Semester V

		L	T	P	C
16PAU502A	**DSE: 2 – FINANCIAL MANAGEMENT**	**6**	**2**	**-**	**6**

SCOPE

Financial Management represents how the funds are managed and their reflections on the fundamental decisions to be taken by the corporate sector. This paper presents the basics of Finance functions, Capital Structure, Cost of Capital, Capital Budgeting and Working Capital Management.

OBJECTIVES

- To enable the students to acquire knowledge of Finance Function
- To enlighten the students knowledge in cost of capital, Capital Structure, Capital Budgeting, and Working Capital Management.

UNIT I

Introduction - Nature - Scope and Objective of Financial Management - Time Value of Money - Risk and Return (including Capital Asset Pricing Model) - Valuation of Securities - Bonds and Equities

UNIT II

Investment Decisions - The Capital Budgeting Process - Cash Flow Estimation - Payback Period Method, Accounting Rate of Return - Net Present Value (NPV) - Net Terminal Value - Internal Rate of Return (IRR) - Profitability Index, Capital Budgeting under Risk - Certainty Equivalent Approach and Risk- Adjusted Discount Rate.

UNIT III

Financing Decisions - Cost of Capital and Financing Decision - Sources of Long Term Financing - Estimation of Components of Cost of Capital - Methods for Calculating Cost of Equity Capital - Cost of Retained Earnings - Cost of Debt and Cost of Preference Capital - Weighted Average Cost of Capital (WACC) and Marginal Cost of Capital - Capital Structure - Theories of Capital Structure (Net Income, Net Operating Income, MM Hypothesis, Traditional Approach) - Operating and Financial Leverage - Determinants of Capital Structure

UNIT IV

Dividend Decisions - Theories for Relevance and Irrelevance of Dividend Decision for Corporate Valuation - Cash and Stock Dividends - Dividend Policies in Practice.

UNIT V

Working Capital Decisions - Concepts of Working Capital - The risk-return trade off - Sources of Short-Term Finance - Working Capital Estimation - Cash Management - Receivables Management - Inventory Management and Payables Management.

SUGGESTED READINGS:

TEXT BOOKS

1. Maheswari, S.N. (2014). *Financial Management*. New Delhi: Sultan Chand and Sons.

REFERENCES

1. Khan, M.Y., & Jain, P.K. (2007). *Financial Management Text Problem and Cases* (5th ed.). New Delhi: Tata McGraw-Hill Publishing Co. Ltd.
2. Rustogi, R.P. (2011). *Financial Management: Theory Concepts and Practices* (5th R.ed.). New Delhi: Taxmann Publication.
3. Pandey, I.M. (2009). *Financial Management: Theory and Practices* (9th ed.). New Delhi: Vikas Publishing House Pvt Ltd.
4. Brealey, R.A., Myers, S.C., Allen, F., & Mohanty, P. (2002). *Principles of Corporate Finance* (7th ed.). New Delhi: McGraw Hill.
5. Horne, J.V., & Wachowicz, J.M. (2009). *Fundamentals of Financial Management* (13th ed.). New Delhi: Prentice Hall of India Publication.
6. Kulkarni, P.V. (2011). *Financial Management*. Mumbai: Himalaya Publishing house.

KARPAGAM ACADEMY OF HIGHER EDUCATION
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Coimbatore – 641 021.

LECTURE PLAN
DEPARTMENT OF COMMERCE

STAFF NAME: Dr.G.G.LOGANATHAN
SUBJECT NAME: FINANCIAL MANAGEMENT
SUB.CODE: 16PAU502A
SEMESTER: V
CLASS: III B.COM

Unit I

S. No	Lecture Duration Period	Topic to be covered	Support Material/Page Nos.
		UNIT I	
1.	1	Introduction to Financial Management	T :3
2.	1	Nature of Financial Management	R1:1.20
3.	1	Scope and objective of Financial Management	T-3
4.	1	Time value of money	R1:2.1-2.29
5.	1	Risk and return	RI: 3.1-3.38
6.	1	Capital Asset Pricing Model	R1: 3.18
7.	1	Capital Asset Pricing Model (T)	R1: 3.18
8.	1	Valuation of securities- Bonds	R1: 4.2
9.	1	Valuation of securities- Bonds (T)	R1: 4.2
10.	1	Valuation of securities- Equities	RI: 4.7
11.	1	Valuation of securities- Equities (T)	RI: 4.7
12.	1	Recapitulation and important question discussion	
		TOTAL NO. OF HOURS PLANNED FOR UNIT I	**12**

