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Affiliated to the University of Madras
Approved by the Government of Tamil Nadu
An ISO 9001:2015 Certified Institution



DEPARTMENT OF COMMERCE

SUBJECT NAME: FINANCIAL MANAGEMENT

SUBJECT CODE: CPZ5D

SEMESTER: V

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Core Paper XVI - FINANCIAL MANAGEMENT

Objectives

No of Credits : 4

1. To impart the basics of Financial Management for the benefit of Commerce students.
2. To enable the students to know the concepts of the Investment, Financing and Working Capital.

Unit I : Introduction

Meaning and Objectives of Financial Management - Functions of Financial Management. Finance - Importance of Finance - Sources of Finance - Role of Financial Manager in Financial Management.

Unit II : Capital Structure

Meaning - Factors affecting Capital Structure - Planning - Theories of Capital Structure - Determining Debt Equity Proportion - Leverage Concept.

Unit III : Cost of Capital

Definition - Cost of Equity Capital - Cost of Preference Capital - Cost of Debt - Cost of Retained Earnings - Weighted Average (or) Composite cost of capital (WACC)

Unit IV : Dividend

Meaning - Dividend Policies - Factors affecting Dividend Payment - Provisions on Dividend Payment in Company Law - Dividend Models - Walter's Model - Gordon's Model - M.M. Model - Hypothesis Model.

Unit V : Working Capital

Working Capital - Meaning and importance - Factors Influencing Working Capital - Determining (or) Forecasting of Working Capital requirements - Working Capital Operating cycle.

Note : Questions in Sec. A, B & C shall be in the proportion of 80:20 between Theory and Problems.

Suggested Readings

1. I.M. Pandey, Financial Management, Vikas Publishing House
2. Prasanna Chandra, Financial Management, Tata McGraw Hill Publications
3. S.N. Maheswari, Financial Management, Sultan Chand & Sons
4. Y. Khan and Jain, Financial Management, Sultan Chand & Sons
5. P. Periyasamy.P, Financial Management, Vijay Nicole Imprints Pvt. Ltd. Chennai
6. Murthy A, Financial Management, Margam Publications, Chennai
7. Srivatsava, Financial Management, Himalaya Publications

E-Resources

www.cpdwise.com
 www.simplilearn.com
 www.findtutorials.com
 www.studyfinance.com

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Unit I

SCOPE AND OBJECTIVE OF FINANCIAL MANAGEMENT

INTRODUCTION

Finance is called “The science of money”. It studies the principles and the methods of obtaining, control of money from those who have saved it, and of administering it by those into whose control it passes. It is the process of conversion of accumulated funds to productive use. Financial management is the science of money management .It is that managerial activity which is concerned with planning and controlling of the firm’s financial resources. In other words it is concerned with acquiring, financing and managing assets to accomplish the overall goal of a business enterprise.

MEANING, DEFINITION AND NATURE OF FINANCIAL MANAGEMENT:

Meaning and Definition

Financial management is that managerial activity which is concerned with the planning and controlling of the firm’s financial resources. In other words it is concerned with acquiring, financing and managing assets to accomplish the overall goal of a business enterprise (mainly to maximise the shareholder’s wealth).

“Financial management is concerned with the efficient use of an important economic resource, namely capital funds” - Solomon Ezra & J. John Pringle.

“Financial management is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient business operations”- J.L. Massie.

“Financial Management is concerned with managerial decisions that result in the acquisition and financing of long-term and short-term credits of the firm. As such it deals with the situations that require selection of specific assets (or combination of assets), the selection of specific liability (or combination of liabilities) as well as the problem of size and growth of an enterprise. The analysis of these decisions is based on the expected inflows and outflows of funds and their effects upon managerial objectives”. - Phillippatus.

'Financial Engineering'

The creation of new and improved financial products through innovative design or repackaging of existing financial instruments.

Financial engineers use various mathematical tools in order to create new investment strategies. The new products created by financial engineers can serve as solutions to problems or as ways to maximize returns from potential investment opportunities.

The management of the finances of a business / organization in order to achieve financial objectives

Taking a commercial business as the most common organizational structure, the key objectives of financial management would be to:

-
- Create wealth for the business
 - Generate cash, and
 - Provide an adequate return on investment - bearing in mind the risks that the business is taking and the resources invested.

There are three key elements to the process of financial management:

(1) Financial Planning

Management need to ensure that enough funding is available at the right time to meet the needs of the business. In the short term, funding may be needed to invest in equipment and stocks, pay employees etc.

In the medium and long term, funding may be required for significant additions to the productive capacity of the business or to make acquisitions.

(2) Financial Control

Financial control is a critically important activity to help the business ensure that the business is meeting its objectives. Financial control addresses questions such as:

- Are assets being used efficiently?
- Are the businesses assets secure?
- Do management act in the best interest of shareholders and in accordance with business rules?

(3) Financial Decision-making

The key aspects of financial decision-making relate to investment, financing and dividends:

- Investments must be financed in some way – such as selling new shares, borrowing from banks or taking credit from suppliers etc.
- A key financing decision is whether profits earned by the business should be retained rather than distributed to shareholders via dividends. If dividends are too high, the business may be starved of funding to reinvest in growing revenues and profits further.

Nature of Financial Management

- It is an indispensable organ of business management.
- Its function is different from accounting function.
- It is a centralised function.
- Helpful in decisions of top management.
- It applicable to all types of concerns.
- It needs financial planning, control and follow-up.
- It related with different disciplines like economics, accounting, law, information technology, mathematics etc.

SCOPE AND FUNCTIONS OF FINANCIAL MANAGEMENT:

The scope of financial management has undergone changes over the years. Until the middle of this century, its scope was limited to procurement of funds. In the modern times, the financial management includes besides procurement of funds, the three different kinds of decision as well namely investment, financing and dividend. Scope and importance of financial management includes-

- Estimating the total requirements of funds for a given period.
- Raising funds through various sources, both national and international, keeping in mind the cost effectiveness;
- Investing the funds in both long term as well as short term capital needs;
- Funding day-to-day working capital requirements of business;
- Collecting on time from debtors and paying to creditors on time;
- Managing funds and treasury operations;
- Ensuring a satisfactory return to all the stake holders;
- Paying interest on borrowings;
- Repaying lenders on due dates;
- Maximizing the wealth of the shareholders over the long term;
- Interfacing with the capital markets;
- Awareness to all the latest developments in the financial markets;
- Increasing the firm's competitive financial strength in the market; and
- Adhering to the requirements of corporate governance.

The above scope of activities can be grouped in to three functions-

FUNCTIONS OF FINANCIAL MANAGEMENT:

The modern approach to the financial management is concerned with the solution of major problems like investment financing and dividend decisions of the financial operations of a business enterprise. Thus, the functions of financial management can be broadly classified into three major decisions, namely:

- (a) *Investment decisions,*
- (b) *Financing decisions,*
- (c) *Dividend decisions.*

1. Investment decisions: These decisions relate to the selection of assets in which funds will be invested by a firm. Funds procured from different sources have to be invested in various kinds of assets. Long term funds are used in a project for various fixed assets and also for current assets. The investment of funds in a project has to be made after careful assessment of the various projects through capital budgeting. A part of long term fund is also to be kept for financing the working capital requirements.

2. Financing decision : These decisions relate to acquiring the optimum finance to meet financial objectives and seeing that fixed and working capital are effectively managed. It includes sources of available funds and their respective cost ,capital structure,i.e. a proper balance between equity and debt capital. It segregate profit and cash flow, financing decisions also call for a good knowledge of evaluation of risk.

3. Dividend decision- These decisions relate to the determination as to how much and how frequently cash can be paid out of the profits of an organisation as income for its owners/shareholders, and the amount to be retained to support the growth of the organisation .The level and regular growth of dividends represent a significant factor in determining a profit making company's market value i.e. the value placed on its shares by the stock market.

All the above three type of decisions are interrelated ,the first two pertaining to any kind of organisation while the third relates only to profit making organisations, thus it can be seen that financial management is of vital importance at every level of business activity ,from a sole trader to the largest multinational corporation.

FUNCTIONAL AREAS OF FINANCIAL MANAGEMENT

- Capital Budgeting
- Working Capital Management
- Dividend Policies
- Acquisitions and Mergers
- Corporate Taxation
- Determining Financial Needs
- Determining Sources of Funds
- Financial Analysis
- Optimal Capital Structure
- Cost Volume Profit Analysis
- Profit Planning and Control
- Fixed Assets Management
- Project Planning and Evaluation.

OBJECTIVE OF FINANCIAL MANAGEMENT :

Financial Management as the name suggests is management of finance. It deals with planning and mobilization of funds required by the firm. Managing of finance is nothing but managing of money. Every activity of an organization is reflected in its financial statements. Financial Management deals with activities which have financial implications. Efficient financial management requires the existence of some objectives or goals because judgment as to whether or not a financial decision is efficient must be made in the light of some objectives. It includes-

- Profit maximisation and wealth /value maximisation
- Achieving a higher growth rate.
- Attaining a large market share.
- Promoting employee welfare
- Increasing customer satisfaction.
- Improve community life.

Among these, a conflict included in profit maximisation and wealth /value maximisation objective i.e.-

The primary objective of a business is to earn profit; hence the objective of financial management is also profit maximisation. If profit is given undue importance, a number of problems can arise, such as-

- It does not take into account the time pattern of returns.
- It fails to take into account the social consideration to workers, customers etc.
- The term profit is vague – it conveys a different meaning to different people .e.g. total profit, rate of profit etc.

In wealth maximisation business firm maximise its market value ,it implies that business decision should seek to increase the net present value of the economic profit of the firm .It is the duty of the finance manager to see that the share holders get good return on the share (EPS - Earning per Share). Hence, the value of the share should increase in the stock market.

The wealth maximisation objective is generally in accord with the interest of the various groups such as owners, employees etc.

Owing to limitation (timing, social consideration etc.) in profit maximisation, in today's real world situations which is uncertain and multi-period in nature, wealth maximisation is a better objective .Where the time period is short and degree of uncertainty is not great, wealth maximisation and profit maximisation amount to essentially the same.

TIME VALUE OF MONEY AND MATHEMATICS OF FINANCE

Concept

We know that ₹ 100 in hand today is more valuable than ₹ 100 receivable after a year. We will not part with ₹ 100 now if the same sum is repaid after a year. But we might part with ₹ 100 now if we are assured that ₹ 110 will be paid at the end of the first year. This “additional Compensation” required for parting ₹ 100 today, is called “interest” or “the time value of money”. It is expressed in terms of percentage per annum.

Money should have time value for the following reasons:

- Money can be employed productively to generate real returns;
- In an inflationary period, a rupee today has higher purchasing power than a rupee in the future;
- Due to uncertainties in the future, current consumption is preferred to future Consumption.
- The three determinants combined together can be expressed to determine the rate of interest as follows :

Nominal or market interest rate

= Real rate of interest or return (+) Expected rate of inflation (+) Risk premiums to compensate for uncertainty.

Time Value of Money and mathematics

(1) Compounding: We find the Future Values (FV) of all the cash flows at the end of the time period at a given rate of interest.

(2) Discounting: We determine the Time Value of Money at Time “O” by comparing the initial outflow with the sum of the Present Values (PV) of the future inflows at a given rate of interest.

Time Value of Money

Compounding

(Future Value)

- (a) Single Flow
- (b) Multiple Flows
- (c) Annuity

Discounting

(Present Value)

- (a) Single Flow
- (b) Uneven Multiple Flows
- (c) Annuity

Future Value of a Single Flow

It is the process to determine the future value of a lump sum amount invested at one point of time.

$$FV_n = PV (1+i)^n$$

Where,

FV_n = Future value of initial cash outflow after n years

PV = Initial cash outflow

i = Rate of Interest p.a.

n = Life of the Investment

and $(1+i)^n$ = Future Value of Interest Factor (FVIF)

Example

The fixed deposit scheme of Punjab National Bank offers the following interest rates :

Period of Deposit Rate Per Annum

46 days to 179 days 5.0

180 days < 1 year 5.5

1 year and above 6.0

An amount of Rs. 15,000 invested today for 3 years will be compounded to :

$$\begin{aligned} FV_n &= PV (1+i)^n \\ &= PV \times FVIF (6, 3) \\ &= PV \times (1.06)^3 \\ &= 15,000 (1.191) \\ &= ₹ 17,865 \end{aligned}$$

Present Value of a Single Flow :

$$PV = \frac{FVn}{(1+i)^n}$$

Where, PV = Present Value

FVn = Future Value receivable after n years

i = rate of interest

n = time period

Example

Calculate P.V. of ₹ 50,000 receivable for 3 years @ 10%

P.V. = Cash Flows × Annuity @ 10% for 3 years.

$$= 50,000 \times 2.4868 = ₹ 1,24,340/-$$

CONCEPT OF RISK AND RETURN

Return expresses the amount which an investor actually earned on an investment during a certain period. Return includes the interest, dividend and capital gains; while risk represents the uncertainty associated with a particular task. In financial terms, risk is the chance or probability that a certain investment may or may not deliver the actual/expected returns.

Investors make investment with the objective of earning some tangible benefit. This benefit in financial terminology is termed as return and is a reward for taking a specified amount of risk.

Risk is defined as the possibility of the actual return being different from the expected return on an investment over the period of investment. Low risk leads to low returns. For instance, in case of government securities, while the rate of return is low, the risk of defaulting is also low. High risks lead to higher potential returns, but may also lead to higher losses. Long-term returns on stocks are much higher than the returns on Government securities, but the risk of losing money is also higher.

The risk and return trade off says that the potential return rises with an increase in risk. It is important for an investor to decide on a balance between the desire for the lowest possible risk and highest possible return.

Rate of return on an investment can be calculated using the following formula-

$$\text{Return} = (\text{Amount received} - \text{Amount invested}) / \text{Amount invested}$$

The functions of Financial Management involves acquiring funds for meeting short term and long term requirements of the firm, deployment of funds, control over the use of funds and to trade-off between risk and return.

UNIT -II

INVESTMENT DECISION

Investment decision relates to the determination of total amount of assets to be held in the firm, the composition of these assets and the business risk complexions of the firm as perceived by its investors. It is the most important financial decision that the firm makes in pursuit of making shareholders wealth.

Investment decision can be classified under two broad groups.

- Long-term investment decision i.e. Capital budgeting.
- Short-term investment decision i.e. Working Capital Management.

The evaluation of long-term investment decisions or investment analysis to be consistent with the firm's goal involves the following three basic steps.

1. Estimation or determination of cash flows.
2. Determining the rate of discount or cost of capital.
3. Applying the technique of capital budgeting to determine the viability of the investment proposal.

1. Estimation of relevant cash flows.

If a firm makes an investment today, it will require an immediate cash outlay, but the benefits of this investment will be received in future. There are two alternative criteria available for ascertaining future economic benefits of an investment proposal-

1. Accounting profit
2. Cash flow.

The term accounting profit refers to the figure of profit as determined by the Income statement or Profit and Loss Account, while cash flow refers to cash revenues minus cash expenses. The difference between these two criteria arises primarily because of certain non-cash expenses, such as depreciation, being charged to profit and loss account. Thus, the accounting profits have to be adjusted for such non-cash charges to determine the actual cash inflows. In fact, cash flows are considered to be better measure of economic viability as compared to accounting profits.

2. Determining the rate of discount or cost of capital.

It is the evaluation of investment decisions on net present value basis i.e. determine the rate of discount. Cost of capital is the minimum rate of return expected by its investors.

3. Applying the technique of capital budgeting to determine the viability of the investment proposal.

Capital Budgeting is the process of making investment decisions in capital expenditures. A capital expenditure may be defined as an expenditure the benefit of which are expected to be received over period of time exceeding one year. Capital Budgeting technique helps to determine the viability of the investment proposal or taking long-term investment decision.

CAPITAL BUDGETING PROCESS :

A Capital Budgeting decision involves the following process :

- (1) Identification of investment proposals.
- (2) Screening the proposals.
- (3) Evaluation of various proposals.
- (4) Fixing priorities.
- (5) Final approval and preparation of capital expenditure budget.
- (6) Implementing proposal.
- (7) Performance review.

The overall objective of capital budgeting is to maximise the profitability of a firm or the return on investment. There are many methods of evaluating profitability of capital investment proposals.

METHODS OF CAPITAL BUDGETING OR EVALUATION OF INVESTMENT PROPOSALS (INVESTMENT APPRAISAL TECHNIQUES)

The various commonly used methods are as follows.

I . Traditional methods

- (1) Pay back period method or pay out or pay off method.(PBP)
- (2) Accounting Rate of Return method or Average Rate of Return. (ARR)

II. Time adjusted method or discounted method

- (3)Net Present Value method.(NPV)
- (4)Profitability Index method (PI)
- (5)Internal Rate of Return method (IRR)
- (6)Net Terminal Value method (NTV)

(1) Pay back period method or pay out or pay off method.(PBP)

The basic element of this method is to calculate the recovery time, by year wise accumulation of cash inflows (inclusive of depreciation) until the cash inflows equal the amount of the original investment. The time taken to recover such original investment is the “payback period” for the project.

“The shorter the payback period, the more desirable a project”.

The pay back period can be calculated in two different situation as follows-

(a) When annual cash inflow are equal

$$\text{Pay back period} = \frac{\text{Original cost of the project (cash outlay)}}{\text{Annual net cash inflow (net earnings)}}$$

Example- A project cost ₹ 1,00,000 and yields an annual cash inflow of ₹ 20,000 for 8 years, calculate pay back period.

$$\begin{aligned} \text{Pay back period} &= \frac{\text{Original cost of the project (cash outlay)}}{\text{Annual net cash inflow (net earnings)}} \\ &= \frac{1,00,000}{20,000} = 5 \text{ years.} \end{aligned}$$

(b) When annual cash inflows are unequal

It is ascertained by cumulating cash inflows till the time when the cumulative cash inflows become equal to initial investment.

$$\text{Pay back period} = Y + \frac{B}{C}$$

Y=No of years immediately preceding the year of final recovery.

B=Balance amount still to be recovered.

C=Cash inflow during the year of final recovery.

Example: Initial Investment = ₹ 10,000 in a project

Expected future cash inflows ₹ 2000, ₹ 4000, ₹ 3000, ₹ 2000

Solution :

Calculation of Pay Back period.

Year	Cash Inflows (₹)	Cumulative Cash Inflows (₹)
1	2000	2000
2	4000	6000
3	3000	9000
4	2000	11000

The initial investment is recovered between the 3rd and the 4th year.

$$\text{Pay back period} = Y + \frac{B}{C} = 3 + \frac{1000}{2000} \text{ years} = 3 + \frac{1}{2} \text{ years} = 3 \text{ year 6 months}$$

Merits of Pay back period :

- (1) No assumptions about future interest rates.
- (2) In case of uncertainty in future, this method is most appropriate.
- (3) A company is compelled to invest in projects with shortest payback period, if capital is a constraint.
- (4) It is an indication for the prospective investors specifying the payback period of their investments.
- (5) Ranking projects as per their payback period may be useful to firms undergoing liquidity constraints.

