ke' Theory".
- According to this theory a firm can increase the value of the firm and reduce the overall cost of capital by increasing the proportion of debt in its capital structure to the maximum possible extent.
- It is due to the fact that debt is, generally a cheaper source of funds because:
  - (i) Interest rates are lower than dividend rates due to element of risk,
  - (ii) The benefit of tax as the interest is deductible expense for income tax purpose.

Assumptions of NI Theory

- The 'Kd' is cheaper than the 'Ke'.
- Income tax has been ignored.
- The 'Kd' and 'Ke' remain constant.
- Computation of the Total Value of the Firm

Total Value of the Firm (V) = S + D

Where,

S = Market value of Shares = $\frac{EBIT-I}{Ke} = \frac{E}{Ke}$

D = Market value of Debt = Face Value

E = Earnings available for equity shareholders

Ke = Cost of Equity capital or Equity capitalization rate.

- Computation of the Overall Cost of Capital or Capitalization Rate
- $Ko = \frac{EBIT}{V}$

Where,

Ko = Overall Cost of Capital or Capitalization Rate

V = Value of the firm

Net Operating Income Theory

- This theory was propounded by *"David Durand"* and is also known as *"Irrelevant Theory".*
- According to this theory, the total market value of the firm (V) is not affected by the change in the capital structure and the overall cost of capital (Ko) remains fixed irrespective of the debt-equity mix.
- Assumptions of NOI Theory
- The split of total capitalization between debt and equity is not essential or relevant.
- The equity shareholders and other investors i.e. the market capitalizes the value of the firm as a whole.

- The business risk at each level of debt-equity mix remains constant. Therefore, overall cost of capital also remains constant.
- The corporate income tax does not exist.
- Computation of the Total Value of the Firm

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

Where,

Ko = Overall cost of capital

- Market Value of Equity Capital

S = V – D

Where,

S = Market Value of Equity Capital

V = Value of the Firm

D = Market value of the Debt

- Cost of Equity Capital
- $Ke = \frac{EBIT - I}{S} \times 100$

Where,

Ke = Equity capitalization Rate or Cost of Equity

I = Interest on Debt

S = Market Value of Equity Capital

Traditional Theory

This theory was propounded by Ezra Solomon.

According to this theory, a firm can reduce the overall cost of capital or increase the total value of the firm by increasing the debt proportion in its capital structure to a certain limit. Because debt is a cheap source of raising funds as compared to equity capital.

Effects of Changes in Capital Structure on *'Ko'* and *'V'*

As per Ezra Solomon:

- First Stage: The use of debt in capital structure increases the '*V'* and decreases the *'Ko'*. Because *'Ke'* remains constant or rises slightly with debt, but it does not rise fast enough to offset the advantages of low cost debt. '*Kd'* remains constant or rises very negligibly.
- Effects of Changes in Capital Structure on *'Ko'* and *'V'*
- Second Stage: During this Stage, there is a range in which the *'V'* will be maximum and the *'Ko'* will be minimum. Because the increase in the *'Ke',* due to increase in financial risk, offset the advantage of using low cost of debt.
- Effects of Changes in Capital Structure on *'Ko'* and *'V'*
- Third Stage: The 'V' will decrease and the 'Ko' will increase. Because further increase of debt in the capital structure, beyond the acceptable limit increases the financial risk.

Computation of Market Value of Shares & Value of the Firm

$$S = \frac{EBIT - I}{Ke}$$

$$V = S + D$$

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

Modigliani-Miller Theory

- This theory was propounded by Franco Modigliani and Merton Miller.
- They have given two approaches
  - In the Absence of Corporate Taxes
  - When Corporate Taxes Exist
- In the Absence of Corporate Taxes
- According to this approach the *'V'* and its *'Ko'* are independent of its capital structure.
- The debt-equity mix of the firm is irrelevant in determining the total value of the firm.
- Because with increased use of debt as a source of finance, '*Ke'* increases and the advantage of low cost debt is offset equally by the increased '*Ke'*.
- In the opinion of them, two identical firms in all respect, except their capital structure, cannot have different market value or cost of capital due to Arbitrage Process.