Unit II

S. no	Lecture Duration Period	Topic to be covered	Support Materials/page nos.
1.	1	Investment decisions	R2: 5.3-5.8
2.	1	Capital Budgeting process	R2: 5.3-5.8
3.	1	Cash Flow Estimation	R1:5.3
4.	1	Cash Flow Estimation (T)	R1:5.3
5.	1	Pay Back period method	T: 213-217
6.	1	Problems in Pay Back Period	T: 213-217
7.	1	Problems in Pay Back Period (T)	T: 213-217

8.	1	Accounting Rate of return	T: 424-436
9.	1	Problems in Accounting rate of return	R2: 5.10-5.13
10.	1	Problems in Accounting rate of return (T)	R2: 5.10-5.13
11.	1	Net Present value (NPV)	T: 218-223, 424-436
12.	1	Problems in Net Present value (NPV)	T: 424-436
13.	1	Problems in Net Present value (NPV) (T)	T: 424-436
14.	1	Net Terminal Value	W1
15.	1	Internal Rate of Return(IRR) and profitability index	T: 218-223
16.	1	Problems in IRR	R1:9.32-35
17.	1	Problems in IRR (T)	R1:9.32-35
18.	1	Capital budgeting under risk	R1: 12.1-24
19.	1	Certainty equivalent Approach	R1;12.13-15
20.	1	Risk Adjusted Discount rate	R1:12.10-22
21.	1	Risk Adjusted Discount rate (T)	R1:12.10-22
22.	1	Recapitulation and important questions discussion	
		TOTAL NO. OF HOURS PLANNED FOR UNIT II	**22**

Unit III

S. no	Lecture Duration period	Topic to be covered	Support Material/Page nos
1.	1	Financing Decisions : Cost of Capital and financing decision	T : 368-369
2.	1	Sources of Long term financing	T:82,91
3.	1	Estimation of components of cost of capital	R1:36.17-18
4.	1	Methods for calculating cost of equity capital	R1: 36.17-19
5.	1	Cost of Equity Capital – Problems	T: 380-385
6.	1	Cost of Equity Capital – Problems (T)	T: 380-385
7.	1	Cost of retained earnings	T: 385-388
8.	1	Cost of retained earnings (T)	T: 385-388
9.	1	Cost of Debt	T: .377-378
10.	1	Cost of debt- problems	R1:11.5-8,6-7,7-9
11.	1	Cost of debt- problems (T)	R1:11.5-8,6-7,7-9
12.	1	Cost of Preference Share Capital	T:. 378-380
13.	1	Cost of Preference Share Capital-problems	R1:11.9-11
14.	1	Cost of Preference Share Capital-problems (T)	R1:11.9-11
15.	1	Weighted Average cost of capital(WACC)	T: 388-396
16.	1	Weighted Average cost of capital(WACC) (T)	T: 388-396
17.	1	Marginal Cost of capital	R1:11.19-20
18.	1	Capital Structure - Theories of Capital structure-Net Income Approach	T:51-54
19.	1	Net Operating Income	T:54-63
20.	1	Net Operating Income (T)	T:54-63
21.	1	Modiglani Miller (MM)Hypothesis	T:54-63
22.	1	MM Hypothesis Problems	T: 12.5-12.7
23.	1	Traditional Approach	T: 54-63
24.	1	Operating and Financial leverage-	R1:18.7-10,18.4-7
25.	1	Determinants of capital structure	T: 70-74
26.	1	Recapitulation and important question discussion	
		TOTAL NO. OF HOURS PLANNED FOR UNIT III	**26**