Demerits of Pay back period:

- (1) Cash generation beyond payback period is ignored.
- (2) The timing of returns and the cost of capital is not considered.
- (3) The traditional payback method does not consider the salvage value of an investment.
- (4) Percentage Return on the capital invested is not measured.
- (5) Projects with long payback periods are characteristically those involved in long-term planning, which are ignored in this approach.

(2) Accounting Rate of Return method or Average Rate of Return (ARR)

This method measures the increase in profit expected to result from investment.

It is based on accounting profits and not cash flows.

$$\text{ARR} = \frac{\text{Average income or return}}{\text{Average investment}} \times 100$$

$$\text{Average investment} = \frac{\text{Original investment} + \text{Salvage value}}{2}$$

Example.

A project costing ₹ 10 lacs. EBITD (Earnings before Depreciation, Interest and Taxes) during the first five years is expected to be ₹ 2,50,000; ₹ 3,00,000; ₹ 3,50,000; ₹ 4,00,000 and ₹ 5,00,000. Assume 33.99% tax and 30% depreciation on WDV Method.

Solution :

Computation of Project ARR :

Particulars	Yr1	Yr 2	Yr3	Yr 4	Yr 5	Average
	₹	₹	₹	₹	₹	₹
EBITD	2,50,000	3,00,000	3,50,000	4,00,000	5,00,000	3,60,000
Less : Depreciation	3,00,000	2,10,000	1,47,000	1,02,900	72,030	1,66,386
EBIT	(50,000)	90,000	2,03,000	2,97,100	4,27,970	1,93,614
Less : Tax @ 33.99%	-	13,596	69,000	1,00,984	1,45,467	65,809
Total	(50,000)	76,404	1,34,000	1,96,116	2,82,503	1,27,805
Book Value of Investment :						
Beginning	10,00,000	7,00,000	4,90,000	3,43,000	2,40,100	
End	7,00,000	4,90,000	3,43,000	2,40,100	1,68,070	
Average	8,50,000	5,95,000	4,16,500	2,91,550	2,04,085	4,71,427

$$\text{ARR} = \frac{\text{Average income or return}}{\text{Average investment}} \times 100 = \frac{127805}{471427} \times 100 = 27.11\%$$

Note : Unabsorbed depreciation of Yr. 1 is carried forward and set-off against profits of Yr. 2. Tax is calculated on the balance of profits

$$= 33.99\% (90,000 - 50,000)$$

$$= 13,596/-$$

Merits of ARR

- (1) This method considers all the years in the life of the project.
- (2) It is based upon profits and not concerned with cash flows.
- (3) Quick decision can be taken when a number of capital investment proposals are being considered.

Demerits of ARR

- (1) Time Value of Money is not considered.
- (2) It is biased against short-term projects.
- (3) The ARR is not an indicator of acceptance or rejection, unless the rates are compared with the arbitrary management target.
- (4) It fails to measure the rate of return on a project even if there are uniform cash flows.

(3) Net Present Value method.(NPV)

NPV = Present Value of Cash Inflows – Present Value of Cash Outflows

The discounting is done by the entity's weighted average cost of capital.

The discounting factors is given by : $n \frac{1}{(1+i)^n}$

1

Where

i = rate of interest per annum

n = no. of years over which discounting is made.

Example.

Z Ltd. has two projects under consideration A & B, each costing ₹ 60 lacs.

The projects are mutually exclusive. Life for project A is 4 years & project B is 3 years. Salvage value NIL for both the projects. Tax Rate 33.99%. Cost of Capital is 15%.

Net Cash Inflow (₹ in Lakhs)

At the end of the year	Project A	Project B	P.V. @ 15%
1	60	100	0.870
2	110	130	0.756
3	120	50	0.685
4	50	—	0.572

Solution :

Computation of Net Present Value of the Projects.

Project A (₹ in Lakhs)

	Yr1	Yr. 2	Yr. 3	Yr. 4
1. Net Cash Inflow	60.00	110.00	120.00	50.00
2. Depreciation	15.00	15.00	15.00	15.00
3. PBT (1–2)	45.00	95.00	105.00	35.00
4. Tax @ 33.99%	15.30	32.29	35.70	11.90
5. PAT (3–4)	29.70	62.71	69.30	23.10
6. Net Cash Flow (PAT+Deprn)	44.70	77.71	84.30	38.10
7. Discounting Factor	0.870	0.756	0.685	0.572
8. P.V. of Net Cash Flows	38.89	58.75	57.75	21.79
9. Total P.V. of Net Cash Flow	= 177.18			
10. P.V. of Cash outflow (Initial Investment)	= <u>60.00</u>			
Net Present Value	= 117.18			

Project B

	Yr. 1	Yr. 2	Yr. 3
1. Net Cash Inflow	100.00	130.00	50.00
2. Depreciation	20.00	20.00	20.00
3. PBT (1–2)	80.0	110.00	30.00
4. Tax @ 33.99%	27.19	37.39	10.20
5. PAT (3–4)	52.81	72.61	19.80
6. Next Cash Flow (PAT+Dep.)	72.81	92.61	39.80
7. Discounting Factor	0.870	0.756	0.685
8. P.V. of Next Cash Flows	63.345	70.013	27.263
9. Total P.V. of Cash Inflows	= 160.621		
10. P.V. of Cash Outflows (Initial Investment)	= <u>60.00</u>		
Net Present Value	= 100.621		

As Project “A” has a higher Net Present Value, it has to be taken up.

Merits of Net Present Value method

- (1) It recognises the Time Value of Money.
- (2) It considers total benefits during the entire life of the Project.
- (3) This is applicable in case of mutually exclusive Projects.
- (4) Since it is based on the assumptions of cash flows, it helps in determining Shareholders Wealth.

Demerits of Net Present Value method

- (1) This is not an absolute measure.
- (2) Desired rate of return may vary from time to time due to changes in cost of capital.
- (3) This Method is not effective when there is disparity in economic life of the projects.
- (4) More emphasis on net present values. Initial investment is not given due importance.

(4) Profitability Index method (PI)

$$\text{Profitability Index} = \frac{\text{P.V. of cash outflow}}{\text{P.V. of cash inflow}}$$

If $P.I > 1$, project is accepted

$P.I < 1$, project is rejected

The Profitability Index (PI) signifies present value of inflow per rupee of outflow. It helps to compare projects involving different amounts of initial investments.

Example

Initial investment ₹ 20 lacs. Expected annual cash flows ₹ 6 lacs for 10 years. Cost of Capital @ 15%.

Calculate Profitability Index.

Solution :

Cumulative discounting factor @ 15% for 10 years = 5.019

P.V. of inflows = $6.00 \times 5.019 = ₹ 30.114$ lacs.

$$\text{Profitability Index} = \frac{\text{P.V. of cash outflow}}{\text{P.V. of cash inflow}}$$

$$\text{Profitability Index} = \frac{30.114}{20} = 1.51$$

Decision : The project should be accepted.

(5) Internal Rate of Return method (IRR)

Internal Rate of Return is a percentage discount rate applied in capital investment decisions which brings the cost of a project and its expected future cash flows into equality, i.e., NPV is zero.

Example.

Project Cost Rs. 1,10,000

Cash Inflows :

Year 1	₹ 60,000
“ 2	₹ 20,000
“ 3	₹ 10,000
“ 4	₹ 50,000

Calculate the Internal Rate of Return.

Solution :

Internal Rate of Return will be calculated by the trial and error method. The cash flow is not uniform. To have an approximate idea about such rate, we can calculate the “Factor”. It represents the same relationship of investment and cash inflows in case of payback calculation *i.e.*

$$F = I/C$$

Where F = Factor

I = Original investment

C = Average Cash inflow per annum

$$\text{Factor for the project} = \frac{110000}{35000} = 3.14.$$

The factor will be located from the table “P.V. of an Annuity of ₹ 1” representing number of years corresponding to estimated useful life of the asset.

The approximate value of 3.14 is located against 10% in 4 years.

We will now apply 10% and 12% to get (+) NPV and (-) NPV [Which means IRR lies in between]

Year	Cash Inflows (₹)	P.V. @ 10%	DCFAT (₹)	P.V. @ 12%	DCFAT (₹)
1	60,000	0.909	54,540	0.893	53,580
2	20,000	0.826	16,520	0.797	15,940
3	10,000	0.751	7,510	0.712	7,120
4	50,000	0.683	34,150	0.636	31,800
P.V. of Inflows			1,12,720		1,08,440
Less : Initial Investment			1,10,000		1,10,000
NPV			2,720		(1,560)

Graphically,

	<u>For 2%, Difference = 4,280</u>	
	↓	↓
	10%	12%
NPV	2,720	(1560)

IRR may be calculated in two ways :

Forward Method : Taking 10%, (+) NPV

$$\text{IRR} = 10\% + \frac{\text{NPV at 10\%}}{\text{Total Difference}} \times \text{Difference in rate}$$

$$\begin{aligned} \text{IRR} &= 10\% + \frac{2720}{4280} \times 2\% \\ &= 10\% + 1.27\% = 11.27\% \end{aligned}$$

Backward Method : Taking 12%, (-) NPV

$$\begin{aligned} \text{IRR} &= 12\% + \frac{(1560)}{4280} \times 2\% \\ &= 12\% - 0.73\% = 11.27\% \end{aligned}$$

The decision rule for the internal rate of return is to invest in a project if its rate of return is greater than its cost of capital.

For independent projects and situations involving no capital rationing, then :

Situation	Signifies	Decision
IRR = Cost of Capital	the investment is expected not to change shareholder wealth.	Indifferent between Accepting & Rejecting
IRR > Cost of Capital	The investment is expected to increase shareholders wealth	Accept
IRR < Cost of Capital	The investment is expected to decrease shareholders wealth	Reject

Merits of Internal Rate of Return method :

- (i) The Time Value of Money is considered.
- (ii) All cash flows in the project are considered.

Demerits of Internal Rate of Return method

- (i) Possibility of multiple IRR, interpretation may be difficult.
- (ii) If two projects with different inflow/outflow patterns are compared, IRR will lead to peculiar situations.
- (iii) If mutually exclusive projects with different investments, a project with higher investment but lower IRR contributes more in terms of absolute NPV and increases the shareholders' wealth.

When evaluating mutually exclusive projects, the one with the highest IRR may not be the one with the best NPV.

The conflict between NPV & IRR for the evaluation of mutually exclusive projects is due to the reinvestment assumption:

- NPV assumes cash flows reinvested at the cost of capital.
- IRR assumes cash flows reinvested at the internal rate of return.

The reinvestment assumption may cause different decisions due to :

- Timing difference of cash flows.
- Difference in scale of operations.
- Project life disparity.

(6) Net Terminal Value method (NTV)

Assumption :

- (1) Each cash flow is reinvested in another project at a predetermined rate of interest.
- (2) Each cash inflow is reinvested elsewhere immediately after the completion of the project.

Decision-making

If the P.V. of Sum Total of the Compound reinvested cash flows is greater than the P.V. of the outflows of the project under consideration, the project will be accepted otherwise not.

Example :

Original Investment	₹ 40,000
Life of the project	4 years
Cash Inflows	₹ 25,000 for 4 years
Cost of Capital	10% p.a.

Expected interest rates at which the cash inflows will be reinvested:

Year-end	1	2	3	4
%	8	8	8	8

Solution :

First of all, it is necessary to find out the total compounded sum which will be discounted back to the present value.

Year	Cash Inflows (₹)	Rate of Int. (%)	Yrs. of Investment (₹)	Compounding Factor	Total Compounding Sum (₹)
1	25,000	8	3	1.260	31,500
2	25,000	8	2	1.166	29,150
3	25,000	8	1	1.080	27,000
4	25,000	8	0	1.000	<u>25,000</u>
					1,12,650

Present Value of the sum of compounded values by applying the discount rate @ 10%

$$\frac{\text{Compounded Value of Cash Inflow}}{(1+i)^n} = \frac{112650}{(1.10)^4} =$$

$$= 1,12,650 \times 0.683 = 76,940/-$$

[0.683 being the P.V. of ₹ 1 receivable after 4 years]

$$\text{NTV} = 76,940 - 40,000 = 36,940$$

Decision: The present value of reinvested cash flows, i.e., ₹ 76,940 is greater than the original cash outlay of ₹ 40,000.

The project should be accepted as per the Net terminal value criterion.

UNIT -III

FINANCING DECISION

The financing decision relates to the composition of relative proportion of various sources of finance. The sources could be:

1. **Shareholders fund:** Equity share capital, Preference share capital, Accumulated profits.
2. **Borrowing from outside agencies:** Debentures, Loans from Financial Institutions.

Whether the companies choose shareholders funds or borrowed funds or a combination of both, each type of fund carries a cost.

The cost of equity is the minimum return the shareholders would have received if they had invested elsewhere. Borrowed funds cost involve interest payment.

Both types of funds incur cost and this is the cost of capital to the company. This means, cost of capital is the minimum return expected by the company.

COST OF CAPITAL AND FINANCING DECISION.

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

Soloman Ezra : “Cost of Capital is the minimum required rate of earnings or the cut-off rate of capital expenditure”.

It is the discount rate /minimum rate of return/opportunity cost of an investment.

IMPORTANCE OF COST OF CAPITAL :

The cost of capital is very important in financial management and plays a crucial role in the following areas:

- i) **Capital budgeting decisions:** The cost of capital is used for discounting cash flows under Net Present Value method for investment proposals. So, it is very useful in capital budgeting decisions.
- ii) **Capital structure decisions:** An optimal capital structure is that structure at which the value of the firm is maximum and cost of capital is the lowest. So, cost of capital is crucial in designing optimal capital structure.
- iii) **Evaluation of financial performance:** Cost of capital is used to evaluate the financial performance of top management. The actual profitability is compared to the expected and actual cost of capital of funds and if profit is greater than the cost of capital the performance may be said to be satisfactory.
- iv) **Other financial decisions:** Cost of capital is also useful in making such other financial decisions as dividend policy, capitalization of profits, making the rights issue, etc.

Explicit and Implicit Cost: *Explicit cost* of any source of finance is the discount rate which equates the present value of cash inflows with the present value of cash outflows. It is the internal rate of return.

Implicit cost also known as the opportunity cost is the opportunity foregone in order to take up a particular project. For example, the implicit cost of retained earnings is the rate of return available to shareholders by investing the funds elsewhere.

ESTIMATION OF COMPONENTS OF COST OF CAPITAL

Components of cost of capital includes individual source of finance in business. From the viewpoint of capital budgeting decisions, the long term sources of funds are relevant as they constitute the major sources of financing the fixed assets. In calculating the cost of capital, therefore components include-

1. Long term debt (including Debentures)
2. Preference capital
3. Equity Capital.
4. Retained Earnings
5. Weighted Average Cost of Capital
6. Marginal Cost of Capital

1. Cost of Debt (kd) (Long term debt (including Debentures))

Debt may be perpetual or redeemable debt. Moreover, it may be issued at par, at premium or discount. The computation of cost of debt in each is explained below.

Perpetual / irredeemable debt :

K_d = Cost of debt before tax = I/NP

K_d = Cost of debt; I = interest; NP = Net Proceeds

$$k_d(\text{after-tax}) = \frac{I}{NP} (1-t)$$

Where t = tax rate

Example

Y Ltd issued ₹ 2,00,000, 9% debentures at a premium of 10%. The costs of floatation are 2%. The tax rate is 50%. Compute the after tax cost of debt.

$$\text{Answer : } k_d(\text{after-tax}) = \frac{I}{NP} (1-t) = \frac{Rs.18000}{Rs.215600} (1-0.5) = 4.17\%$$

[Net Proceeds = ₹2,00,000 + 20,000 – (2/100×2,20,000)]

Redeemable debt

The debt repayable after a certain period is known as redeemable debt.

$$i) \quad \text{Before-tax cost of febt} = \frac{I + \frac{1}{n}(P - NP)}{\frac{1}{2}(P + NP)}$$

I = interest : P = proceeds at par;

NP = net proceeds; n = No. of years in which debt is to be redeemed

ii) After tax cost of debt = Before – tax cost of debt × (1-t)

Example

A company issued Rs. 1,00,000, 10% redeemable debentures at a discount of 5%. The cost of floatation amount to Rs. 3,000. The debentures are redeemable after 5 years. Compute before – tax and after – tax cost of debt. The tax rate is 50%.

Solution :

$$\text{Before-tax cost of febt} = \frac{I + \frac{1}{n}(P - NP)}{\frac{1}{2}(P + NP)}$$

$$\text{Before-tax cost of febt} = \frac{10000 + \frac{1}{5}(100000 - 92000)}{\frac{1}{2}(100000 + 92000)} = 12.08\%$$

[NP = 1,00,000 – 5,000 – 3,000 = 92,000]

After tax cost of debt = Before – tax cost x (1-t) = 12.08 X (1-.5) = 6.04%

2. Cost of Preference Capital (kP)

In case of preference share dividend are payable at a fixed rate. However, the dividends are allowed to be deducted for computation of tax. So no adjustment for tax is required. Just like debentures, preference share may be perpetual or redeemable. Further, they may be issued at par, premium or discount.

Perpetual Preference Capital

i) If issued at par ; $K_p = D/P$

K_p = Cost of preference capital

D = Annual preference dividend

P = Proceeds at par value

ii) If issued at premium or discount

$K_p = D/NP$ Where NP = Net Proceeds.

Example :

A company issued 10,000, 10% preference share of ₹ 10 each, Cost of issue is ₹. 2 per share. Calculate cost of capital if these shares are issued (a) at par, (b) at 10% premium, and (c) at 5% discount.

Solutions : Cost of preference capital, (K_p) = D/NP

a) When issued at par :

$$K_p = \frac{10000}{100000 - 20000} \times 100 = 12.5\%$$

[Cost of issue = $10,000 \times ₹ 2 = \text{Rs. } 20,000$]

b) When issued at 10% premium

$$K_p = \frac{10000}{100000 + 10000 - 20000} \times 100 = 11.11\%$$

c) When issued at 5% discount :

$$K_p = \frac{10000}{100000 - 5000 - 20000} \times 100 = 13.33\%$$

3. Cost of Equity capital

Cost of Equity is the expected rate of return by the equity shareholders. Some argue that, as there is no legal compulsion for payment, equity capital does not involve any cost. But it is not correct. Equity shareholders normally expect some dividend from the company while making investment in shares. Thus, the rate of return expected by them becomes the cost of equity. Conceptually, cost of equity share capital may be defined as the minimum rate of return that a firm must earn on the equity part of total investment in a project in order to leave unchanged the market price of such shares. For the determination of cost of equity capital it may be divided into two categories:

- i) External equity or new issue of equity shares.
- ii) Retained earnings.

The cost of external equity can be computed as per the following approaches:

Dividend Yield / Dividend Price Approach : According to this approach, the cost of equity will be that rate of expected dividends which will maintain the present market price of equity shares. It is calculated with the following formula :

$$K_e = D/NP \text{ (for new equity shares)}$$

Or

$$K_e = D/MP \text{ (for existing shares)}$$

Where,

K_e = Cost of equity

D = Expected dividend per share

NP = Net proceeds per share

MP = Market price per share

This approach rightly recognizes the importance of dividends. However, it ignores the importance of retained earnings on the market price of equity shares. This method is suitable only when the company has stable earnings and stable dividend policy over a period of time.