Assumptions of M-M Approach

- Perfect Capital Market
- No Transaction Cost
- Homogeneous Risk Class: Expected EBIT of all the firms have identical risk characteristics.
- Risk in terms of expected EBIT should also be identical for determination of market value of the shares
- Cent-Percent Distribution of earnings to the shareholders
- No Corporate Taxes: But later on in 1969 they removed this assumption.
- When Corporate Taxes Exist

M-M's original argument that the 'V' and 'Ko' remain constant with the increase of debt in capital structure, does not hold good when corporate taxes are assumed to exist.

They recognised that the 'V' will increase and 'Ko' will decrease with the increase of debt in capital structure.

They accepted that the value of levered (V*L*) firm will be greater than the value of unlevered firm (V*u*).

Computation

Value of Unlevered Firm

$$V_u = \frac{EBIT(1 - T)}{Ke}$$

Value of Levered Firm

$V_L = V_u + Dt$

Where,

V*u : Value of Unlevered Firm*

V*L :Value of Levered Firm*

D : Amount of Debt

t : tax rate

Module 6
DIVIDEND POLICIES

Dividend is that portion of profits of a company which is distributed among its shareholder according to the decision taken and resolution passed in the meeting of Board of Directors. This may be paid as a fixed percentage on the share capital contributed by them or at a fixed amount per share. It means only profits after meeting all the expenses and providing for taxation and for depreciation and transferring a reasonal amount to reserve funds should be distributed to shareholders as dividend. There is always a problem before the top management or Board of Director to decide how much profits should be transferred to Reserve funds to meet any unforeseen contingencies and how much should be distributed to shareholder,. Payment of dividend is desirable because it affects the goodwill of the concern in the market on the one hand, and on the other, shareholders invest their funds in the company in a hope of getting a reasonable return. Retained earnings are the sources of internal finance for the financing of corporate future projects but payment of dividend constitute an outflow of ca to shareholders. Although both-expansion and payment of dividend-are desirable, these two are in conflicts. It is, therefore, one of the important functions of the financial management to constitute a dividend policy which can balance these two contradictory view paints and allocate the reasonable amount of profits after tax between retained earnings and dividend.

Factors affecting Dividend policy

1. Stability of Earnings. The nature of business has an important bearing on the dividend policy. Industrial units having stability of earnings may formulate a more consistent dividend policy than those having an uneven flow of incomes because they can predict easily their savings and earnings. Usually, enterprises dealing in necessities suffer less from oscillating earnings than those dealing in luxuries or fancy goods.

2. Age of corporation. Age of the corporation counts much in deciding the dividend policy. A newly established company may require much of its earnings for expansion and plant improvement and may adopt a rigid dividend policy while, on the other hand, an older company can formulate a clear cut and more consistent policy regarding dividend.

3. Liquidity of Funds. Availability of cash and sound financial position is also an important factor in dividend decisions. A dividend represents a cash outflow, the greater the funds and the liquidity of the firm the better the ability to pay dividend. The liquidity of a firm depends very much on the investment and financial decisions of the firm which in turn determines the rate of expansion and the manner of financing. If cash position is weak, stock dividend will be distributed and if cash position is good, company can distribute the cash dividend.

4. Extent of share Distribution. Nature of ownership also affects the dividend decisions. A closely held company is likely to get the assent of the shareholders for the suspension of dividend or for following a conservative dividend policy. On the other hand, a company having a good number of shareholders widely distributed and forming low or medium income group, would face a great difficulty in securing such assent because they will emphasise to distribute higher dividend.

5. Needs for Additional Capital. Companies retain a part of their profits for strengthening their financial position. The income may be conserved for meeting the increased requirements of working capital or of future expansion. Small companies usually find difficulties in raising finance for their needs of increased working capital for expansion programmes. They having no other alternative, use their ploughed back profits. Thus, such Companies distribute dividend at low rates and retain a big part of profits.

6. Trade Cycles. Business cycles also exercise influence upon dividend Policy. Dividend policy is adjusted according to the business oscillations. During the boom, prudent management creates food reserves for contingencies which follow the inflationary period. Higher rates of dividend can be used as a tool for marketing the securities in an otherwise depressed market. The financial solvency can be proved and maintained by the companies in dull years if the adequate reserves have been built up.