Unit IV

S. no	Lecture Duration Period	Topic to be covered	Support Material/Page nos.
1.	1	Dividend decisions	R1:30.3
2.	1	Theories of relevance for corporate valuation	R1:30.12
3.	1	Theories of relevance -Walter's Model	R1:30.12-30.15
4.	1	Theories of relevance -Walter's Model (T)	R1:30.12-30.15
5.	1	Theories of relevance –Gordon's Model	R1:30.15-30.16
6	1	Theories of relevance –Gordon's Model (T)	R1:30.15-30.16
7.	1	Theories of relevance –Dividend Capitalisation model	R1: 30.16 -30.17
8.	1	Theories of relevance –Dividend Capitalisation model (T)	R1: 30.16 -30.17
9.	1	Theories of irrelevance for corporate valuation	R1:30.4
10.	1	Theories of irrelevance -Modigilani and Miller(MM)	T:54-63,R1:30.4-30.5
11.	1	Theories of irrelevance -Modigilani and Miller(MM) (T)	T:54-63,R1:30.4-30.5
12.	1	Cash and stock dividends	R1:31.11
13.	1	Dividend policies in practice	T:12.5,R1:31.10
14.	1	Recapitulation and important question discussion	
		TOTAL NO. OF HOURS PLANNED FOR UNIT IV	**14**

Unit V

S. no	Lecture Duration Period	Topic to be covered	Support Materials
1.	1	Working capital decisions	R1: 13.3
2.	1	Concepts of working capital	R1:13.3-13.4,13.9-13.10,T: 293-295
3.	1	Risk and return trade off	R1;13.7-13.8
4.	1	Sources of short term finance	R1:17.3-17.4
5.	1	Working capital estimation	R1:13.16-13.38
6.	1	Working capital estimation (T)	R1:13.16-13.38
7.	1	Cash Management, motives of holding cash, cash budget,	T: 299-309
8.	1	cash budget (T)	T: 299-309
9.	1	Receivable management, meaning and objectives	T: 331-353
10.	1	Calculation of Debtor Turnover Ratio (DTR)	T: 331-353
11.	1	Calculation of Debtor Turnover Ratio (DTR) (T)	T: 331-353
12.	1	Inventory Management and its significance	T: 311-314
13.	1	Calculation of Inventory Turnover Ratio	T: 311-314
14.	1	Calculation of Inventory Turnover Ratio (T)	T: 311-314
15.	1	Techniques of Maintaining Inventory	T: 311-314
16.	1	Payables management	R1:6.9-6.10
17.	1	Creditor Turnover ratio(CTR)	T:331-353
18.	1	Creditor Turnover ratio(CTR) (T)	T:331-353
19.	1	Recapitulation and important questions discussion	
20.	1	Discussion of Previous year ESE question	
21.	1	Discussion of Previous year ESE question	
22.	1	Discussion of Previous year ESE question	
		TOTAL NO. OF HOURS PLANNED FOR UNIT V	**22**

TEXT BOOK

T- S.N. Maheswari, S.N. (2014). *Financial Management*, New Delhi; Sultan Chand and Sons.

REFERENCE BOOK

R1: Khan, M.Y., & Jain, P.K. (2007).*Financial Management* Text Problem and cases (5 th ed.).New Delhi; Tata McGraw-Hill Publishing Co., Ltd.,

R2: Ramachandran, R., & Srinivasan, S, (2010). *Financial Management*, Sriram Publications, Trichy

WEBSITE

W1: https://investopedia.com – Net Terminal Value

(T): Tutorials

UNIT-I-INTRODUCTION

SYLLABUS

Introduction - Nature - Scope and Objective of Financial Management - Time Value of Money - Risk and Return (including Capital Asset Pricing Model) - Valuation of Securities - Bonds and Equities

INTRODUCTION

Finance is the life blood of business. Without adequate finance, no business can servive and without efficient finance management, no business can prosper and grow. Finance is required for establishing developing and operating the business efficiently. The success of business depends upon supply of finance and its efficient management. Finance is called science of money. It is not only act of making money available, but its administration and control so that it could be properly utilized. The world "Financial Management" is the composition of two words ie. „Financial" and „Management". Financial means procuring or raising of money supply (funds) and allocating (using) those resources (funds) on the basis of monetary requirements of the business. The word „Management" means planning, organizing, coordinating and controlling human activities with reference to finance function for achieving goals/ objectives of organization. Besides raising and utilization of funds, finance also includes distribution of funds in the form of dividend to share holders and retention of profit for growth and developments.