Example:

A company issues, 10,000 equity shares of ₹ . 100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expected to maintain the same in the future also. Compute cost of equity capital. Will it make any difference if the market price of equity share is ₹50 ?

Solution:

$$K_e = \frac{D}{NP} \times 100 = \frac{20}{110} \times 100 = 18.18\%$$

If the market price per share =Rs.150

$$K_e = \frac{D}{MP} \times 100 = \frac{20}{150} \times 100 = 13.33\%$$

Dividend yield plus Growth in dividend methods

According to this method, the cost of equity is determined on the basis of the expected dividend rate plus the rate of growth in dividend. This method is used when dividends are expected to grow at a constant rate.

Cost of equity is calculated as :

$$K_e = D_1 / NP + g \text{ (for new equity issue)}$$

Where,

D₁ = expected dividend per share at the end of the year. [D₁ = D₀(1+g)]

NP = net proceeds per share

g = growth in dividend for existing share is calculated as:

$$D_1 / MP + g$$

Where,

MP = market price per share.

Example:

ABC Ltd plans to issue 1,00,000 new equity share of ₹10 each at par. The floatation costs are expected to be 5% of the share price. The company pays a dividend of ₹ 1 per share and the growth rate in dividend is expected to be 5%. Compute the cost of new equity share. If the current market price is ₹5, compute the cost of existing equity share.

Solution:

Cost of new equity shares = (K_e) = D/NP +g

$$K_e = 1 / (10-0.5) + 0.05 = 1 / 9.5 + 0.05$$

$$= 0.01053 + 0.05$$

$$= 0.1553 \text{ or } 15.53\%$$

Cost of existing equity share: k_e = D / MP + g

$$K_e = 1 / ₹ 15 + 0.05 = 0.0667 \text{ or } 11.67\%$$

Earnings Yield Method –

According to this approach, the cost of equity is the discount rate that capitalizes a stream of future earnings to evaluate the shareholdings. It is computed by taking earnings per share (EPS) into consideration. It is calculated as :

- i) $K_e = \text{Earnings per share} / \text{Net proceeds} = \text{EPS} / \text{NP}$ [For new share]
- ii) $K_e = \text{EPS} / \text{MP}$ [For existing equity]

Example

XYZ Ltd is planning for an expenditure of ₹ 120 lakhs for its expansion programme. Number of existing equity shares are 20 lakhs and the market value of equity shares is ₹ 60. It has net earnings of ₹ 180 lakhs. Compute the cost of existing equity share and the cost of new equity capital assuming that new share will be issued at a price of ₹ 52 per share and the costs of new issue will be ₹ per share.

Solutions :

$$a) \text{ Cost of existing equity} = (K_e) = \frac{\text{EPS}}{\text{MP}}$$

$$\text{Earnings per share (EPS)} = \frac{18000000}{2000000} = ₹9$$

$$K_e = 9/60 = 0.15 \text{ or } 15\%$$

$$b) \text{ Cost of new equity capital (Ke)} = \text{EPS}/\text{NP} = 9/52 = 0.173 \text{ or } 17.3\%$$

4. Cost of Retained Earnings (Kr)

Retained earnings refer to undistributed profits of a firm. Out of the total earnings, firms generally distribute only part of them in the form of dividends and the rest will be retained within the firms. Since no dividend is required to be paid on retained earnings, it is stated that 'retained earnings carry no cost'. But this approach is not appropriate. Retained earnings have the opportunity cost of dividends in alternative investment, which becomes cost of retained earnings. Hence, shareholders expect a return on retained earnings at least equity.

$$K_r = K_e = D/\text{NP} + g$$

However, while calculating cost of retained earnings, two adjustments should be made : a) Income-tax adjustment as the shareholders are to pay some income tax out of dividends, and b) adjustment for brokerage cost as the shareholders should incur some brokerage cost while investing dividend income. Therefore, after these adjustments, cost of retained earnings is calculated as :

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

$$K_e = \text{Cost of equity}$$

$$t = \text{rate of tax}$$

$$b = \text{cost of purchasing new securities or brokerage cost.}$$

Example

A firm's cost of equity (K_e) is 18%, the average income tax rate of shareholders is 30% and brokerage cost of 2% is expected to be incurred while investing their dividends in alternative securities. Compute the cost of retained earnings.

Solution:

$$\begin{aligned}\text{Cost of retained earnings} = (K_r) &= K_e (1-t)(1-b) = 18(1-.30)(1-.02) \\ &= 18 \times .7 \times .98 = 12.35\%\end{aligned}$$

5. Weighted Average Cost of Capital

It is the average of the costs of various sources of financing. It is also known as composite or overall or average cost of capital.

After computing the cost of individual sources of finance, the weighted average cost of capital is calculated by putting weights in the proportion of the various sources of funds to the total funds. Weighted average cost of capital is computed by using either of the following two types of weights:

- 1) Market value
- 2) Book Value

Market value weights are sometimes preferred to the book value weights as the market value represents the true value of the investors. However, market value weights suffer from the following limitations:

- i) Market value are subject to frequent fluctuations.
- ii) Equity capital gets more importance, with the use of market value weights.

Moreover, book values are readily available.

Average cost of capital is computed as followings:

$$K_w = \frac{\sum X}{\sum W}$$

Where, K_w = weighted average cost of capital

X = cost of specific sources of finance

W = weights (proportions of specific sources of finance in the total)

The following steps are involved in the computation of weighted average cost of capital :

- i) Multiply the cost of each sources with the corresponding weight.
- ii) Add all these weighted costs so that weighted average cost of capital is obtained.

6. Marginal Cost of Capital

An average cost is the combined cost or weighted average cost of various sources of capital. Marginal cost refers to the average cost of capital of new or additional funds required by a firm. It is the marginal cost which should be taken into consideration in investment decisions.

Example: WACC and Marginal WACC Computation

XYZ Ltd. (in 40% Tax bracket) has the following book value capital structure —

Equity Capital (in shares of ₹ 10 each, fully paid-up at par)	₹15 Crores
11% Preference Capital (in shares of ₹ 100 each, fully paid-up at par)	₹ 1 Crore
Retained Earnings	
13.5% Debentures (of ₹ 100 each)	₹ 20 Crores
15% Term Loans	₹ 10 Crores
	₹ 12.5 Crores

The next expected dividend on Equity Shares is Rs. 3.60 per share. Dividends are expected to grow at 7% and the Market price per share is ₹ 40.

-Preference Stock, redeemable after ten years, is currently selling at ₹ 75 per share.

-Debentures, redeemable after 6 years, are selling at ₹ 80 per debenture.

Required :

1. Compute the present WACC using (a) Book Value Proportions and (b) Market Value Proportions.
2. Compute the weighted Marginal Cost of Capital if the Company raises ₹ 10 Cores next year, given the following information—
 - The amount will be raised by equity and debt in equal proportions.
 - The Company expects to retain ₹ 1.5 Cores earnings next year.
 - The additional issue of Equity Shares will result in the net price per share being fixed at ₹ 32.
 - The Debt capital raised by way of Term Loans will cost 15% for the first ₹. 2.5 Cores and 16% for the next ₹ 2.5 Cores.

Solution :

1. Computation of Cost of Equity under Dividend Approach

Present Cost of Equity under Dividend Approach :

$$K_e = \frac{\text{Dividend per share}}{\text{Market price per share}} + g \text{ (Growth Rate)} = K_e = \frac{3.60}{40.00} + 7\% = 16.00\%$$

Revised Cost of Equity under Dividend Approach :

$$K_e = \frac{\text{Dividend per share}}{\text{Market price per share}} + g \text{ (Growth Rate)} = K_e = \frac{3.60}{32.00} + 7\% = 18.25\%$$

2. Computation of Cost of Preference Share Capital

$$\frac{\text{Preference Dividend} + (\text{RV} - \text{Net Proceeds}) \times \frac{1}{2}}{\text{RV} + \text{Net Proceeds} \div 2} = \frac{[11 + (100 - 75) \times \frac{1}{2}]}{[100 + 75] \div 2} = 15.43\%$$

3. Computation of Cost of Debt

Present Cost of Debentures :

$$\frac{\text{Preference Dividend} + (\text{RV} - \text{Net Proceeds}) \times \frac{1}{2}}{\text{RV} + \text{Net Proceeds} \div 2} = \frac{[13.5 \times 60\% + (100 - 80) \times \frac{1}{2}]}{[100 + 80] \div 2} = 12.70\%$$

Present Cost of Term Loans = $K_d = \text{Interest} (100\% - \text{Tax Rate}) = 15\% \times (100\% - 40\%) = 9.00\%$.

Cost of Additional Debt for first Rs. 2.50 Crores = $\text{Interest} (100\% - \text{Tax Rate}) = 15\% \times 60\% = 9.00\%$

Cost of Additional Debt for next Rs. 2.50 Crores = $\text{Interest} (100\% - \text{Tax Rate}) = 16\% \times 60\% = 9.60\%$.

3. Computation of Present WACC base on Book Value Proportions

Particulars	Amount	Proportion	Individual Cost	WACC
Equity Capital	₹15 Crore	15/58.5	16.00%	4.10%
Preference Capital	₹ 1 Crore	1/58.5	15.43%	0.26%
Retained Earnings	₹ 20 Crores	20/58.5	16.00%	5.47%
Debentures	₹ 10 Crores	10/58.5	12.70%	2.17%
Loans	₹ 12.5 Crores	12.5/58.5	9.00%	1.92%
Total	₹ 58.5 Crores	100%		K0=13.92%

4. Computation of Present WACC base on Market Value Proportions

Particulars	Amount	Proportion	Individual Cost	WACC
Equity Capital	₹ 60 Crores	60/81.25	16.00%	11.82%
Preference Capital	₹. 0.75Crore			
Retained Earnings	Not applicable*	0.75/81.25	15.43%	0.14%
Debentures	₹ 8 Crores	8/81.25	12.70%	1.25%
Loans	₹ 12.5 Crores	12.5/81.25	9.00%	1.38%
Total	₹ 81.25Crores	100%		K0=14.59%

*Retained Earnings Included in Market Value of Equity Share Capital, hence not applicable

6. Computation of Marginal Cost of Capital

Marginal Cost of Capital is computed in different segments as under —

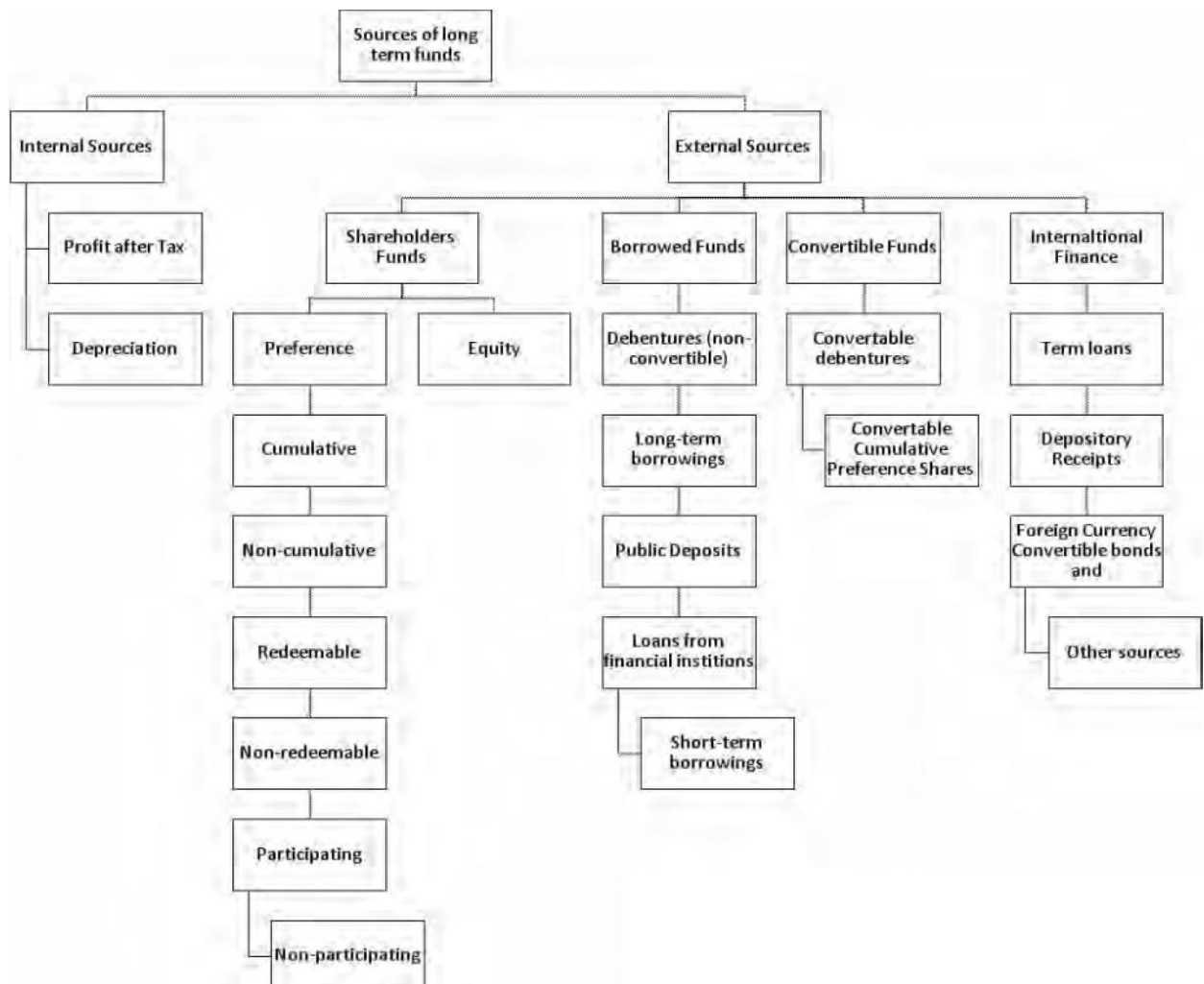
For the first ₹ 1.5 Crores of Equity and Debt each — since retained earnings are ₹ 1.5 Crores. For the next ₹ 1 Crores of Debt and Equity each — since cost of debt changes beyond ₹. 2.5 Crores debt. For the balance ₹ 2.5 Crores of Debt and Equity each.

Particulars	Debt	Equity	Total	Individual Cost	Marginal WACC
First 1.5 Crores	₹1.5 Crores	₹1.5 Crores	₹ 3Crores	Kd = 9.00% Ke = 16.00%	$(9.00\% \times 50\%) + (16.00\% \times 50\%)$ = 12.50%
Next ₹ 1.5 Crores	₹1 Crores	₹1 Crores	₹ 2Crores	Kd = 9.60% Ke = 18.25%	$(9.60\% \times 50\%) + (18.25\% \times 50\%)$ = 13.93%
Balance amount	₹2.5Crores	₹ 2.5Crores	₹5 Crores	Kd = 9.60% Ke = 18.25%	$(9.60\% \times 50\%) + (18.25\% \times 50\%)$ = 13.93%

LONG TERM SOURCES OF FUNDS:

Companies raise long term funds from the capital markets. Funds available for a period of less than one year are short term funds. With the increase in cross-border transactions, international sources of funds are also available. An effective trade-off between the domestic funds and international funds shall contribute towards increasing profitability and wealth maximisation

To enable the investments, creation of assets and infrastructure, an organisation require long term sources of funds. They are:



1. Equity Share Capital

Equity share capital is a basic source of finance for any Company. It represents the ownership interest in the company. The characteristics of equity share capital are a direct consequence of its position in the company's control, income and assets. Equity share capital does not have any maturity nor there any compulsion to pay dividend on it. The equity share capital provides funds, more or less, on a permanent basis. It also works as a base for creating the debt and loan capacity of the firm. The advantages and limitations of equity share capital may be summarized as follows

Advantages of Equity Share Financing

- a. Since equity shares do not mature, it is a permanent source of fund. However, a company, if it so desires, can retire shares through buy-back as per the guidelines issued by the SEBI.
- b. The new equity share capital increases the corporate flexibility from the point of view of capital structure planning. One such strategy may be to retire debt financing out of the funds received from the issue of equity capital.

- c. Equity share capital does not involve any mandatory payments to shareholders.
- d. It may be possible to make further issue of share capital by using a right offering. In general, selling right shares involves no change in the relationship between ownership and control. Existing shareholders can maintain their proportionate holding by exercising their pre-emptive right.

Limitations of Equity Share Financing

- a. The equity share capital has the highest specific cost of capital among all the sources. This necessitates that the investment proposals should also have equally high rate of return.
- b. Equity dividends are paid to the shareholders out of after-tax profits. These dividends are not tax deductible, rather imply a burden of Corporate Dividend tax on the company.
- c. At times, the new issue of equity capital may reduce the EPS and thus may have an adverse effect on the market price of the equity share.
- d. Excessive issue of equity share can dilute the ownership of the Company.

2. Preference Share Capital

The preference share capital is also owner's capital but has a maturity period. In India, the preference shares must be redeemed within a maximum period of 20 years from the date of issue. The rate of dividend payable on preference shares is also fixed. As against the equity share capital, the preference shares have two references: (i) Preference with respect to payment of dividend, and (ii) Preference with reference to repayment of capital in case of liquidation of company.

However, the preference share capital represents an ownership interest and not a liability of the company. The preference shareholders have the right to receive dividends in priority over the equity shareholders. Indeed, it is this preference which distinguishes preference shares from equity shares. A dividend need not necessarily be paid on either type of shares. However, if the directors want to pay equity dividend, then the full dividend due on the preference shares must be paid first. Failure to meet commitment of preference dividend is not a ground for liquidation. The advantages and disadvantages of the preference share capital are as follows:

Advantages of Preference Share Financing

- a. The preference shares carry limited voting right though they are a part of the capital. Thus, these do not present a major control or ownership problem as long as the dividends are paid to them.
- b. As an instrument of financing, the cost of capital of preference shares is less than that of equity shares.
- c. The preference share financing may also provide a hedge against inflation because the fixed financial commitment which is unaffected by the inflation.
- d. As there is no legal compulsion to pay preference dividend, a company does not face liquidation or other legal proceedings if it fails to pay the preference dividends.

Limitations of Preference Share Financing

- a. The cost of capital of preference shares is higher than cost of debt.
- b. Though there is no compulsion to pay preference dividend, yet the non-payment may adversely affect the market price of the equity shares and hence affect the value of the firm.

c. The compulsory redemption of preference shares after 20 years will entail a substantial cash outflow from the company.

d. If the company is not able to earn a return at least equal to the cost of preference share capital, then it may result in decrease in EPS for the equity shareholders.

3. Debentures

A bond or a debenture is the basic debt instrument which may be issued by a borrowing company for a price which may be less than, equal to or more than the face value. A debenture also carries a promise by the company to make interest payments to the debenture-holders of specified amount, at specified time and also to repay the principal amount at the end of a specified period. Since the debt instruments are issued keeping in view the need and cash flow profile of

the company as well as the investor, there have been a variety of debt instruments being issued by companies in practice. In all these instruments, the basic features of being in the nature of a loan are not dispensed with and, therefore, these instruments have some or the other common features as follows:

(i) Credit Instrument—A debenture-holder is a creditor of the company and is entitled to receive payments of interest and the principal and enjoys some other rights.