7. Government Policies. The earnings capacity of the enterprise is widely affected by the change in fiscal, industrial, labour, control and other government policies. Sometimes government restricts the distribution of dividend beyond a certain percentage in a particular industry or in all spheres of business activity as was done in emergency. The dividend policy has to be modified or formulated accordingly in those enterprises.

8. Taxation Policy. High taxation reduces the earnings of he companies and consequently the rate of dividend is lowered down. Sometimes government levies dividend-tax of distribution of dividend beyond a certain limit. It also affects the capital formation. N India, dividends beyond 10 % of paid-up capital are subject to dividend tax at 7.5 %.

9. Legal Requirements. In deciding on the dividend, the directors take the legal requirements too into consideration. In order to protect the interests of creditors an outsiders, the companies Act 1956 prescribes certain guidelines in respect of the distribution and payment of dividend. Moreover, a company is required to provide for depreciation on its fixed and tangible assets before declaring dividend on shares. It proposes that Dividend should not be distributed out of capita, in any case. Likewise, contractual obligation should also be fulfilled, for example, payment of dividend on preference shares in priority over ordinary dividend.

10. Past dividend Rates. While formulating the Dividend Policy, the directors must keep in mind the dividend paid in past years. The current rate should be around the average past rat. If it has been abnormally increased the shares will be subjected to speculation. In a new concern, the company should consider the dividend policy of the rival organisation.

11. Ability to Borrow. Well established and large firms have better access to the capital market than the new Companies and may borrow funds from the external sources if there arises any need. Such Companies may have a better dividend pay-out ratio. Whereas smaller firms have to depend on their internal sources and therefore they will have to built up good reserves by reducing the dividend pay out ratio for meeting any obligation requiring heavy funds.

12. Policy of Control. Policy of control is another determining factor is so far as dividends are concerned. If the directors want to have control on company, they would not like to add new shareholders and therefore, declare a dividend at low rate. Because by adding new shareholders they fear dilution of control and diversion of policies and programmes of the existing management. So they prefer to meet the needs through retained earing. If the directors do not bother about the control of affairs they will follow a liberal dividend policy. Thus control is an influencing factor in framing the dividend policy.

13. Repayments of Loan. A company having loan indebtedness are vowed to a high rate of retention earnings, unless one other arrangements are made for the redemption of debt on maturity. It will naturally lower down the rate of dividend. Sometimes, the lenders (mostly institutional lenders) put restrictions on the dividend distribution still such time their loan is outstanding. Formal loan contracts generally provide a certain standard of liquidity and solvency to be maintained. Management is bound to hour such restrictions and to limit the rate of dividend payout.

14. Time for Payment of Dividend. When should the dividend be paid is another consideration. Payment of dividend means outflow of cash. It is, therefore, desirable to distribute dividend at a time when is least needed by the company because there are peak times as well as lean periods of expenditure. Wise management should plan the payment of dividend in such a manner that there is no cash outflow at a time when the undertaking is already in need of urgent finances.

15. Regularity and stability in Dividend Payment. Dividends should be paid regularly because each investor is interested in the regular payment of dividend. The management should, inspite of regular payment of dividend, consider that the rate of dividend should be all the most constant. For this purpose sometimes companies maintain dividend equalization Fund.

Module-7
Special issues in financial management

Financial modeling is the task of building an abstract representation (a model) of a real world financial situation. This is a mathematical model designed to represent (a simplified version of) the performance of a financial asset or portfolio of a business, project, or any other investment. Financial modeling is a general term that means different things to different users; the reference usually relates either to accounting and corporate finance applications, or to quantitative finance applications. While there has been some debate in the industry as to the nature of financial modeling—whether it is a tradecraft, such as welding, or a science—the task of financial modeling has been gaining acceptance and rigor over the years. Typically, financial modeling is understood to mean an exercise in either asset pricing or corporate finance, of a quantitative nature. In other words, financial modeling is about translating a set of hypotheses about the behavior of markets or agents into numerical predictions; for example, a firm's decisions about investments (the firm will invest 20% of assets), or investment returns (returns on "stock A" will, on average, be 10% higher than the market's returns).