DEFINITION

Howard and Upton : Financial management "as an application of general managerial principles to the area of financial decision-making.

NATURE

The nature of financial management refers to its relationship with related disciplines like economics and accounting and other subject matters. The area of financial management has undergone tremendous changes over time as regards its scope and functions. The finance function assumes a lot

of significance in the modern days in view of the increased size of business operations and the growing complexities associated thereto.

Finance And Other Related Disciplines

Financial management, is an integral part of the over all management, on other disciplines and fields of study like economics, accounting, production, marketing, personnel and quantitative methods. The relationship of financial management with other fields of study is explained as under :

Finance and Other Disciplines

Finance and Economics

Finance is a branch of economics. Economics deals with supply and demand, costs and profits, production and consumption and so on. The relevance of economics to financial management can be described in two broad areas of economics i.e., micro economics and macro economics.

Micro economics deals with the economic decisions of individuals and firms. It concerns itself with the determination of optimal operating strategies of a business firm. These strategies includes profit maximization strategies, product pricing strategies, strategies for valuation of firm and assets etc. The basic principle of micro economics that applies in financial management is marginal analysis. Most of the financial decisions should be made taken into account the marginal revenue and marginal cost. So, every financial manager must be familiar with the basic concepts of micro economics.

Macro economics deals with the aggregates of the economy in which the firm operates. Macro economics is concerned with the institutional structure of the banking system, money and capital markets, monetary, credit and fiscal policies etc. So, the financial manager must be aware of the broad economic environment and their impact on the decision making areas of the business firm.

Finance and Accounting

Accounting and finance are closely related. Accounting is an important input in financial decision making process. Accounting is concerned with recording of business transactions. It generates information relating to business transactions and reporting them to the concerned parties. The end product of accounting is financial statements namely profit and loss account, balance sheet and the statements of changes in financial position. The information contained in these statements assists the financial managers in evaluating the past performance and future direction of the firm (decisions) in meeting certain obligations like payment of taxes and so on. Thus, accounting and finance are closely related.

Finance and Production

Finance and production are also functionally related. Any changes in production process may necessitate additional funds which the financial managers must evaluate and finance. Thus, the production processes, capacity of the firm are closely related to finance.

Finance and Marketing

Marketing and finance are functionally related. New product development, sales promotion plans, new channels of distribution, advertising campaign etc. in the area of marketing will require additional funds and have an impact on the expected cash flows of the business firm. Thus, the financial manager must be familiar with the basic concept of ideas of marketing.

Finance and Quantitative Methods

Financial management and Quantitative methods are closely related such as linear programming, probability, discounting techniques, present value techniques etc. are useful in analyzing complex financial management problems. Thus, the financial manager should be familiar with the tools of quantitative methods. In other way, the quantitative methods are indirectly related to the day-to-day decision making by financial managers.

Finance and Costing

Cost efficiency is a major strategic advantage to a firm, and will greatly contribute towards its competitiveness, sustainability and profitability. A finance manager has to understand, plan and manage cost, through appropriate tools and techniques including Budgeting and Activity Based Costing.

Finance and Law

A sound knowledge of legal environment, corporate laws, business laws, Import Export guidelines, international laws, trade and patent laws, commercial contracts, etc. are again important for a finance executive in a globalized business scenario. For example the guidelines of Securities and Exchange Board of India [SEBI] for raising money from the capital markets. Similarly, now many Indian corporate are sourcing from international capital markets and get their shares listed in the international exchanges. This calls for sound knowledge of Securities Exchange Commission guidelines, dealing in the listing requirements of various international stock exchanges operating in different countries.