(ii) Interest Rate— In most of the cases, the debt securities promise a rate of interest payable periodically to the debt holders. The rate of interest is also denoted as coupon rate.

(iii) Collateral— Debt issue may or may not be secured and, therefore, debentures or other such securities may be called secured debentures or unsecured debentures.

(iv) Maturity Date— All debt instruments have a fixed maturity date, when these will be repaid or redeemed in the manner specified.

(v) Voting Rights— As the debt holders are creditors of the company, they do not have any voting right in normal situations.

(vi) Face Value— every debt instrument has a face value as well as a maturity value.

(vii) Priority in Liquidation— In case of liquidation of the company, the claim of the debt holders is settled in priority over all shareholders and, generally, other unsecured creditors also.

In practice, different types of debentures have been issued. These are :

(a) Convertible Debentures— In this case, the debentures are converted, fully or partially, into equity shares some time after the date of issue.

(b) Non-convertible Debentures— These debentures remain a debt security till maturity. Interest is paid on these debentures as per terms and conditions.

(c) Innovative Debentures— Companies have come forward to issue a debt security with different attractive and innovative features. Some of these are - Secured

Premium Notes, Optionally Convertible Debentures, Triple Option Convertible Debentures, etc. Financial Institutions such as IDBI have issued Deep

Discount Bonds (DDBs) from time to time to procure funds for a longer period.

4. Lease and Hire Purchase

Instead of procuring funds, and purchasing the equipment, a firm can acquire the asset itself on lease. In this case, the asset is financed by the lessor but the lessee gets the asset for use. In case of hire purchase, the assets are acquired on credit and payments are made as per terms and conditions.

5. Term Loans

This is also an important source of long-term financing. There are different financial institutions (National level as well as State level) which provide financial assistance for taking up projects. These can be broadly divided into All India Financial Institutions and State level Financial Institutions. The All India Institutions are:-

- i) Industrial Finance Corporation of India, (IFCI)
- ii) Industrial Credit and Investment Corporation in India (ICICI),
- iii) Industrial Development Bank of India (IDBI),
- iv) Life Insurance Corporation of India,
- v) Industrial Reconstruction Corporation of India,
- vi) Unit Trust of India,
- vii) National Small Industries Corporation Ltd.(NSIC)

The state level institutions are the State Finance Corporations and the State Industrial Development Corporations.

6. Official Foreign Source of Finance

1. Foreign Collaboration: In India joint participation of foreign and domestic capital has been quite common in recent years. Foreign collaboration could be either in the form of joint participation between private firms, or between foreign firms and Indian Government, or between foreign governments and Indian Government.

2. Bilateral Government Funding Arrangement: Generally, advanced countries provide aid in the form of loans and advances, grants, subsidies to governments of under-developed and developing countries. The aid is provided usually for financing government and public sector projects. Funds are provided at concessional terms in respect of cost (interest), maturity, and repayment schedule.

3. NRI Deposits and Investments: on-resident Indian have always been making a contribution in Indian economy. Government has been making efforts to encourage their deposits and investments. Various schemes have been devised which ensure higher returns; procedures have been simplified to attract investments in primary and secondary market. Tax incentives are given on interest earned and dividends received by NRIs.

4. Loans from International Financial Institutions : International Bank for Reconstruction and Development (IBRD), International Monetary Fund (IMF), Asian Development Bank (ADB), and World Bank have been the major source of external finance to India.

5. External Commercial Borrowing (CEB) : Our country has also been obtaining foreign capital in the form of external commercial borrowings from agencies like US EXIM Bank, ECGC of UK, etc.

7. Non Official Foreign Source of Finance:

Foreign Direct Investment (FDI)

Foreign direct investment is one of the most important sources of foreign investment in developing countries like India. It is seen as a means to supplement domestic investment for achieving a higher level of growth and development. FDI is permitted under the forms of investments.

1. Through financial collaborations / capital / equity participation;
2. Through Joint ventures and technical collaborations;
3. Through capital markets (Euro Issues);
4. Through private placements or preferential allotment.

Capital participation / financial collaboration refers to the foreign partner's stake in the capital of the receiving country's companies while technical collaboration refers to such facilities provided by foreign partner as licencing, trade marks and patents (against which he gets lump sum fee or royalty payments for specified period); technical services etc.

From investors' point of view, the FDI inflows can be classified into the following groups.

(a) Market seeking : The investors are attracted by the size of the local market, which depends on the income of the country and its growth rate.

(b) Lower cost : Investors are more cost-conscious. They are influenced by infrastructure facilities and labour costs.

(c) Location and other factors : Technological status of a country, brand name, goodwill enjoyed by the local firms, favourable location, openness of the economy, policies of the government and intellectual property protection granted by the government are some of the factors that attract investors to undertake investments.

SHORT TERM FUNDS :

Short term funds are usually required for working capital; to operate the project after it is completed. The working capital consists of the margin to be provided by the entrepreneur and the bulk of the balance is borrowed from a commercial bank or some other source as short term finance. The margin to be provided by the entrepreneur is included in the project cost estimates and is financed from the various means of financing discussed earlier. The main sources of working capital are :-

1. Commercial banks,
2. The type of debentures issued for meeting working capital requirements are usually then on-convertible debentures.
3. Public Deposit
4. Commercial Paper
5. Supplier' Credit
6. Foreign currency funds etc.

CAPITALISATION,CAPITAL STRUCTURE,FINANCIAL STRUCTURE

Capitalisation is a quantitative aspect of the financial planning of an enterprise, capital structure is concerned with the qualitative aspect. Capitalisation refers to the total amount of securities issued by a company while capital structure refers to the kind of securities and the proportionate amount that make up capitalisation. Financial structure refers to all the financial resources marshalled by the firm ,short as well as long –term ,and all forms of debt and equity.

Capital and Capitalisation

The term capital refers to the total investment of a company in money, tangible and intangible assets. It is the total wealth of a company . The term Capitalisation is used only in relation to companies and not in relation to partner ship firms or sole- proprietary organisations. Capitalisation refers to the par value of securities i.e. share, debenture &reserves.

Over Capitalisation-It refers to that state of affairs where earning of a company do not justify the amount of capital invested in its business.

Under Capitalisation-It occurs when a companies actual capitalisation is lower than its proper capitalisation as warranted by its earning capacity.

Fair Capitalisation-It is neither over capitalisation nor under capitalisation.

The term capital structure refers to the relationship between the various long –term forms of financing such as debenture ,preference share capital and equity share capital .Financing the firm's asset is a very crucial problem in every business and as a general rule there should be a proper mix of debt and equity capital in financing the firms assets. The use of long term fixed interest bearing debt and preference share capital along with equity share is called financial leverage or trading on equity.

Capital gearing means the ratio between the various types of securities in the capital structure of the company .A company is said to be in high gear ,when it has a proportionately higher/large issue of debentures and preference shares for raising the long term resources ,whereas low-gear stands for a proportionately large issue of equity shares.

Capital Structure Theory

The capital structure of a company refers to a combination of the long-term finances used by the firm. The theory of capital structure is closely related to the firm's cost of capital. The decision regarding the capital structure or the financial leverage or the financing is based on the objective of achieving the maximization of shareholders wealth. To design capital structure, we should consider the following two propositions:

- (i) Wealth maximization is attained.
- (ii) Best approximation to the optimal capital structure.

Factors Determining Capital Structure

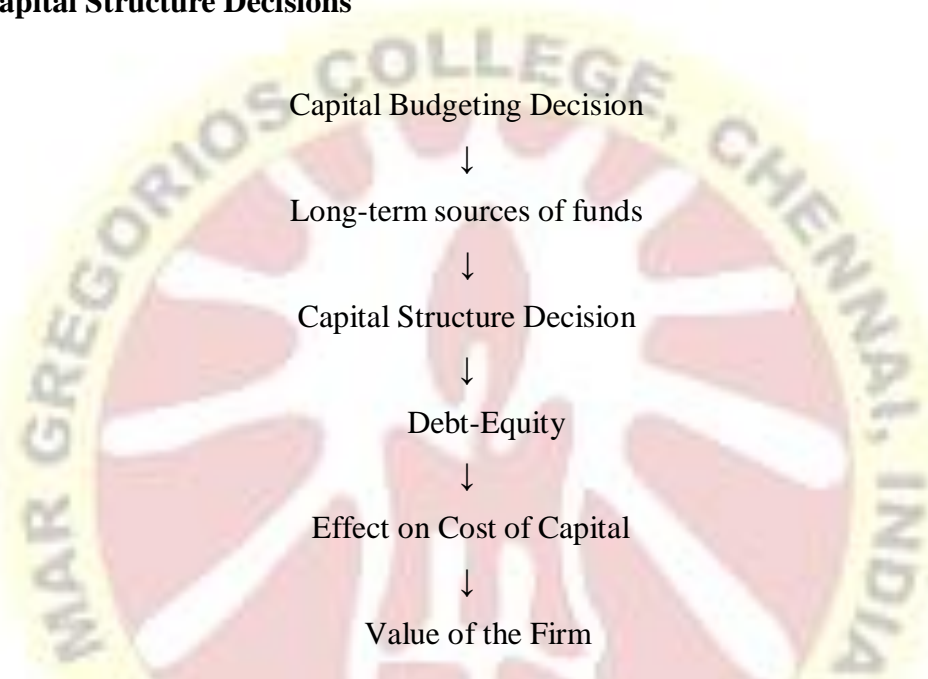
(1) Minimization of Risk :

- (a) Capital structure must be consistent with business risk.
- (b) It should result in a certain level of financial risk.

(2) Control : It should reflect the management's philosophy of control over the firm.

- (3) Flexibility : It refers to the ability of the firm to meet the requirements of the changing situations.
- (4) Profitability : It should be profitable from the equity shareholders point of view.
- (5) Solvency : The use of excessive debt may threaten the solvency of the company.
- (6) Financial leverage or Trading on equity.
- (7) Cost of capital.
- (8) Nature and size of the firm.

Process of Capital Structure Decisions



THEORIES OF CAPITAL STRUCTURE:

Equity and debt capital are the two major sources of long-term funds for a firm. The theories of capital structure suggest the proportion of equity and debt in the capital structure.

Assumptions

- (i) There are only two sources of funds, i.e., the equity and the debt, having a fixed interest.
- (ii) The total assets of the firm are given and there would be no change in the investment decisions of the firm.
- (iii) EBIT (Earnings Before Interest & Tax)/NOP (Net Operating Profits) of the firm are given and is expected to remain constant.
- (iv) Retention Ratio is NIL, i.e., total profits are distributed as dividends. [100% dividend pay-out ratio]
- (v) The firm has a given business risk which is not affected by the financing decision.
- (vi) There is no corporate or personal taxes.

(vii) The investors have the same subjective probability distribution of expected operating profits of the firm.

(viii) The capital structure can be altered without incurring transaction costs.

In discussing the theories of capital structure, we will consider the following notations :

E = Market value of the Equity

D = Market value of the Debt

V = Market value of the Firm = E + D

I = Total Interest Payments

T = Tax Rate

EBIT/NOP = Earnings before Interest and Tax/Net Operating Profit

PAT = Profit After Tax

D₀ = Dividend at time 0 (i.e. now)

D₁ = Expected dividend at the end of Year 1.

P₀ = Current Market Price per share

P₁ = Expected Market Price per share at the end of Year 1.

Different Theories of Capital Structure

- (1) Net Income (NI) approach
- (2) Net Operating Income (NOI) Approach
- (3) Traditional Approach
- (4) Modigliani-Miller Model
 - (a) without taxes
 - (b) with taxes.

Net Income Approach

As suggested by David Durand, this theory states that there is a relationship between the Capital Structure and the value of the firm.

Assumptions

- (1) Total Capital requirement of the firm are given and remain constant
- (2) $K_d < K_e$
- (3) K_d and K_e are constant
- (4) K_o decreases with the increase in leverage

Example

	Firm A	Firm B
Earnings Before Interest and Tax (EBIT)	2,00,000	2,00,000
Interest (I)	-	50,000
Equity Earnings (Ee)	2,00,000	1,50,000
Cost of Equity (Ke)	12%	12%
Cost of Debt (Kd)	10%	10%
Market Value of Equity (E) = $\frac{Ee}{Ke}$	16,66,667	12,50,000
Market Value of Debt (D) = $\frac{I}{Kd}$	NIL	5,00,000
Total Value of the Firm [E+D]	16,66,667	17,50,000
Overall cost of capital (K0) = $\frac{EBIT}{E + D}$	12%	11.43%

Net Operating Income (NOI) Approach

According to David Durand, under NOI approach, the total value of the firm will not be affected by the composition of capital structure.

Assumptions

- (1) K0 and Kd are constant.
- (2) Ke will change with the degree of leverage.
- (3) There is no tax.

Example

A firm has an EBIT of ₹5,00,000 and belongs to a risk class of 10%. What is the cost of Equity if it employs 6% debt to the extent of 30%, 40% or 50% of the total capital fund of ₹. 2.5 Crores debt.

Solution

	30%	40%	50%
Debt (₹)	6,00,000	8,00,000	10,00,000
Equity (₹)	4,00,000	12,00,000	10,00,000
EBIT (₹)	5,00,000	5,00,000	5,00,000
Ko	10%	10%	10%
Value of the Firm (V) (₹)	50,00,000	50,00,000	50,00,000
(EBIT/Ko)			

Value of Equity (E) (₹)	44,00,000	42,00,000	40,00,000
(V-D)			
Interest @ 6% (₹)	36,000	48,000	60,000
Net Profit (EBIT-Int.) (₹)	4,64,000	4,52,000	4,40,000
Ke (NP/E)	10.545%	10.76%	11%

Traditional Approach :

It takes a mid-way between the NI approach and the NOI approach

Assumptions

- (i) The value of the firm increases with the increase in financial leverage, upto a certain limit only.
- (ii) K_d is assumed to be less than K_e .

Modigliani – Miller (MM) Hypothesis

The Modigliani – Miller hypothesis is identical with the Net Operating Income approach. Modigliani and Miller argued that, in the absence of taxes the cost of capital and the value of the firm are not affected by the changes in capital structure. In other words, capital structure decisions are irrelevant and value of the firm is independent of debt – equity mix.

Basic Propositions

M - M Hypothesis can be explained in terms of two propositions of Modigliani and Miller.

They are :

- i. The overall cost of capital (K_0) and the value of the firm are independent of the capital structure. The total market value of the firm is given by capitalising the expected net operating income by the rate appropriate for that risk class.
- ii. The financial risk increases with more debt content in the capital structure. As a result cost of equity (K_e) increases in a manner to offset exactly the low – cost advantage of debt. Hence, overall cost of capital remains the same.

Assumptions of the MM Approach

1. There is a perfect capital market. Capital markets are perfect when
 - i) investors are free to buy and sell securities,
 - ii) they can borrow funds without restriction at the same terms as the firms do,
 - iii) they behave rationally,
 - iv) they are well informed, and
 - v) there are no transaction costs.
2. Firms can be classified into homogeneous risk classes. All the firms in the same risk class will have the same degree of financial risk.
3. All investors have the same expectation of a firm's net operating income (EBIT).
4. The dividend payout ratio is 100%, which means there are no retained earnings.

LEVERAGE

The concept of leverage has its origin in science. It means influence of one force over another. Since financial items are inter-related, change in one, causes change in profit. In the context of financial management, the term 'leverage' means sensitiveness of one financial variable to change in another. The measure of this sensitiveness is expressed as a ratio and is called degree of leverage. Algebraically, the leverage may be defined as, %Change in one variable

$$\text{Leverage} = \frac{\% \text{ Change in one variable}}{\% \text{ Change in some other variable}}$$

CONCEPT AND NATURE OF LEVERAGES OPERATING RISK AND FINANCIAL RISK AND COMBINED LEVERAGE :

The concept of leverage has its origin in science. It means influence of one force over another. Since financial items are inter-related, change in one, causes change in profit. In the context of financial management, the term 'leverage' means sensitiveness of one financial variable to change in another. The measure of this sensitiveness is expressed as a ratio and is called degree of leverage.

Measures of Leverage

To understand the concept of leverage, it is imperative to understand the three measures of leverage

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

In explaining the concept of leverage, the following symbols and relationship shall be used :

Number of units produced and sold = Q

Sale Price per unit = S

Total Sale Value or Total Revenue = SQ

Variable Cost per unit = V

Total Variable Cost = VQ

Total Contribution = Total Revenue – Total Variable Cost

= SQ – VQ

= Q (S – V)

$$\begin{aligned} \text{Contribution per unit} &= \frac{\text{Total Contribution}}{\text{Units sold}} \\ &= \frac{Q(S - V)}{Q} = S - V = C \end{aligned}$$

Earning before Interest and Tax = EBIT

= Total Contribution – Fixed Cost

If, Fixed Cost = F

Then, EBIT = Q (S – V) – F

= CQ – F. (Here, CQ denotes contribution)

Operating Leverage

It is important to know how the operating leverage is measured, but equally essential is to understand its nature in financial analysis.

Operating leverage reflects the impact of change in sales on the level of operating profits of the firm.

The significance of DOL may be interpreted as follows :

- Other things remaining constant, higher the DOL, higher will be the change in EBIT for same change in number of units sold in, if firm A has higher DOL than firm B, profits of firm A will increase at faster rate than that of firm B for same increase in demand.

This however works both ways and so losses of firm A will increase at faster rate than that of firm B for same fall in demand. This means higher the DOL, more is the risk.

- DOL is high where contribution is high.

- There is an unique DOL for each level of output.

Operating Leverage examines the effect of the change in the quantity produced on the EBIT of the Company and is measured by calculating the degree of operating leverage (DOL) The degree of operating leverage is therefore ratio between proportionate change in EBIT and corresponding proportionate change in Q.

$$DOL = \frac{CQ}{CQ-F} = \frac{\text{Contribution}}{EBIT}$$

Financial Leverage

The Financial leverage may be defined as a % increase in EPS associated with a given percentage increase in the level of EBIT. Financial leverage emerges as a result of fixed financial charge against the operating profits of the firm. The fixed financial charge appears in case the funds requirement of the firm is partly financed by the debt financing. By using this relatively cheaper source of finance, in the debt financing, the firm is able to magnify the effect of change in EBIT on the level of EPS. The significance of DFL may be interpreted as follows :

- Other things remaining constant, higher the DFL, higher will be the change in EPS for same change in EBIT. In other words, if firm K has higher DFL than firm L, EPS of firm k increases at faster rate than that of firm L for same increase in EBIT. However, EPS of firm

K falls at a faster rate than that of firm K for same fall in EBIT. This means, higher the DFL more is the risk.

- Higher the interest burden, higher is the DFL, which means more a firm borrows more is its risk.

- Since DFL depends on interest burden, it indicates risk inherent in a particular capital mix, and hence the name financial leverage.

There is an unique DFL for each amount of EBIT.

While operating leverage measures the change in the EBIT of a company to a particular change in the output, the financial leverage measures the effect of the change in EBIT on the EPS of the company.