Industrial sickness is defined in India as "an industrial company (being a company registered for not less than five years) which has, at the end of any financial year, accumulated losses equal to, or exceeding, its entire net worth and has also suffered cash losses in such financial year and the financial year immediately preceding such financial year

Causes of industrial sickness

- Unfavorable external environment the firm may be affected by one or more of the following external factors over which it may hardly have any control
- Shortage of key inputs like power and basic raw materials
- Changes in governmental policies with respect to excise duties, customs duties, export duties, reservation etc.
- Emergence of large capacity leading to intense competition
- Development of new technology
- Sudden decline in orders from the government
- Shift in consumer preferences
- Natural calamities
- Adverse international developments
- Reduced lending by financial institutions

Managerial deficiencies- Management can be deficient in many ways. They can be classified function-wise. These, shortcomings , singly or in combination, can induce sickness:

<u>PRODUCTION:</u>

Improper location
Wrong technology
Uneconomic plant size
Unsuitable plant and machinery
Inadequate emphasis on research and development
Weak production and quality control

MARKETING:

Inaccurate demand projection
Improper product-mix
Wrong product positioning
Irrational price structure
Inadequate sales promotion
High distribution costs
Poor customer service
Financial management of sick units

Definition of sickness:banking institutions, financial institutions and regulatory authorities in india have by and large defined sickness in terms of well defined financial indicators. However it is necessary to offer a more broad based definition along the following lines:

An industrial unit may be regarded as sick if (i) it faces financial embarassment (arising out of its inability to honour its obligations as and when they mature), and (ii) its vaiability is seriously threatened by adverse factors.

Causes of sickness: a firm remains healthy if it (i) operates in a reasonably favourable environment, and (ii) has a fairly efficient management. When these conditions are not satisfied, the firm is likely to become sick. Hence sickness may be cause by – unfavourable external environment and

FINANCE:

Wrong capital structure
Bad investment decisions
Weak budgetary control
Absence of responsibility accounting
Inadequate management information system
Poor management of receivables
Bad cash planning and control
Strained relationship with suppliers of capital
Improper tax planning

PERSONNEL:

Ineffective leadership
Bad labour relations
Inadequate human resources
Overstaffing
Weak employee commitment
Irrational compensation structure

Sickness does not occur overnight, but develops gradually over time. A firm which is becoming sick shows symptoms which indicate that trouble lies ahead of it. Some of the common symptoms are:

- Delay or default in payment to suppliers
- Irregularity in the bank account
- Delay or default in payment to banks and financial institutions
- Non-submission of information to banks and financial institutions
- Frequent requests to banks and financial institutions for additional credit
- Decline in capacity utilisation
- Poor maintenance of plant and machinery
- Low turnover of assets
- Accumulation of inventories
- Inability to take trade discount
- Excessive turnover or personnel
- Extension of accounting period

Resort to 'creative accounting' which seeks to present a better financial picture than what it really is decline in the price of equity shares and debentures

Prediction of sickness

While the different symptoms suggest that the unit is in difficulty and may become potentially sick. it is not easy to reach a definitive conclusion about impending sickness on the basis of these symptoms. considerable amount of empirical research done suggests that financial ratios can be used fo predicting industrial sickness with greater reliability. this research, in general involves two types of analysis: univariate analysis and multivariate analysis. univariate analysis: in univariate analysis an attempt is made to predict sickness on the basis of single financial ratios. univariate analysis examines financial ratios individually but does not assess the joint predictive power of various combinations of ratios.

Multivariate analysis, on the other hand, seeks to predict industrial sickness using a methodology that considers the combined influence of different financial ratios.. the multivariate technique commonly used in predicting business failure or sickness is the techniqueof multiple discriminate analysis. this is a statistical technique which helps in classifying an observation into one of the several pre-specified groups or classes on the basis of certain characteristics of the observation. it essentially involves estimating a function which discriminates best between the groups the discriminant function is usually a linear one:

$z = a_1x_1 + a_2x_2 + \ldots\ldots + a_n x_n$ where z = discriminant index

x_i = *independent variable* ($_i$ = 1, , *n)*

a_i = *co-efficient of variable* ($_i$ = 1, , *n)*

Revival of sick units

When an industrial unit is identified as sick, a viability study should be conducted to assess whether the unit can be revived/rehabilitated within a reasonable period. if the viability study suggests that the unit can be rehabilitate, a suitable plan for rehabilitation must be formulated. if the viability study indicates that the unit is "better dead than alive", steps must be taken to liquidate it expeditiously.