Thus the degree of financial leverage (DFL) is ratio between proportionate change in EPS and proportionate change in EBIT.

$$EPS = \frac{EBIT - I - T - D}{N}$$

Where I = Interest

t = Tax rate

D = Preference Dividend

N = No of equity shares.

$$DFL = \frac{\Delta EPS / EPS}{\Delta EBIT / EBIT}$$

Substituting the value of EPS above, we have

$$DFL = \frac{EBIT(1-t)}{EBIT - I - T - D}$$

If there is no preference share capital,

$$DFL = \frac{EBIT}{EBIT - I} = \frac{\text{Earning before interest and tax}}{\text{Earning after interest}}$$

$EBIT - I =$ Profit Before Tax (PBT)

Combined Leverage

The operating leverage explains the business risk of the firm whereas the financial leverage deals with the financial risk of the firm. But a firm has to look into the overall risk or total risk of the firm, which is business risk plus the financial risk.

One can draw the following general conclusion about DCL.

- Other things remaining constant, higher the DCL, higher will be the change in EPS for same change in Q (Demand).

- Higher the DCL, more is the overall risk, and higher the fixed cost and interest burden lower is the earning after interest, and higher is the DCL.

- There is a unique DCL, for each level of Q.

A combination of the operating and financial leverages is the total or combination leverage.

The operating leverage causes a magnified effect of the change in sales level on the EBIT level and if the financial leverage combined simultaneously, then the change in EBIT will, in turn, have a magnified effect on the EPS. A firm will have wide fluctuations in the EPS for even a small change in the sales level. Thus effect of change in sales level on the EPS is known as combined leverage.

Thus Degree of Combined leverage may be calculated as follows :

$$DOL = \frac{\text{Contribution}}{EBIT}$$

$$DFL = \frac{EBIT}{EBIT - I} = \frac{\text{Earning before interest and tax}}{\text{Earning after interest}}$$

$$DCL = \frac{\text{Contribution}}{EBIT} \times \frac{EBIT}{EBIT - I} = \frac{C}{EBIT - I}$$

Example

Calculate the degree of operating leverage (DOL), degree of financial leverage (DFL) and the degree of combined leverage (DCL) for the following firms and interpret the results.

	Firm K	Firm L	Firm M
1. Output (Units)	60,000	15,000	1,00,000
2. Fixed costs (₹)	7,000	14,000	1,500
3. Variable cost per unit (₹)	0.20	1.50	0.02
4. Interest on borrowed funds (₹)	4,000	8,000	—
5. Selling price per unit (₹)	0.60	5.00	0.10

Solution :

	Firm K	Firm L	Firm M
Output (Units)	60,000	15,000	1,00,000
Selling Price per unit (₹)	0.60	5.00	0.10
Variable Cost per unit	0.20	1.50	0.02
Contribution per unit (₹)	0.40	3.50	0.08
Total Contribution	₹ 24,000	₹ 52,500	₹ 8,000
(Unit × Contribution per unit)			
Less : Fixed Costs	7,000	14,000	1,500
EBIT	17,000	38,500	6,500
Less : Interest	4,000	8,000	—
Profit before Tax (P.B.T.)	13,000	30,500	6,500

Degree of Operating Leverage

$DFL = \frac{\text{Contribution}}{EBIT}$	$\frac{24000}{17000}$	$\frac{52500}{38000}$	$\frac{8000}{6500}$
	=1.41	= 1.38	= 1.23

Degree of Financial Leverage

$DFL = \frac{EBIT}{EBIT - I}$	$\frac{17000}{13000}$	$\frac{38500}{30500}$	$\frac{6500}{6500}$
	=1.31	= 1.26	= 1.00

Degree of Combined Leverage

$$DCL = \frac{C}{EBIT - I}$$

	$\frac{24000}{13000}$	$\frac{52500}{30500}$	$\frac{8000}{6500}$
	= 1.85	= 1.72	= 1.23

Interpretation :

High operating leverage combined with high financial leverage represents risky situation. Low operating leverage combined with low financial leverage will constitute an ideal situation. Therefore, firm M is less risky because it has low fixed cost and low interest and consequently low combined leverage.

The selected financial data for A, B and C companies for the year ended March, 2009 are as follows :

	A	B	C
Variable expenses as a % Sales	66.67	75	50
Interest	₹ 200	₹ 300	₹ 1,000
Degree of Operating leverage	5 : 1	6 : 1	2 : 1
Degree of Financial leverage	3 : 1	4 : 1	2 : 1
Income tax rate	50%	50%	50%

Prepare Income Statements for A, B and C companies

Solution :

The information regarding the operating leverage and financial leverage may be interpreted as follows—For Company A, the DFL is 3 : 1 (i.e., EBIT : PBT) and it means that out of EBIT of 3, the PBT is 1 and the remaining 2 is the interest component. Or, in other words, the EBIT : Interest is 3 : 2. Similarly, for the operating leverage of 6 : 1 (i.e., Contribution- EBIT) for Company B, it means that out of Contribution of 6, the EBIT is 1 and the balance 5 is fixed costs. In other words, the Fixed costs : EBIT is 5 : 1. This information may be used to draw the statement of sales and profit for all the three firms as follows:

Statement of Operating Profit and Sales

Particulars	A	B	C
Financial leverage = (EBIT/PBT) =	3 : 1	4 : 1	2 : 1
or, EBIT/Interest	3 : 2	4 : 3	2 : 1
Interest	₹ 200	₹ 300	₹ 1,000
EBIT	$200 \times 3/2$ = 300	$300 \times 4/3$ = 400	$1,000 \times 2/1$ = 2,000
Operating leverage = (Cont./EBIT) =	5 : 1	6 : 1	2 : 1
i.e., Fixed Exp./EBIT =	4 : 1	5 : 1	1 : 1
Variable Exp. to Sales	66.67%	75%	50%
Contribution to Sales	33.33%	25%	50%
Fixed costs	$300 \times 4/1$ = 1,200	$400 \times 5/1$ = 2,000	$2,000 \times 1/1$ = 2,000
Contribution = (Fixed cost + EBIT)	1,500	2,400	4,000
Sales	4,500	9,600	8,000

Income Statement for the year ended 31.03.09

Particulars	A	B	C
Sales	₹ 4,500	₹ 9,600	₹ 8,000
Variable cost	<u>3,000</u>	<u>7,200</u>	<u>4,000</u>
Contribution	1,500	2,400	4,000
Fixed Costs	<u>1,200</u>	<u>2000</u>	<u>2,000</u>
EBIT	300	400	2,000
Interest	<u>200</u>	<u>300</u>	<u>1,000</u>
PBT	100	100	1,000
Tax at 50%	50	50	500
Profit after Tax (PAT)	50	50	500
Operating leverage (Cont./EBIT) =	5	6	2
Financial leverage (EBIT/PBT) =	3	4	2
Combined leverage	15	24	4

Example 1.

Company earns a profit of. ₹ 3,00,000 per annum after meeting its interest liability of ₹ 1,20,000 on its 12% debentures. The tax rate is 50%. The number of Equity Shares of ₹ 10 each are 80,000 and the retained earnings amount to ₹ 12,00,000.

The Company proposes to take up an expansion scheme for which a sum of ₹ 4,00,000 is required. It is anticipated that after expansion, the Company will be able to achieve the same return on investment as at present. The funds required for expansion can be raised either through debt at the rate of 12% or through the issue of Equity shares at par.

Required :

1. Compute the EPS if additional funds were raised by way of — (a) Debt;
(b) Equity Shares.
2. Advise the Company as to which source of finance is preferable.

Solution

1. Computation of Capital Employed

Particulars	Present	Loan Option	Equity Option
Debt	1,20,000/12% ₹. 10,00,000	₹ 10,00,000 +₹. 4,00,000 = ₹ 14,00,000	(as per present situation) ₹ 10,00,000
Equity Capital	80,000 shares × ₹ 10 = ₹ . 8,00,000	(as present) ₹. 8,00,000	₹. 8,00,000 + ₹4,00,000 = ₹ 12,00,000
Retained Earning	(given) ₹.12,00,000	(given) ₹.12,00,000	(given) ₹.12,00,000
Total Fund Employed	30,00,000	34,00,000	34,00,000

2. Computation of EPS

Present EBIT = ₹ (3,00,000 + 1,20,000) = ₹ 4,20,000 for Capital Employed of ₹ 30,00,000.

So, Return on Capital Employed = ₹ 4,20,00 / ₹ . 30,00,000 = 14%.

Revised EBIT after introducing additional funds = ₹ . 34,00,000 × 14% = ₹ 4,76,000.

Particulars	Present	Loan Option	Equity Option
EBIT at 14%	4,20,000	4,76,000	4,76,000
Less : Interest on Loans	1,20,000	1,68,000	1,20,000
EBIT	3,00,000	3,08,000	3,56,000
Less : Tax at 50%	1,50,000	1,54,000	1,78,000
EAT	1,50,000	1,54,000	1,78,000
Number of Equity Shares (given) = 80,000			
EPS = EAT ÷ No. of ES	1.875	80,000 1.925	1,20,000 1.483

Conclusion : EPS is maximum under Debt Funding Option and is hence preferable.

Leverage Effect : Use of Debt Funds and Financial Leverage will have a favourable effect only if ROCE > Interest rate. ROCE is 14% and Interest Rate is 12%. So, use of debt will have favourable impact on EPS and ROE. This is called at "Trading on Equity" or "Gearing" Effect.

UNIT -IV

DIVIDEND DECISION

The term dividend refers to that part of profits of a company which is distributed by the company among its shareholders. It is the reward of the shareholders for investments made by them in the shares of the company. The investors are interested in earning the maximum return on their investments and to maximize their wealth. A company, on the other hand, needs to provide funds to finance its long-term growth. If a company pays out as dividend most of what it earns, then for business requirements and further expansion it will have to depend upon outside resources such as issue of debt or new shares. Dividend policy of a firm, thus affects both the long-term financing and the wealth of shareholders. As a result, the firm's decision to pay dividends must be reached in such a manner so as to equitably apportion the distributed profits and retained earnings. Since dividend is a right of Shareholders to participate in the profits and surplus of the company for their investment in the share capital of the company, they should receive fair amount of the profits. The company should, therefore, distribute a reasonable amount as dividends (which should include a normal rate of interest plus a return for the risks assumed) to its members and retain the rest for its growth and survival.

DIVIDEND DECISION AND VALUATION OF FIRM :

The value of the firm can be maximized if the shareholders wealth is maximized. There are conflicting views regarding the impact of dividend decision on the valuation of the firm. According to one school of thought dividend decision does not affect the share-holders' wealth and hence the valuation of the firm. On the other hand, according to the other school of thought, dividend decision materially affects the shareholders' wealth and also the valuation of the firm. We have discussed below the views of the two schools of thought under two groups :

a. The Relevance Concept of Dividend or the Theory of Relevance

b. The Irrelevance Concept of Dividend or the Theory of Irrelevance maximized

The Relevance Concept of Dividends: According to this school of thought, dividends are relevant and the amount of dividend affects the value of the firm. Walter, Gordon and others propounded that dividend decisions are relevant in influencing the value of the firm. Walter argues that the choices of dividend policies almost and always affect the value of the enterprise. The Irrelevance Concept of Dividend : The other school of thought propounded by Modigliani and Miller in 1961. According to MM approach, the dividend policy of a firm is irrelevant and it does not affect the wealth of the shareholders. They argue that the value of the firm depends on the market price of the share; the dividend decision is of no use in determining the value of the firm.

WALTER'S MODEL :

Walter's model, one of the earlier theoretical models, clearly indicates that the choice of appropriate dividend policy always affects the value of the enterprise. Professor James E. Walter has very scholarly studied the significance of the relationship between the firm's internal rate of return, r , (or actual capitalization rate) and its Cost of Capital, K_e (normal capitalization rate) in determining such dividend policy as will maximize the wealth of the stockholders.

Walter's model is based on the following premises:

- (1) The firm finance its entire investments by means of retained earnings. New equity stock or debenture is not issued to raise funds.
- (2) Internal rate of return (r) and cost of capital (Ke) of the firm remain constant.
- (3) The firm's earnings are either distributed as dividends or reinvested internally.
- (4) Earnings and dividends of the firm never change.
- (5) The firm has long or infinite life.

The formula used by Walter to determine the market price per share is :

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

Where,

P = Market price per share

D = Dividend per share

E = Earnings per share

r = Internal rate of return (Actual capitalization rate)

K = Cost capital (External capitalization rate)

It may be noted that Walter's formula has the same effect as the continuing dividend growth formula. It seeks to measure the effect of dividends on common stock value by comparing actual and normal capitalization rates.

Another feature of Walter's formula is that it provides an added or reduced Weight to the retained earnings portion of the capitalization earnings formula. The factors 'r' and 'k' are placed in front of retained earnings to change its weighted value under different situations as discussed below:

1. Growth Firms

In growth firms internal rate of return is greater than the normal rate ($r > k$). Therefore, r/k factor will be greater than 1. Such firms must reinvest retained earnings since existing alternative investments offer a lower return than the firm is able to secure. Each rupee of retained earnings will have a higher weighting in Walter's formula than a comparable rupee of dividends. Thus, the larger the firm retains, the higher the value of the firm. Optimum dividend payout ratio for such a firm will be zero.

2. Normal Firm

Normal firms comprise those firms whose internal rate of return is equal to normal capitalization ($r=k$). These firms earn on their investments a rate of return equal to market rate of return. For such firms dividend policy will have no effect on the market value per share in the Walter's model. Accordingly, retained earnings will have the same weighted value as dividends. In this case the market value per share is affected by the payout ratio.

3. Declining Firms

Firms which earn on their investments less than the minimum rate required are designated as declining firms. The management of such firms would like to distribute its earnings to the stockholders so that they may either spend it or invest elsewhere to earn higher return than earned by the declining firms. Under such a situation each rupee of retained earnings will receive lower weight than dividends and market value of the firm will tend to be maximum when it does not retain earnings at all.

4. Evaluation of the Walter's Model

Professor Walter has endeavoured to show in an erudite manner the effects of dividend policy on value of equity shares under different situations of a firm. However, the basic premises on which edifice of the theory are laid down are unrealistic and therefore, conclusions drawn from the Walter's model are hardly true for real life situations. Thus, for instance assume that a firm finances its investment opportunities only by means of internal sources and no external financing is resorted to for this purpose. Under such a situation, either the value of the firm's investment or dividend or both will be sub-optimum. In its attempt to maximize the value of the firm, the management should go on making investments so long as return of investment is equal to the cost of capital. This is the optimum level of investment; the remaining amount should be raised from external sources. On the contrary, Walter argues that value of the firm is maximized by retaining all the profits because magnitude of investments financed by retained earnings may be less than the optimum level of investment.

Further, Professor Walter has assumed that 'r' remains constant under all the situations. As a matter of fact, 'r' tends to decrease in correspondence with increase in level of investments. This is why it is suggested that the management should make investments upto optimal level where $r = k$.

Finally, assumption of constant cost of capital k is incorrect. On the contrary, it varies in tune with change in risk of the firm.

Example 1 : The earnings per share of a company is ₹ 8 and the rate of capitalisation applicable is 10%. The company has before it an option of adopting (i)50%,(ii)75% dividend payout ratio. Compute the market price of the company's quoted shares as per Walter's model if it can earn a return of (i) 15%, (ii) 10% (iii)5% on its retained earnings

Computation of market price of Company's share by applying Walter's formula.

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

Where,

P = Market price per share

D = Dividend per share

E = Earnings per share i.e., ₹ 8

r = Internal rate of return (Actual capitalization rate)

K = Cost capital (External capitalization rate) i.e., 10% or 0.10

Now, we can calculate the market price per share based on different IRRs and dividend payout ratio

(i) Market price per share when $r = 15\%$

(a) When dividend payout ratio is 50%

$$\text{Dividend paid} = 8 \times 50/100 = ₹ 4$$

$$P = \frac{4 + \frac{0.15}{0.10}(8 - 4)}{0.10} = ₹ 100$$

(b) When dividend payout ratio is 75%

$$\text{Dividend paid} = ₹ 8 \times 75/100 = ₹ 6$$

$$P = \frac{6 + \frac{0.15}{0.10}(8 - 6)}{0.10} = ₹ 90$$

(ii) Market price per share when $r = 10\%$

(a) When dividend payout ratio is 50%

$$\text{Dividend paid} = 8 \times 50/100 = ₹ 4$$

$$P = \frac{4 + \frac{0.10}{0.10}(8 - 4)}{0.10} = ₹ 80$$

(b) When dividend payout ratio is 75%

$$\text{Dividend paid} = ₹ 8 \times 75/100 = ₹ 6$$

$$P = \frac{6 + \frac{0.10}{0.10}(8 - 6)}{0.10} = ₹ 80$$

(iii) Market price per share when $r = 5\%$

(a) When dividend payout ratio is 50%

$$\text{Dividend paid} = 8 \times 50/100 = ₹ 4$$

$$P = \frac{4 + \frac{0.05}{0.10}(8 - 4)}{0.10} = ₹ 60$$

(b) When dividend payout ratio is 75%

$$\text{Dividend paid} = ₹ 8 \times 75/100 = ₹ 6$$

$$P = \frac{6 + \frac{0.05}{0.10}(8 - 6)}{0.10} = ₹ 70$$

GORDON'S MODEL :

Myron Gordon has also developed a model on the lines of Prof. Walter suggesting that dividends are relevant and the dividend decision of the firm affects its value. His basic valuation model is based on the following assumptions:

1. The firm is an all equity firm.
2. No external financing is available or used. Retained earnings represent the only source of financing investment programmes.
3. The rate of return on the firm's investment r , is constant.
4. The retention ratio, b , once decided upon is constant. Thus, the growth rate of the firm $g = br$, is also constant.
5. The cost of capital for the firm remains constant and it is greater than the growth rate, i.e. $k > br$.
6. The firm has perpetual life.
7. Corporate taxes do not exist.

According to Gordon, the market value of a share is equal to the present value of future stream of dividends. Thus,

$$P = \frac{D}{ke - br}$$

Where,

P = Price of shares

ke = Cost of equity capital

$br = g$ = growth rate in r , i.e., rate of return on investment of an all-equity firm

D = Dividend per share or $(E(1-b))$

E = Earnings per share

b = Retention Ratio

The implications of Gordon's basic valuation model may be summarized as below:

1. When the rate of return of firm's investment is greater than the required rate of return, i.e. when $r > k$, the price per share increases as the dividend payout ratio decreases.

Thus, growth firm should distribute smaller dividends and should retain maximum earnings.

2. When the rate of return is equal to the required rate of return, i.e., when $r = k$, the price per share remains unchanged and is not affected by dividend policy. Thus, for a normal firm there is no optimum dividend payout.

3. When the rate of return is less than the required rate of return, i.e., when $r < k$, the price per share increases as the dividend payout ratio increases. Thus, the shareholders of declining firm stand to gain if the firm distributes its earnings. For such firms, the optimum pay out would be 100%.

MODIGLIANI-MILLER'S MODEL (M-M'S MODEL) :

Modigliani-Miller's (M-M's) thoughts for irrelevance of dividends are most comprehensive and logical. According to them, dividend policy does not affect the value of a firm and is therefore, of no consequence. It is the earning potentiality and investment policy of the firm rather than its pattern of distribution of earnings that affects value of the firm.

Basic Assumptions of M-M Approach

(1) There exists perfect capital market where all investors are rational. Information is available to all at no cost; there are no transaction costs and floatation costs. There is no such investor as could alone influence market value of shares.

(2) There does not exist taxes. Alternatively, there is no tax differential between income on dividend and capital gains.

(3) Firm has uncertainty as to future investments and profits of the firm. Thus, investors are able to predict future prices and dividend with certainty. This assumption is dropped by M-M later.

M-M's irrelevance approach is based on arbitrage argument. Arbitrage is the process of entering into such transactions simultaneously as exactly balance or completely offset each other. The two transactions in the present case are payment of dividends and garnering funds to exploit investment opportunities. Suppose, for example, a firm decides to invest in a project it has alternatives:

(1) Pay out dividends and raise an equal amount of funds from the market;

(2) Retain its entire earnings to finance the investment programme. The arbitrage process is involved where a firm decides to pay dividends and raise funds from outside.

When a firm pays its earnings as dividends, it will have to approach market for procuring funds to meet a given investment programme. Acquisition of additional capital will dilute the firms share capital which will result in drop in share values. Thus, what the stockholders gain in cash dividends they lose in decreased share values. The market price before and after payment of dividend would be identical and hence the stockholders would be indifferent between dividend and retention of earnings. This suggests that dividend decision is irrelevant. M-M's argument of irrelevance of dividend remains unchanged whether external funds are obtained by means of share capital or borrowings. This is for the fact that investors are indifferent between debt and equity with respect to leverage and cost of debt is the same as the real cost of equity. Finally, even under conditions of uncertainty, dividend decision will be of no relevance because of operation of arbitrage. Market value of share of the two firms would be the same if they identical with respect to business risk, prospective future earnings and investment policies. This is because of rational behaviour of investor who would prefer more wealth to less wealth. Difference in respect of current and future dividend policies cannot influence share values of the two firms.

M-M approach contains the following mathematical formulations to prove irrelevance of dividend decision.

The market value of a share in the beginning of the year is equal to the present value of dividends paid at the year end plus the market price of the share at the end of the year, this can be expressed as below :

$$P_0 = \frac{P_1 + D_1}{1 + K} \dots\dots\dots \text{Equation (1)}$$

Where,

P_0 = Existing price of a share

K = Cost of capital

D_1 = Dividend to be received at the year end

P_1 = Market value of a share at the year end

If there is no additional financing from external sources, value of the firm (V) will be number of share (n) multiplied by the price of each share (P_0). Symbolically :

$$V = nP_0 = \frac{n(D_1 + P_1)}{1 + K} \dots\dots\dots \text{Equation (2)}$$

If the firm issues m number of share to raise funds at the end of year 1 so as to finance investment and at price P_1 , value of the firm at time 0 will be :

$$V = nP_0 = \frac{nD_1 + (n_1 - m)P_1 - mP_1}{1 + K} \dots\dots\dots \text{Equation (3)}$$

Thus, the total value of the firm as per equation (3) is equal to the capitalized value of the dividends to be received during the period, plus the value of the number of share outstanding at the end of the period, less the value of the newly issued shares.

A firm can finance its investment programme either by ploughing back of its earnings or by issue of new share or by both. Thus, total amount of new share that the firm will issue to finance its investment will be :

$$\begin{aligned} mP_1 &= I_1 - (X_1 - nD_1) \\ &= I_1 - X_1 + nD_1 \dots\dots\dots \text{Equation (4)} \end{aligned}$$

Where,

mP_1 = Total amount of funds raised by issue of new share to finance investment projects.

I_1 = Total amount of investment during first period

X_1 = Total amount of net profit during first period

If equation (4) substituted into equation (3), we find the following equation :

$$nP_0 = \frac{(n_1 + m)P_1 - I_1 + X_1}{1 + K} \dots\dots\dots \text{Equation (5)}$$

On comparison of equation (5) with equation (3) we find that there is no difference between the two valuation equations although equation (5) has expressed the value of firm without dividends. This led M-M to conclude that dividend policy has no role to play in influencing share value of a firm.

Example-. Agile Ltd. belongs to a risk class of which the appropriate capitalisation rate is 10%. It currently has 1,00,000 shares selling at ₹ 100 each. The firm is contemplating declaration of a dividend of ₹ 6 per share at the end of the current fiscal year which has just begun. Answer the following questions based on Modigliani and Miller Model and assumption of no taxes:

- (i) What will be the price of the shares at the end of the year if a dividend is not declared?
- (ii) What will be the price if dividend is declared?
- (iii) Assuming that the firm pays dividend, has net income of ₹ 10 lakh and new investments of ₹ 20 lakhs during the period, how many new shares must be issued?

Solution :

Modigliani and Miller - Dividend Irrelevancy Model

$$P_o = \frac{P_1 + D_1}{1 + K}$$

Where,

D1 = Contemplated dividend per share i.e., ₹ 6

P1 = Market price of share at the year end (to be determined)

Po = Existing market price of share i.e., ₹ 100

Ke = Cost of equity capital or rate of capitalisation i.e., 10% or 0.10

(i) If dividend is not declared :

$$P_o = \frac{P_1 + D_1}{1 + K}$$

$$100 = \frac{P_1 + 0}{1 + 0.10}$$

$$100 \times 1.10 = P_1$$

$$P_1 = ₹ 110$$

(iii) If dividend is declared :

$$P_o = \frac{P_1 + D_1}{1 + K}$$

$$100 = \frac{P_1 + 6}{1 + 0.10}$$

$$100 \times 1.10 = P_1 + 6$$

$$110 = P_1 + 6$$

$$P_1 = 110 - 6$$

$$P_1 = ₹ 104$$

(ii) Calculation of No. of Shares to be issued

Particulars	Dividend declared	Dividend not declared
Net Income	10,00,000	10,00,000
Less : Dividends paid	6,00,000	
Retained earnings	4,00,000	10,00,000
New investments	20,00,000	20,00,000
Amount to be raised by issue of new shares (A)	16,00,000	10,00,000
Market price per share (B)	₹ 104	₹ 110
New shares to be issued (A)/(B) (C)	15,385	9,091

Verification of M.M. Dividend Irrelevancy Theory

Particulars	Dividend declared	Dividend not declared
Existing shares	1,00,000	1,00,000
New shares issued	15,385	9,091
Total No. of shares at the end (i)	1,15,385	1,09,091
Market price per share (ii) ₹. 104 ₹. 110	₹ 104	₹ 110
Total market value of shares at the year end (i)×(ii)	₹. 120 lacs	₹ 120 lacs

Therefore, whether dividends are paid or not, value of the firm remains the same as per M.M. approach.

Criticism of MM Approach

MM hypothesis has been criticised on account of various unrealistic assumptions as given below.

1. Perfect capital market does not exist in reality.
2. Information about the company is not available to all the persons.
3. The firms have to incur flotation costs while issuing securities.
4. Taxes do exist and there is normally different tax treatment for dividends and capital gain.
5. The firms do not follow a rigid investment policy.
6. The investors have to pay brokerage, fees etc., while doing any transaction.
7. Shareholders may prefer current income as compared to further gains.

Therefore, whether dividends are paid or not, value of the firm remains the same as per M.M. approach.

RESIDUAL MODEL:

If a firm wishes to avoid issue of shares, then it will have to rely on internally generated funds to finance new positive NPV projects. Dividends can only be paid out of what is left over. This leftover is called a residual and such a dividend policy is called residual dividend approach.

When we treat dividend policy as strictly a **financing decision**, the payment of cash dividends is a passive residual. The amount of dividend payout will fluctuate from period to period in keeping with fluctuations in the number of acceptable investment opportunities available to the firm. If these opportunities abound, the percentage of dividend payout is likely to be zero. On the other hand if the firm is unable to find profitable investment opportunities, dividend payout will be 100%.

With a residual dividend policy, the firm's objective is to meet its investment needs and mostly to maintain its desired debt equity ratio before paying dividends. To illustrate imagine that a firm has ₹1000 in earnings and a debt equity ratio of 0.5. Thus the firm has 0.5 of debt for every 1.5 of the total value. The firm's capital structure is 1/3 of debt and 2/3 of equity.

The first step in implementing a residual dividend policy is to determine the amount of funds that can be generated without selling new equity. If the firm reinvests the entire ₹1000 and pays no dividend, then equity will increase by ₹1000. To keep the debt equity ratio constant, the firm must borrow ₹300.

The second step is to decide whether or not the dividend will be paid. If funds needed are less than the funds generated then a dividend will be paid. The amount of dividend will be the residual after meeting investment needs. Suppose we require ₹900 for a project. Then 1/3 will be contributed by debt (i.e. ₹300) and the balance by equity/retained earnings. Thus the firm would borrow ₹300 and fund ₹600 from the retained earnings. The residual i.e. ₹1000 – ₹600 = ₹400 would be distributed as dividend.

More clarity can be had from the data given below :

PAT	New Invest.	Debt portion	Earnings Retained	Additional Equity	Dividends
1000	3000	1000	1000	1000	0
1000	2000	667	1000	333	0
1000	1500	500	1000	0	0
1000	1000	333	667	0	333
1000	500	167	333	0	667
1000	0	0	0	0	1000

Example

ABC Ltd. has a capital of ₹10 lakhs in equity shares of ₹100 each. The shares currently quoted at par. The company proposes declaration of a dividend of ₹10 per share at the end of the current financial year. The capitalisation rate for the risk class to which the company belongs is 12%.

What will be the market price of the share at the end of the year, if

i) A dividend is not declared?

ii) A dividend is declared?

iii) Assuming that the company pays the dividend and has net profits of ₹ 5,00,000 and makes new investments of ₹ 10 lakhs during the period, how many new shares must be issued? Use the M.M. model.

Solution :

Modigliani – Miller Approach

$$n = \text{no of shares} = 10000$$

$$P_0 = \text{market price} = ₹ 100$$

$$D_1 = \text{Expected dividend} = ₹ 10$$

$$K_e = \text{cost of capital} = 12\%$$

i. Market price of share (P1) if dividend not declared

$$\text{Given } D_1 = 0$$

We know,

$$P_0 = (D_1 + P_1) / (1 + K_e)$$

$$P_1 = 112$$

ii. P1 if dividend declared

$$D_1 = ₹ 10$$

$$P_0 = (D_1 + P_1) / (1 + K_e)$$

$$P_1 = ₹ 102$$

iii. No of shares to be issued :

$$\Delta n = (I - E + n D_1) / P_1$$

$$= (1000000 - 500000 + 100000) / 102$$

$$= 5882 \text{ shares}$$

TYPES OF DIVIDENDS

Dividends may be declared in the form of cash, stock, scripts, bonds and property.

1. Cash Dividends

Cash dividend is, by far, the most important form of dividend. In cash dividends stock holders receive cheques for the amounts due to them. Cash generated by business earnings is used to pay cash dividends. Sometimes the firm may issue additional stock to use proceeds so derived to pay cash dividends or approach bank for the purpose. Generally, stockholders have strong preference for cash dividends.

2. Stock Dividends

Stock dividends rank next to cash dividends in respect of their popularity. In this form of dividends, the firm issues additional shares of its own stock to the stockholders in proportion to the number of shares held in lieu of cash dividends. The payment of stock dividends neither affects cash and earnings position of the firm nor is ownership of stockholders changed. Indeed there will be transfer of the amount of dividend from surplus account to the capital stock account which tantamount to capitalization of retained earnings. The net effect of this would be an increase in number of shares of the current stockholders. But there will be no change in their equity. With payment of stock dividends the stockholders have simply more shares of stock to represent the same interest as it was before issuing stock dividends. Thus, there will be merely an adjustment in the firm's capital structure in terms of both book value and market price of the common stock.

2. Stock Splits

Closely related to a stock dividend is a stock split. From a purely economic point of view a stock split is nothing but a gaint stock dividend. A stock split is a change in the number of outstanding shares of stock achieved through a proportional reduction of increase in the par value of the stock. The management employs this device to make a major adjustment in the market price of the firm's stock and consequently in its earnings and dividends per share. In stock split only the par value and number of outstanding shares are affected. The amounts in the common stock, premium and retained earnings remain unchanged. This is exhibited in the table. It may be noted from the table that although number of shares was doubled, capital account of the firm did not change because of proportional reduction in par value of the stock.

3. Scrip Dividend

Scrip dividend means payment of dividend in scrip of promissory notes. Sometimes company needs cash generated by business earnings to meet business requirements because of temporary shortage of cash. In such cases the company may issue scrip or notes promising to pay dividend at a future date. The scrip usually bears a definite date of maturity or sometimes maturity date is not stipulated and its payment is left to the discretion of the Board of Directors. Scrips may be interest-bearing or non-interest bearing. Such dividends are relatively scarce.

4. Bond Dividend

As in scrip dividends, dividends are not paid immediately in bond dividends. Instead the company promises to pay dividends at a future date and to that effect bonds are issued to stock holders in place of cash. The purpose of both the bond and scrip dividends is alike, i.e., postponement of dividend payments. Difference between the two is in respect of the date of payment and their effect is the same. Both result in lessening of surplus and addition to the liability of the firm. The only difference between bond and scrip dividends is that the former carries longer maturity than the latter. Bond dividends are not popular in India.

(5)Property Dividends

In property dividend the company pays dividends in the form of assets other than cash. Generally, assets which are superfluous for the company are distributed as dividends to the stockholders. Sometimes the company may use its products to pay dividends. Securities of the subsidiary companies owned by the company may also take the form of property dividends. This kind of dividend payment is not in vogue in India.

FACTORS AFFECTING DIVIDEND POLICY:

There is a controversy amongst financial analysts regarding impact of dividends on market price of a company's shares. Some argue that dividends do not have any impact on such price while others hold a different opinion. However, preponderance of evidence suggests that dividend policies do have a significant effect on the value of the firm's equity shares in the stock exchange. Having accepted this premise, it will now be appropriate to consider those factors which affect the dividend policy of a firm.

The factors affecting the dividend policy are both external as well as internal.

External factors

1. General state of economy - The general state of economy affects to a great extent the management's decision to retain or distribute earnings of the firm. In case of uncertain economic and business conditions, the management may like to retain the whole or a part of the firm's earnings to build up reserves to absorb shocks in the future. Similarly in periods of depression, the management may also withhold-dividends payment to retain a large part of its earnings to preserve the firm's liquidity position. In periods of prosperity the management may not be liberal in dividend payments though the earning power of a company warrants it because of availability of larger profitable investment opportunities similarly in periods of inflation, the management may withhold dividend payments in order to retain larger proportion of the earnings for replacement of worn-out assets.

2. Legal restrictions - A firm may also be legally restricted from declaring and paying dividends. For example, in India, the companies Act, 1956 has put several restrictions regarding payments and declaration of dividends. Some of these restrictions are as follows :

(i) Dividends can only be paid out of (a) the current profits of the company, (b) the past accumulated profits or (c) money provided by the Central or State Governments for the payment of dividends in pursuance of the guarantee given by the Government. Payment of dividend out of capital is illegal.

(ii) A company is not entitled to pay dividends unless (a) it has provided for present as well as all arrears of depreciation, (b) a certain percentage of net profits of that year as prescribed by the central Government not exceeding 10%, has been transferred to the reserves of the company.

(iii) Past accumulated profits can be used for declaration of dividends only as per the rules framed by the Central Government in this behalf.

Similarly, the Indian Income Tax Act also lays down certain restrictions on payment of dividends. The management has to take into consideration all the legal restrictions before taking the dividend decision otherwise it may be declared as ultra vires .

Internal factors

The following are the internal factors which affect the dividend policy of a firm:

1. Desire of the shareholders - Of course, the directors have considerable liberty regarding the disposal of the firm's earnings, but the shareholders are technically the owners of the company and, therefore, their desire cannot be overlooked by the directors while deciding about the dividend policy.

Shareholders of a firm expect two forms of return from their investment in a firm:

(i) Capital gains - The shareholders expect an increase in the market value of the equity shares held by them over a period of time. Capital gain refers to the profit resulting from the sale of capital investment i.e., the equity shares in case of shareholders. For example, if a shareholder purchases a share for 40 and later on sells it for 60, the amount of capital gain is a sum of 20. ₹

(ii) Dividends - The shareholders also expect a regular return on their investment from the firm. In most cases the shareholders' desire to get dividends takes priority over the desire to earn capital gains because of the following reasons:

(a) Reduction of uncertainty - Capital gains or a future distribution of earnings involves more uncertainty than a distribution of current earnings.

(b) Indication of strength - The declaration and payment of cash dividend carries an information content that the firm is reasonably strong and healthy.

(c) Need for current income - Many shareholders require income from the investment to pay for their current living expenses. Such shareholders are generally reluctant to sell their shares to earn capital gain.

2. Financial needs of the company - The financial needs of the company are to be considered by the management while taking the dividend decision. Of course, the financial needs of the company may be in direct conflict with the desire of the shareholders to receive large dividends. However, a prudent management should give more weightage to the financial needs of the company rather than the desire of the shareholders. In order to maximize the shareholders' wealth, it is advisable to retain earnings in the business only when company has better profitable investment opportunities as compared to the shareholders. However, the directors must retain some earnings, whether or not profitable investment opportunity exists, to maintain the company as a sound and solvent enterprise.

3. Desire of control - Dividend policy is also influenced by the desire of shareholders or the management to retain control over the company. The issue of additional equity shares for procuring funds dilutes control to the detriment of the existing equity shareholders who have a dominating voice in the company. At the same time, recourse to long-term loans may entail financial risks and may prove disastrous to the interests of the shareholders in times of financial difficulties.

In case of a strong desire for control, the management may be reluctant to pay substantial dividends and prefer a smaller dividend pay out ratio. This is particularly true in case of companies which need funds for financing profitable investment opportunities and an outside group is seeking to gain control over the company.

However, where the management is strongly in control of the company either because of substantial shareholdings or because of the shares being widely held, the firm can afford to have a high dividend pay out ratio.

4. Liquidity position - The payment of dividends results in cash outflow from the firm. A firm may have adequate earnings but it may not have sufficient cash to pay dividends. It is, therefore, important for the management to take into account the cash position and the overall liquidity position of the firm before and after payment of dividends while taking the dividend decision. A firm may not, therefore, be in a position to pay dividends in cash or at a higher rate because of insufficient cash resources. Such a problem is generally faced by growing firms which need constant funds for financing their expansion activities.

TYPES OF DIVIDEND POLICY :

The various types of dividend policies are discussed as follows:

1. Regular Dividend Policy

Payment of dividend at the usual rate is termed as regular dividend. The investors such as retired persons, widows and other economically weaker persons prefer to get regular dividends.

A regular dividend policy offers the following advantages.

- a. It establishes a profitable record of the company.
- b. It creates confidence amongst the shareholders.
- c. It aids in long-term financing and renders financing easier.
- d. It stabilizes the market value of shares.
- e. The ordinary shareholders view dividends as a source of funds to meet their day-today living expenses.
- f. If profits are not distributed regularly and are retained, the shareholders may have to pay a higher rate of tax in the year when accumulated profits are distributed.