A viability study involves a reasonably comprehensive assessment of the various aspects of the working of a unit which could cover:

Market analysis:

- Market share behaviour over the past few years
- Growth rate of the total market
- Emergence of competition
- Comparative price and cost analysis
- Order book position
- Unique selling proposition, if any, employed by the firm
- Consumer attitudes, preferences and needs
- Promotional strategies of the firm and its consumers
- Distribution channels used by the firm
- Distributor cost analyis

PRODUCTION /TECHNICAL ANALYSIS:

- Technological capability of the firm
- Plant condition
- Degree of balance in the capacities at different stages of manufacturing
- Manufacturing process
- Plant maintenance system
- Availability of power, water, fuel and other utilities
- Supply of raw materials

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FINANCE:

- Liquidity position
- Leverage analysis
- Turnover of assets
- Profitability
- Estimate of working capital needs
- Balance sheet and income statement projection
- Budgetary control and responsibility accounting
- Cost control and reduction

PERSONNEL ORGANISATION:

- Human resources
- Employee motivation, morale and commitment
- Leadership
- Manpower in relation to needs

ENVIRONMENT:

- Supply of raw material
- Availability of power, fuel and water
- Governmental policies with respect to excise duties, custom duties, export duties, reservations etc.
- Industrial Licensing Policy
- Lending policies of financial institutions and commercial banks
- General industrial relations situation
- Competitive developments

THE VIABILITY STUDY MAY SUGGEST ONE OF THE FOLLOWING:

(a) The unit can be revived by adopting one or more of the following measures: debt restructuring, infusion of funds, correction of functional deficiencies, granting of special reliefs and concessions by the government , replacement of existing management because of its incompetence and/or dishonesty.

(b) The unit is not potentially viable – this essentially implies that the benefits expected from remedial measures are less than the cost of such remedial measures.

REVIVAL PROGRAMME: The revival programme usually involves the following:

(i) settlement with creditors like rescheduling of principal and interest payment, waiver of interest, conversion of debt into equity, payment of arrears in instalments.

(ii)provision of additional capital: the additional capital may have to be provided on concessional terms, at least for the initial years, so that the financial burder on the unit is not high.

(iii) Divestment and disposal: divestment of unprofitable plants and operations and disposal of slow moving and obsolete stock to strengthen liquidity and facilitate reallocation of resources for enhancing the profitability of the unit.

(iv) Reformulation of Product-market strategy: Product mix strategy may have to be reformulated to improve the prospects of profitable recovery.

(v) Modernisation of Plant and Machinery: to improve manufacturing efficiency, plant and machinery may have to be modernised, renovated and repaired. This will result in attaining certain cost standards and quality norms for competing effectively in the market.

(vi) Reduction in manpower: the leaner the organisation the greater is the chances of survival. This may call for "golden handshake" offer by the firm to its employees to avoid redundant manpower on its payroll.

(vii) Strict control over costs: review of all the discretionary expenses may be undertaken to eliminate programmes and activities which are a drain on the finances of the firm

(viii) streamlining of operations: Value engineering, standardisation, simplification, cost-benefit analysis, and other approaches should be exploited fully to improve the efficiency of the operations.

(ix) Improvement in Managerial systems: The managerial systems in the unit must be strengthened. In this exercise, greater attention may have to be paid to the following:

- Environmental monitoring
- Organisational structure
- Responsibility accounting
- Management information system
- Budgetary control

(x) Workers' participation :During the revival phase, the dedication, commitment and support of the workers is all the more indispensable and meaningful workers' participation and

(xi) Change of management: A change in management may be necessary where the present management is dishonest and/or incompetent

DEBT RESTRUCTURING: In the case of sick or potentially sick companies, debt restructuring is done through a mix of reliefs and concessions. The common elements of such debt restructuring schemes are:

- Interest rate relief – the contracted interest rate may be reduced if the borrower is not in a position to achieve cash break even
- Deferment of past interest dues – arrears of interest upto the restructuring date are deferred and a repayment spread over a period of time is worked out
- Waiver of penalties- penalties levied in the form of compound interest and liquidated damages for non payment of dues on time are generally waived
- Reschedulement of loan repayment: reworked after assessing the future cash flow position.
- Reduction in the Loan amount – lenders may even write off a portion of the existing loan