However, it must be remembered that regular dividends can be maintained only by companies of long standing and stable earnings. A company should establish the regular dividend at a lower rate as compared to the average earnings of the company.

2. Stable Dividend Policy

The term 'stability of dividends' means consistency or lack of variability in the stream of dividend payments. In more precise terms, it means payment of certain minimum amount of dividend regularly. A stable dividend policy may be established in any of the following three forms.

Constant dividend per share: Some companies follow a policy of paying fixed dividend per share irrespective of the level of earnings year after year. Such firms, usually, create a 'Reserve for Dividend Equalisation' to enable them to pay the fixed dividend even in the year when the earnings are not sufficient or when there are losses. A policy of constant dividend per share is most suitable to concerns whose earnings are expected to remain stable over a number of years. Figure given below shows the behaviour of dividend in such policy.

2. Irregular Dividend Policy

Some companies follow irregular dividend payments on account of the following:

- a. Uncertainty of earnings.
- b. Unsuccessful business operations.
- c. Lack of liquid resources.
- d. Fear of adverse effects of regular dividends on the financial standing of the company.

4. No Dividend Policy

A company may follow a policy of paying no dividends presently because of its unfavourable working capital position or on account of requirements of funds for future expansion and growth.

5. Residual Dividend Policy

When new equity is raised floatation costs are involved. This makes new equity costlier than retained earnings. Under the Residual approach, dividends are paid out of profits after making provision for money required to meet upcoming capital expenditure commitments.

UNIT -V

WORKING CAPITAL MANAGEMENT

The term working capital is commonly used for the capital required for day-to-day working in a business concern, such as for purchasing raw material, for meeting day-to-day expenditure on salaries, wages, rents rates, advertising etc. But there are much disagreement among various financial authorities (Financiers, accountants, businessmen and economists) as to the exact meaning of the term working capital.

DEFINITION AND CLASSIFICATION OF WORKING CAPITAL :

Working capital refers to the circulating capital required to meet the day to day operations of a business firm. Working capital may be defined by various authors as follows:

1. According to Weston & Brigham - "Working capital refers to a firm's investment in short term assets, such as cash amounts receivables, inventories etc.
2. Working capital means current assets. —Mead, Baker and Malott
3. "The sum of the current assets is the working capital of the business" —J.S.Mill Working capital is defined as "the excess of current assets over current liabilities and provisions".

But as per accounting terminology, it is difference between the inflow and outflow of funds. In the Annual Survey of Industries (1961), working capital is defined to include "Stocks of materials, fuels, semi-finished goods including work-in-progress and finished goods and by-products; cash in hand and bank and the algebraic sum of sundry creditors as represented by (a) outstanding factory payments e.g. rent, wages, interest and dividend; b)purchase of goods and services; c) short-term loans and advances and sundry debtors comprising amounts due to the factory on account of sale of goods and services and advances towards tax payments".

The term "working capital" is often referred to "circulating capital" which is frequently used to denote those assets which are changed with relative speed from one form to another i.e., starting from cash, changing to raw materials, converting into work-in-progress and finished products, sale of finished products and ending with realization of cash from debtors. Working capital has been described as the "life blood of any business which is apt because it constitutes a cyclically flowing stream through the business".

Concepts of working capital

1. Gross Working Capital: It refers to the firm's investment in total current or circulating assets.
2. Net Working Capital: The term "Net Working Capital" has been defined in two different ways:
 - i. It is the excess of current assets over current liabilities. This is, as a matter of fact, the most commonly accepted definition. Some people define it as only the difference between current assets and current liabilities. The former seems to be a better definition as compared to the latter.
 - ii. It is that portion of a firm's current assets which is financed by long-term funds.
3. Permanent Working Capital: This refers to that minimum amount of investment in all current assets which is required at all times to carry out minimum level of business activities. In other words, it represents the current assets required on a continuing basis over the entire year. Tandon Committee has referred to this type of working capital as "Core current assets".

The following are the characteristics of this type of working capital:

1. Amount of permanent working capital remains in the business in one form or another. This is particularly important from the point of view of financing. The suppliers of such working capital should not expect its return during the life-time of the firm.
2. It also grows with the size of the business. In other words, greater the size of the business, greater is the amount of such working capital and vice versa Permanent working capital is permanently needed for the business and therefore it should be financed out of long-term funds.
4. Temporary Working Capital: The amount of such working capital keeps on fluctuating from time to time on the basis of business activities. In other words, it represents additional current assets required at different times during the operating year. For example, extra inventory has to be maintained to support sales during peak sales period. Similarly, receivable also increase and must be financed during period of high sales. On the other hand investment in inventories, receivables, etc., will decrease in periods of depression. Suppliers of temporary working capital can expect its return during off season when it is not required by the firm. Hence, temporary working capital is generally financed from short-term sources of finance such as bank credit.
5. Negative Working Capital: This situation occurs when the current liabilities exceed the current assets. It is an indication of crisis to the firm.

Need for Working Capital

Working capital is needed till a firm gets cash on sale of finished products. It depends on two factors:

- i. Manufacturing cycle i.e. time required for converting the raw material into finished product; and
- ii. Credit policy i.e. credit period given to Customers and credit period allowed by creditors.

Thus, the sum total of these times is called an “Operating cycle” and it consists of the following six steps:

- Conversion of cash into raw materials.
- Conversion of raw materials into work-in-process.
- Conversion of work-in-process into finished products.
- Time for sale of finished goods—cash sales and credit sales.
- Time for realisation from debtors and Bills receivables into cash.
- Credit period allowed by creditors for credit purchase of raw materials, inventory and creditors for wages and overheads.

DETERMINANTS OF WORKING CAPITAL:

The factors influencing the working capital decisions of a firm may be classified as two groups, such as internal factors and external factors. The internal factors includes, nature of business size of business, firm’s product policy, credit policy, dividend policy, and access to money and capital markets, growth and expansion of business etc. The external factors include business fluctuations, changes in the technology, infrastructural facilities, import policy and the taxation policy etc. These factors are discussed in brief in the following lines.

I. Internal Factors

1. Nature and size of the business

The working capital requirements of a firm are basically influenced by the nature and size of the business. Size may be measured in terms of the scale of operations. A firm with larger scale of operations will need more working capital than a small firm. Similarly, the nature of the business - influence the working capital decisions. Trading and financial firms have less investment in fixed assets. But require a large sum of money to be invested in working capital. Retail stores, business units require larger amount of working capital, where as, public utilities need less working capital and more funds to invest in fixed assets.

2. Firm's production policy

The firm's production policy (manufacturing cycle) is an important factor to decide the working capital requirement of a firm. The production cycle starts with the purchase and use of raw material and completes with the production of finished goods. On the other hand production policy is uniform production policy or seasonal production policy etc., also influences the working capital decisions. Larger the manufacturing cycle and uniform production policy –larger will be the requirement of working capital. The working capital requirement will be higher with varying production schedules in accordance with the changing demand.

3. Firm's credit policy

The credit policy of a firm influences credit policy of working capital. A firm following liberal credit policy to all customers require funds. On the other hand, the firm adopting strict credit policy and grant credit facilities to few potential customers will require less amount of working capital.

4. Availability of credit

The working capital requirements of a firm are also affected by credit terms granted by its suppliers – i.e. creditors. A firm will need less working capital if liberal credit terms are available to it. Similarly, the availability of credit from banks also influences the working capital needs of the firm. A firm, which can get bank credit easily on favourable conditions, will be operated with less working capital than a firm without such a facility.

5. Growth and expansion of business

Working capital requirement of a business firm tend to increase in correspondence with growth in sales volume and fixed assets. A growing firm may need funds to invest in fixed assets in order to sustain its growing production and sales. This will, in turn, increase investment in current assets to support increased scale of operations. Thus, a growing firm needs additional funds continuously.

6. Profit margin and dividend policy

The magnitude of working capital in a firm is dependent upon its profit margin and dividend policy. A high net profit margin contributes towards the working capital pool. To the extent the net profit has been earned in cash, it becomes a source of working capital. This depends upon the dividend policy of the firm. Distribution of high proportion of profits in the form of cash dividends results in a drain on cash resources and thus reduces company's working capital to that extent. The working capital position of the firm is strengthened if the management follows conservative dividend policy and vice versa.

7. Operating efficiency of the firm

Operating efficiency means the optimum utilisation of a firm's resources at minimum cost. If a firm successfully controls operating cost, it will be able to improve net profit margin which, will, in turn, release greater funds for working capital purposes.

8. Co-ordinating activities in firm

The working capital requirements of a firm is depend upon the co-ordination between production and distribution activities. The greater and effective the co-ordinations, the pressure on the working capital will be minimized. In the absence of co-ordination, demand for working capital is reduced.

II. External Factors

1. Business fluctuations

Most firms experience fluctuations in demand for their products and services. These business variations affect the working capital requirements. When there is an upward swing in the economy, sales will increase, correspondingly, the firm's investment in inventories and book debts will also increase. Under boom, additional investment in fixed assets may be made by some firms to increase their productive capacity. This act of the firm will require additional funds. On the other hand when, there is a decline in economy, sales will come down and consequently the conditions, the firm try to reduce their short-term borrowings. Similarly the seasonal fluctuations may also affect the requirement of working capital of a firm.

2. Changes in the technology

The technological changes and developments in the area of production can have immediate effects on the need for working capital. If the firm wish to install a new machine in the place of old system, the new system can utilise less expensive raw materials, the inventory needs may be reduced there by working capital needs.

3. Import policy

Import policy of the Government may also effect the levels of working capital of a firm since they have to arrange funds for importing goods at specified times.

4. Infrastructural facilities

The firms may require additional funds to maintain the levels of inventory and other current assets, when there is good infrastructural facilities in the company like, transportation and communications.

5. Taxation policy

The tax policies of the Government will influence the working capital decisions. If the Government follow regressive taxation policy, i.e. imposing heavy tax burdens on business firms, they are left with very little profits for distribution and retention purpose. Consequently the firm has to borrow additional funds to meet their increased working capital needs. When there is a liberalised tax policy, the pressure on working capital requirement is minimised. Thus the working capital requirements of a firm is influenced by the internal and external factors.

MEASUREMENT OF WORKING CAPITAL:

There are 3 methods for assessing the working capital requirement as explained below:

a) Percent of Sales Method

Based on the past experience, some percentage of sales may be taken for determining the quantum of working capital

b) Regression Analysis Method

The relationship between sales and working capital and its various components may be plotted on Scatter diagram and the average percentage of past 5 years may be ascertained. This average percentage of sales may be taken as working capital. Similar exercise may be carried out at the beginning of the year for assessing the working capital requirement. This method is suitable for simple as well as complex situations.

c) Operating Cycle Method:

It is also known as working capital cycle. Operating cycle is the total time gap between the purchase of raw material and the receipt from Debtors.

The working capital estimation as per the method of operating cycle, is the most systematic and logical approach. In this case, the working capital estimation is made on the basis of analysis of each and every component of the working capital individually. As already discussed the working capital, required to sustain the level of planned operations, is determined by calculating all the individual components of current assets and current liabilities.

The calculation of net working capital may also be shown as follows ;

$$\begin{aligned}\text{Working Capital} &= \text{Current Assets} - \text{Current Liabilities} \\ &= (\text{Raw Materials Stock} + \text{Work-in-progress Stock} + \text{Finished} \\ &\quad \text{Goods Stock} + \text{Debtors} + \text{Cash Balance}) - (\text{Creditors} + \\ &\quad \text{Outstanding Wages} + \text{Outstanding Overheads}).\end{aligned}$$

Where,

Raw Materials = Cost (Average) of Materials in Stock

Work-in-progress Stock = Cost of Materials + Wages + Overhead of Work-in-progress

Finished Goods Stock = Cost of Materials + Wages + Overhead of Finished Goods.

Creditors for Material = Cost of Average Outstanding Creditors.

Creditors for Wages = Averages Wages Outstanding.

Creditors for Overhead = Average Overheads Outstanding.

Thus, Working Capital = Cost of Materials in Stores, in Work-in-progress, in Finished Goods and in Debtors.

Less : Creditors for Materials

Plus : Wages in Work-in-progress, in Finished Goods and in Debtors.

Less : Creditors for Wages.

Plus : Overheads in Work-in-progress, in Finished Goods and in Debtors.

Less : Creditors for Overheads.

The work sheet for estimation of working capital requirements under the operating cycle method may be presented as follows :

Estimation of Working Capital Requirements

I Current Assets :	Amount	Amount	Amount
Minimum Cash Balance		****	
Inventories :			
Raw Materials	****		
Work-in-progress	****		
Finished Goods	****	****	
Receivables :			
Debtors	****		
Bills	****	****	
Gross Working Capital (CA)		<u>****</u>	****
II Current Liabilities :			
Creditors for Purchases		****	
Creditors for Wages		****	
Creditors for Overheads		****	****
Total Current Liabilities (CL)		<u>****</u>	<u>****</u>
Excess of CA over CL			****
+ Safety Margin			****
Net Working Capital			****

The following points are also worth noting while estimating the working capital requirement :

1. **Depreciation** : An important point worth noting while estimating the working capital requirement is the depreciation on fixed assets. The depreciation on the fixed assets, which are used in the production process or other activities, is not considered in working capital estimation. The depreciation is a non-cash expense and there is no funds locked up in depreciation as such and therefore, it is ignored. Depreciation is neither included in valuation of work-in-progress nor in finished goods. The working capital calculated by ignoring depreciation is known as cash basis working capital. In case, depreciation is included in working capital calculations, such estimate is known as total basis Working capital.

2. **Safety Margin** : Sometimes, a firm may also like to have a safety margin of working capital in order to meet any contingency. The safety margin may be expressed as a % of total current assets or total current liabilities or net working capital. The safety margin, if required, is incorporated in the working capital estimates to find out the net working capital required for the firm. There is no hard and fast rule about the quantum of safety margin and depends upon the nature and characteristics of the firm as well as of its current assets and current liabilities.

Example.1

Hi-tech Ltd. plans to sell 30,000 units next year. The expected cost of goods sold is as follows :

	₹ (Per Unit)
Raw material	100
Manufacturing expenses	30
Selling, administration and financial expenses	20
Selling price	200

The duration at various stages of the operating cycle is expected to be as follows :

Raw material stage	2 months
Work-in-progress stage	1 month
Finished stage	1/2 month
Debtors stage	1 month

Assuming the monthly sales level of 2,500 units, estimate the gross working capital requirement. Desired cash balance is 5% of the gross working capital requirement, and working-progress in 25% complete with respect to manufacturing expenses.

Solution :

Statement of Working Capital Requirement

1. Current Assets :	Amt. (₹)	Amt. (₹)
Stock of Raw Material (2,500×2×100)		5,00,000
Work-in-progress :		
Raw Materials (2,500×100)	2,50,000	
Manufacturing Expenses 25% of (2,500×30)	18,750	2,68,750
Finished Goods :		
Raw Materials (2,500×½×100)	1,25,000	
Manufacturing Expenses (2,500×½×30)	37,500	1,62,500
Debtors (2,500×150)		<u>3,75,000</u>
		13,06,250
Cash Balance (13,06,250×5/95)		<u>68,750</u>
Working Capital Requirement		<u>13,75,000</u>

Note : Selling, administration and financial expenses have not been included in valuation of closing stock.

Example.2

Calculate the amount of working capital requirement for SRCC Ltd. from the following information :

₹. (Per Unit)

Raw materials	160
Direct labour	60
Overheads	<u>120</u>
Total cost	340
Profit	<u>60</u>
Selling price	<u>400</u>

Raw materials are held in stock on an average for one month. Materials are in process on an average for half-a-month. Finished goods are in stock on an average for one month. Credit allowed by suppliers is one month and credit allowed to debtors is two months. Time lag in payment of wages is 1½ weeks. Time lag in payment of overhead expenses is one month. One fourth of the sales are made on cash basis.

Cash in hand and at the bank is expected to be ₹ 50,000; and expected level of production amounts to 1,04,000 units for a year of 52 weeks.

You may assume that production is carried on evenly throughout the year and a time period of four weeks is equivalent to a month.

Solution :

Statement of Working Capital Requirement

1. Current Assets :	Amt. (₹)	Amt. (₹)
Cash Balance		50,000
Stock of Raw Materials (2,000×160×4)		12,80,000
Work-in-progress :		
Raw Materials (2,000×160×2)	6,40,000	
Labour and Overheads (2,000×180×2)×50%	<u>3,60,000</u>	10,00,000
Finished Goods (2,000×340×4)		27,20,000
Debtors (2,000×75%×340×8)		<u>40,80,000</u>
Total Current Assets		<u>91,30,000</u>
2. Current Liabilities :		
Creditors (2,000×Rs. 160×4)		12,80,000
Creditors for Wages (2,000×Rs. 60×1½)		1,80,000
Creditors for Overheads (2,000×Rs. 120×4)		<u>9,60,000</u>
Total Current Liabilities		<u>24,20,000</u>
Net Working Capital (CA–CL)		<u>67,10,000</u>

Example.3

JBC Ltd. sells goods on a gross profit of 25%. Depreciation is considered as a part of cost of production. The following are the annual figures given to you :

Sales (2 months credit)	₹ 18,00,000
Materials consumed (1 months credit)	4,50,000
Wages paid (1 month lag in payment)	3,60,000
Cash manufacturing expenses (1 month lag in payment)	4,80,000
Administrative expenses (1 month lag in payment)	1,20,000
Sales promotion expenses (paid quarterly in advance)	60,000

The company keeps one month's stock each of raw materials and finished goods. It also keeps ₹1,00,000 in cash. You are required to estimate the working capital requirements of the company on cash cost basis, assuming 15% safety margin .

Solution :

Statement of Working Capital Requirement

1. Current Assets :	Amt. (₹)
Cash-in-hand	1,00,000
Debtors (cost of sales i.e. $14,70,000 \times 2/12$)	2,45,000
Prepaid Sales Promotion expenses	15,000
Inventories :	
Raw Materials ($4,50,000/12$)	37,500
Finishd goods ($12,90,000/12$)	<u>1,07,500</u>
Total current assets	<u>5,05,000</u>
2. Current Liabilities :	
Sundry creditors ($4,50,000/12$)	37,500
Outstanding Manufacturing exp. ($4,80,000/12$)	40,000
Outstanding Administrative exp. ($1,20,000/12$)	10,000
Outstanding Wages ($3,60,000/12$)	<u>30,000</u>
Total current liabilities	<u>1,17,500</u>
Excess of CA and CL	3,87,500
+ 15% for contingencies	<u>58,125</u>
Working capital required	<u>4,45,625</u>

Working Notes :

1. Cost Structure	₹
Sales	18,00,000

– Gross profit 25% on sales		<u>4,50,000</u>
Cost of production		13,50,000
– Cost of materials	₹ 4,50,000	
– Wages	3,60,000	<u>8,10,000</u>
Manufacturing expenses (Total)		5,40,000
– Cash Manufacturing expenses		<u>4,80,000</u>
Therefore, Depreciation		<u>60,000</u>

2. Total cash cost :

Cost of production		13,50,000
– Depreciation		60,000
+ Administrative expenses		1,20,000
+ Sales promotion expenses		<u>60,000</u>
Total Cash Cost		<u>14,70,000</u>

Importance or Advantages of Adequate Working Capital

Working capital is the life blood and nerve centre of a business. Just as circulation of blood is essential in the human body for maintaining life, working capital is very essential to maintain the smooth running of a business. No business can run successfully without an adequate amount of working capital. The main advantages of maintaining adequate amount of working capital are as follows:

1. Solvency of the business: Adequate working capital helps in maintaining solvency of the business by providing uninterrupted flow of production.
2. Goodwill: Sufficient working capital enables a business concern to make prompt payments and hence helps in creating and maintaining goodwill.
3. Easy loans: A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and other on easy and favourable terms.
4. Cash discounts: Adequate working capital also enables a concern to avail cash discounts on the purchases and hence it reduces costs.
5. Regular supply of raw materials: Sufficient working capital ensures regular supply of raw materials and continuous production.
6. Regular payment of salaries, wages and other day-to-day commitments: A company which has ample working capital can make regular payment of salaries, wages and other day-to-day commitments which raises the morale of its employees, increases their efficiency, reduces wastages and costs and enhances production and profits
7. Exploitation of favourable market conditions: Only concerns with adequate working capital can exploit favourable market conditions such as purchasing its requirements in bulk when the prices are lower and by holding its inventories for higher prices.

8. Ability to face crisis: Adequate working capital enables a concern to face business crisis in emergencies such as depression because during such periods, generally, there's much pressure on working capital.

9. Quick and regular return on investments: Every Investor wants a quick and regular return on his investments. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors as there may not be much pressure to plough back profits. This gains the confidence of its investors and creates a favourably market to raise additional funds i.e., the future.

10. High morale: Adequacy of working capital creates an environment of security, confidence, high morale and creates overall efficiency in a business.

Excess or Inadequate Working Capital

Every business concern should have adequate working capital to run its business operations. It should have neither redundant or excess working capital nor inadequate or shortage of working capital. Both excess as well as short working capital positions are bad for any business. However, out of the two, it is the inadequacy of working capital which is more dangerous from the point of view of the firm.

Disadvantages of Redundant or Excessive Working Capital

1. Excessive Working Capital means ideal funds which earn no profits for the business and hence the business cannot earn a proper rate of return on its investments.
2. When there is a redundant working capital, it may lead to unnecessary purchasing and accumulation of inventories causing more chances of theft, waste and losses
3. Excessive working capital implies excessive debtors and defective credit policy which may cause higher incidence of bad debts.
4. It may result into overall inefficiency in the organization.
5. When there is excessive working capital, relations with banks and other financial institutions may not be maintained.
6. Due to low rate of return on investments, the value of shares may also fall.
7. The redundant working capital gives rise to speculative transactions

Disadvantages or Dangers of Inadequate Working Capital

1. A concern which has inadequate working capital cannot pay its short-term liabilities in time. Thus, it will lose its reputation and shall not be able to get good credit facilities.
2. It cannot buy its requirements in bulk and cannot avail of discounts, etc.
3. It becomes difficult for the firm to exploit favourable market conditions and undertake profitable projects due to lack of working capital.
4. The firm cannot pay day-to-day expenses of its operations and its creates inefficiencies, increases costs and reduces the profits of the business.
5. It becomes impossible to utilize efficiently the fixed assets due to non-availability of liquid funds.
6. The rate of return on investments also falls with the shortage of working capital.

WORKING CAPITAL FINANCING :

Accruals

The major accrual items are wages and taxes. These are simply what the firm owes to its employees and to the government.

Trade Credit

Trade credit represents the credit extended by the supplier of goods and services. It is spontaneous source of finance in the sense that it arises in the normal transactions of the firm without specific negotiations, provided the firm is considered creditworthy by its supplier. It is an important source of finance representing 25% to 50% of short-term financing.

Working Capital Advance by Commercial Banks

Working capital advance by commercial banks represents the most important source for financing current assets.

Short-term Loans from Financial Institutions

The Life Insurance Corporation of India and the General Insurance Corporation of India provide short-term loans to manufacturing companies with an excellent track record.

Rights Debentures for Working Capital

Public limited companies can issue “Rights” debentures to their shareholders with the object of augmenting the long-term resources of the company for working capital requirements.

The key guidelines applicable to such debentures are as follows:

- i. The amount of the debenture issue should not exceed (a) 20% of the gross current assets, loans, and advances minus the long-term funds presently available for financing working capital, or (b) 20% of the paid-up share capital, including preference capital and free reserves, whichever is the lower of the two.
- ii. The debt. -equity ratio, including the proposed debenture issue, should not exceed 1:1.
- iii. The debentures shall first be offered to the existing Indian resident shareholders of the company on a pro rata basis.

Commercial Paper

Commercial paper represents short-term unsecured promissory notes issued by firms which enjoy a fairly high credit rating. Generally, large firms with considerable financial strength are able to issue commercial paper. The important features of commercial paper are as follows:

- i. The maturity period of commercial paper usually ranges from 90 days to 360 days.
- ii. Commercial paper is sold at a discount from its face value and redeemed at its face value. Hence the implicit interest rate is a function of the size of the discount and the period of maturity.
- iii. Commercial paper is directly placed with investors who intend holding it till its maturity. Hence there is no well developed secondary market for commercial paper

Factoring

Factoring, as a fund based financial service, provides resources to finance receivables as well as facilitates the collection of receivables. It is another method of raising short-term finance through account receivable credit offered by commercial banks and factors. A commercial bank may provide finance by discounting the bills or invoices of its customers. Thus, a firm gets immediate payment for sales made on credit. A factor is a financial institution which offers services relating to management and financing of debts arising out of credit sales. Factoring is becoming popular all over the world on account of various services offered by the institutions engaged in it. Factors render services varying from bill discounting facilities offered by commercial banks to a total take over of administration of credit sales including maintenance of sales ledger, collection of accounts receivables, credit control and protection from bad debts, provision of finance and rendering of advisory services to their clients. Factoring may be on a recourse basis, where the risk of bad debts is borne by the client, or on a non-recourse basis, where the risk of credit is borne by the factor.

MANAGEMENT OF WORKING CAPITAL :

Working Capital Management involves management of different components of working capital such as cash, inventories, accounts receivable, creditors etc. A brief description follows regarding the various issues involved in the management of each of the above components of working capital.

INVENTORY MANAGEMENT:

Inventory constitutes an important item in the working capital of many business concerns. Net working capital is the difference between current assets and current liabilities. Inventory is a major item of current assets. The term inventory refers to the stocks of the product of a firm is offering for sale and the components that make up the product. Inventory is stores of goods and stocks. This includes raw materials, work-in-process and finished goods. Raw materials consist of those units or input which are used to manufacture goods that require further processing to become finished goods. Finished goods are products ready for sale. The classification of inventories and the levels of the components vary from organisation to organisation depending upon the nature of business. For example steel is a finished product for a steel industry, but raw material for an automobile manufacturer. Thus, inventory may be defined as "Stock of goods that is held for future use". Since inventories constitute about 50 to 60 percent of current assets, the management of inventories is crucial to successful working capital management. Working capital requirements are influenced by inventory holding. Hence, the need for effective and efficient management of inventories. Inventory management refers to an optimum investment in inventories. It should neither be too low to affect the production adversely nor too high to block the funds unnecessarily. Excess investment in inventories is unprofitable for the business. Both excess and inadequate investment in inventories is not desirable. The firm should operate within the two danger points. The purpose of inventory management is to determine and maintain the optimum level of inventory investment.

Techniques of Inventory Control

The following are the various measures of selective control of inventory :

A. Economic Ordering Quantity (EOQ): It is important to note that only the correct quantity of materials is to be purchased. For this purpose, the factors such as maximum level, minimum level, danger level, re-ordering level, quantity already on order, quantity reserved, availability of funds,

quantity discount, interest on capital, average consumption and availability of storage accommodation are to be kept in view. There should not be any over stock vis-à-vis no question of non-stock. Balance should be made between the cost of carrying and cost of non-carrying i.e. cost of stock-out. Cost of carrying includes the cost of storage, insurance, obsolescence, interest on capital invested. Cost of not carrying includes the costly purchase, loss of production and sales and loss of customer's goodwill. Economic Ordering Quantity (EOQ) is the quantity fixed at the point where the total cost of ordering and the cost of carrying the inventory will be the minimum. If the quantity of purchases is increased, the cost of ordering decreases while the cost of carrying increases. If the quantity of purchases is decreased, the cost of ordering increases while the cost of carrying decreases. But in this case, the total of both the costs should be kept at minimum. Thus, EOQ may be arrived at by Tabular method by preparing purchase order quantity tables showing the ordering cost, carrying cost and total cost of various sizes of purchase orders.

B. Fixing levels (Quantity Control) - For fixing the various levels such as maximum, minimum, etc., average consumption and lead time i.e. the average time taken between the initiation of purchase order and the receipt of materials from suppliers are to be estimated for each item of materials.

a. Maximum Stock Level - The maximum stock level is that quantity above which stocks should not normally be allowed to exceed. The following factors are taken into consideration while fixing the maximum stock level:

1. Average rate of consumption of material.
2. Lead time.
3. Re-order level.
4. Maximum requirement of materials for production at any time.
5. Storage space available cost of storage and insurance.
6. Financial consideration such as price fluctuations, availability of capital, discounts due to seasonal and bulk purchases, etc.
7. Keeping qualities e.g. risk of deterioration, obsolescence, evaporation, depletion and natural waste, etc.
8. Any restrictions imposed by local or national authority in regard to materials
i.e. purchasing from small scale industries and public sector undertakings, price preference clauses, import policy, explosion in case of explosive materials, risk of fire, etc.; and
9. Economic ordering quantity is also considered.

Formula

Maximum Level = Re-order level—(Minimum consumption) × (Minimum lead times)
+Reordering quantity

b. Minimum Stock Level - The minimum stock level is that quantity below which stocks should not normally be allowed to fall. If stocks go below this level, there will be danger of stoppage of production due to shortage of supplies. The following factors are taken into account while fixing the minimum stock level:

1. Average rate of consumption of material.
2. Average lead time. The shorter the lead time, the lower is the minimum level.
3. Re-order level.
4. Nature of the item.
5. Stock out cost.

Formula

$$\text{Minimum Level} = \text{Re-order level} - (\text{Average usage} \times \text{Average lead time})$$

c. Re-order Level - This is the point fixed between the maximum and minimum stock levels and at this time, it is essential to initiate purchase action for fresh supplies of the material. In order to cover the abnormal usage of material or unexpected delay in delivery of fresh supplies, this point will usually be fixed slightly higher than the minimum stock level. The following factors are taken into account while fixing the re-order level:

1. Maximum usage of materials
2. Maximum lead time
3. Maximum stock level
4. Minimum stock level

Formula

Re-order level = Maximum usage X Maximum lead time or Minimum level + Consumption during lead time.

Re-ordering Quantity (How much to purchase): It is also called Economic Ordering Quantity.

d. Danger level.- This is the level below the minimum stock level. When the stock reaches this level, immediate action is needed for replenishment of stock. As the normal lead time is not available, regular purchase procedure cannot be adopted resulting in higher purchase cost. Hence, this level is useful for taking corrective action only. If this is fixed below the reorder level and above the minimum level, it will be possible to take preventive action.

C. ABC Analysis for Inventory Control: ABC analysis is a method of material control according to value. The basic principle is that high value items are more closely controlled than the low value items. The materials are grouped according to the value and frequency of replenishment during a Period.

‘A’ Class items: Small percentage of the total items but having higher values.

‘B’ Class items: More percentage of the total items but having medium values.

‘C’ Class items: High percentage of the total items but having low values.

D. V.E.D. Classification: The V.E.D. classification is applicable mainly to the spare parts. Spares are classified as vital (V), essential (E) and desirable (D). Vital class spares have to be stocked adequately to ensure the operations of the plant but some risk can be taken in the case of ‘E’ class spares. Stocking of desirable spares can even be done away with if the lead time for their procurement is low. Similarly, classification may be done in respect of the plant and machinery as vital, essential, important and normal (VEIN).

E. Just in Time (JIT): Normally, inventory costs are high and controlling inventory is complex because of uncertainties in supply, dispatching, transportation etc. Lack of coordination between suppliers and ordering firms is causing severe irregularities, ultimately the firm ends-up in inventory problems. Toyota Motors has first time suggested just – in – time approach in 1950s. This means the material will reach the points of production process directly from the suppliers as per the time schedule. It is possible in the case of companies with respective process. Since, it requires close coordination between suppliers and the ordering firms, and therefore, only units with systematic approach will be able to implement it.

CASH MANAGEMENT

Cash management is one of the key areas of working capital management. Cash is the most liquid current assets. Cash is the common denominator to which all current assets can be reduced because the other major liquid assets, i.e. receivable and inventory get eventually converted into cash. This underlines the importance of cash management. The term “Cash” with reference to management of cash is used in two ways. In a narrow sense cash refers to coins, currency, cheques, drafts and deposits in banks. The broader view of cash includes near cash assets such as marketable securities and time deposits in banks. The reason why these near cash assets are included in cash is that they can readily be converted into cash. Usually, excess cash is invested in marketable securities as it contributes to profitability.

Cash is one of the most important components of current assets. Every firm should have adequate cash, neither more nor less. Inadequate cash will lead to production interruptions, while excessive cash remains idle and will impair profitability. Hence, the need for cash management.

Thus, the aim of cash management is to maintain adequate cash balances at one hand and to use excess cash in some profitable way on the other hand.

Motives

Motives or desires for holding cash refer to various purposes. The purpose may be different from person to person and situation to situation. There are four important motives to hold cash.

a. Transactions motive - This motive refers to the holding of cash, to meet routine cash requirements in the ordinary course of business. A firm enters into a number of transactions which requires cash payment. For example, purchase of materials, payment of wages, salaries, taxes, interest etc. Similarly, a firm receives cash from cash sales, collections from debtors, return on investments etc. But the cash inflows and cash outflows do not perfectly synchronise. Sometimes, cash receipts are more than payments while at other times payments exceed receipts. The firm must have to maintain sufficient (funds) cash balance if the payments are more than receipts. Thus, the transactions motive refers to the holding of cash to meet expected obligations whose timing is not perfectly matched with cash receipts. Though, a large portion of cash held for transactions motive is in the form of cash, a part of it may be invested in marketable securities whose maturity conform to the timing of expected payments such as dividends, taxes etc.

b. Precautionary motive - Apart from the non-synchronisation of expected cash receipts and payments in the ordinary course of business, a firm may be failed to pay cash for unexpected contingencies. For example, strikes, sudden increase in cost of raw materials etc. Cash held to meet these unforeseen situations is known as precautionary cash balance and it provides a caution against them. The amount of cash balance under precautionary motive is influenced by two factors i.e. predictability of cash flows and the availability of short term credit. The more unpredictable the cash flows, the greater the need for such cash balances and vice versa. If the firm can borrow at

short-notice, it will need a relatively small balance to meet contingencies and vice versa. Usually precautionary cash balances are invested in marketable securities so that they contribute something to profitability.

c. Speculative motive - Sometimes firms would like to hold cash in order to exploit, the profitable opportunities as and when they arise. This motive is called as speculative motive. For example, if the firm expects that the material prices will fall, it can delay the purchases and make purchases in future when price actually declines. Similarly, with the hope of buying securities when the interest rate is expected to decline, the firm will hold cash. By and large, firms rarely hold cash for speculative purposes.

d. Compensation motive - This motive to hold cash balances is to compensate banks and other financial institutes for providing certain services and loans. Banks provide a variety of services to business firms like clearance of cheques, drafts, transfer of funds etc. Banks charge a commission or fee for their services to the customers as indirect compensation. Customers are required to maintain a minimum cash balance at the bank. This balance cannot be used for transaction purposes. Banks can utilise the balances to earn a return to compensate their cost of services to the customers. Such balances are compensating balances. These balances are also required by some loan agreements between a bank and its customers. Banks require a chest to maintain a minimum cash balance in his account to compensate the bank when the supply of credit is restricted and interest rates are rising. Thus cash is required to fulfil the above motives. Out of the four motives of holding cash balances, transaction motive and compensation motives are very important. Business firms usually do not speculate and need not have speculative balances. The requirement of precautionary balances can be met out of short-term borrowings.

MANAGEMENT OF RECEIVABLES

Receivables means the book debts or debtors and these arise, if the goods are sold on credit. Debtors form about 30% of current assets in India. Debt involves an element of risk and bad debts also. Hence, it calls for careful analysis and proper management. The goal of receivables management is to maximize the value of the firm by achieving a trade off between risk and profitability. For this purpose, a finance manager has:

1. to obtain optimum (non-maximum) value of sales;
2. to control the cost of receivables, cost of collection, administrative expenses, bad debts and opportunity cost of funds blocked in the receivables.
3. to maintain the debtors at minimum according to the credit policy offered to customers.
4. to offer cash discounts suitably depending on the cost of receivables, bank rate of interest and opportunity cost of funds blocked in the receivables.

Factors Affecting the Size of Receivables

The size of accounts receivable is determined by a number of factors. Some of the important factors are as follows

1. Level of sales - Generally in the same industry, a firm having a large volume of sales will be having a larger level of receivables as compared to a firm with a small volume of sales. Sales level can also be used for forecasting change in accounts receivable. For example, if a firm predicts that there will be an increase of 20% in its credit sales for the next period, it can be expected that there will also be a 20% increase in the level of receivables.

2. Credit policies - The term credit policy refers to those decision variables that influence the amount of trade credit, i.e., the investment in receivables. These variables include the quantity of trade accounts to be accepted, the length of the credit period to be extended, the cash discount to be given and any special terms to be offered depending upon particular circumstances of the firm and the customer.

3. Terms of trade - The size of the receivables is also affected by terms of trade (or credit terms) offered by the firm. The two important components of the credit terms are (i) Credit period and (ii) Cash discount.

Credit Policy

A firm should establish receivables policies after carefully considering both benefits and costs of different policies. These policies relate to:

(i) Credit Standards, (ii) Credit Terms, and (iii) Collection Procedures.

i. Credit standards -

The term credit standards represent the basic criteria for extension of credit to customers. The levels of sales and receivables are likely to be high if the credit standards are relatively loose, as compared to a situation when they are relatively tight. The firm's credit standards are generally determined by the five "C's". Character, Capacity, Capital, Collateral and Conditions of customer.

ii. Credit terms

It refers to the terms under which a firm sells goods on credit to its customers. As stated earlier, the two components of the credit terms are (a) Credit Period and (b) Cash Discount.

(a) Credit period - Extending the credit period stimulates sales but increases the cost on account of more tying up of funds in receivables.

(b) Cash discount - The effect of allowing cash discount can also be analysed on the same pattern as that of the credit period. Attractive cash discount terms reduce the average collection period resulting in reduced investment in accounts receivable.

iii. Collection procedures

A stringent collection procedure is expensive for the firm because of high out-of-pocket costs and loss of goodwill of the firm among its customers. However, it minimises the loss on account of bad debts as well as increases savings in terms of lower capital costs on account of reduction in the size of receivables. A balance has therefore to be struck between the costs and benefits of different collection procedures or policies.