Finance and Taxation

A sound knowledge in taxation, both direct and indirect, is expected of a finance manager, as all financial decisions are likely to have tax implications. Tax planning is an important function of a finance manager. Some of the major business decisions are based on the economics of taxation. A finance manager should be able to assess the tax benefits before committing funds. Present value of the tax shield is the yardstick always applied by a finance manager in investment decisions.

Finance and Treasury Management

Treasury has become an important function and discipline, not only in banks, but in every organization. Every finance manager should be well grounded in treasury operations, which is considered as a profit center. It deals with optimal management of cash flows, judiciously investing surplus cash in the most appropriate investment avenues, anticipating and meeting emerging cash requirements and maximizing the overall returns, it helps in judicial asset liability management. It also includes, wherever necessary, managing the price and exchange rate risk through derivative instruments. In banks, it includes design of new financial products from existing products.

Finance and Banking

Banking has completely undergone a change in today's context. The type of financial assistance provided to corporate has become very customized and innovative. During the early and late 80's, commercial banks mainly used to provide working capital loans based on certain norms and development financial institutions like ICICI, IDBI, and IFCI used to provide long term loans for project finance. But, in today's context, these distinctions no longer exist. Moreover, the concept of development financial institutions also does not exist any longer. The same bank provides both long

term and short term finance, besides a number of innovative corporate and retail banking products, which enable corporate to choose between them and reduce their cost of borrowings. It is imperative for every finance manager to be up-to date on the changes in services & products offered by banking sector including several foreign players in the field. Thanks to Government's liberalized investment norms in this sector.

Finance and Insurance

Evaluating and determining the commercial insurance requirements, choice of products and insurers, analyzing their applicability to the needs and cost effectiveness, techniques, ensuring appropriate and optimum coverage, claims handling, etc. fall within the ambit of a finance manager's scope of work & responsibilities.

International Finance

Capital markets have become globally integrated. Indian companies raise equity and debt funds from international markets, in the form of Global Depository Receipts (GDRs), American Depository Receipts (ADRs) or External Commercial Borrowings (ECBs) and a number of hybrid instruments like the convertible bonds, participatory notes etc., Access to international markets, both debt and equity, has enabled Indian companies to lower the cost of capital. For example, Tata Motors raised debt as less than 1% from the international capital markets recently by issuing convertible bonds. Finance managers are expected to have a thorough knowledge on international sources of finance, merger implications with foreign companies, Leveraged Buy Outs (LBOs), acquisitions abroad and international transfer pricing. The implications of exchange rate movements on new project viability have to be factored in the project cost and projected profitability and cash flow estimates. This is an essential aspect of finance manager's expertise. Similarly, protecting the value of foreign exchange earned, through instruments like derivatives, is vital for a finance manager as the volatility in exchange rate movements can erode in no time, all the profits earned over a period of time.

Finance and Information Technology

Information technology is the order of the day and is now driving all businesses. It is all pervading. A finance manager needs to know how to integrate finance and costing with operations through software packages including ERP. The finance manager takes an active part in assessment of various available options, identifying the right one and in the implementation of such packages to suit the requirement.

SCOPE AND OBJECTIVES OF FINANCIAL MANAGEMENT

Introduction

Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources. The funds raised from the capital market needs to be procured at minimum cost and effectively utilised to maximise returns on investments. There is a necessity to make the proper balancing of the risk-return trade off.

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. There is only one thing which matters for everyone right from the owners to the promoters and that is money. 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. The very objective of Financial Management is to maximize the wealth of the shareholders by maximizing the value of the firm. This prime objective of Financial Management is reflected in the EPS (Earning per Share) and the market price of its shares.

The earlier objective of profit maximization is now replaced by wealth maximization. Since profit maximization is a limited one it cannot be the sole objective of a firm. The term profit is a vague phenomenon and if given undue importance problems may arise whereas wealth maximization on the other hand overcomes the drawbacks of profit maximization. Thus the objective of Financial Management is to trade off between risk and return. The objective of Financial Management is to make efficient use of economic resources mainly capital.

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.

Scope of Financial Management

Financial Management today covers the entire gamut of activities and functions given below. The head of finance is considered to be importantly of the CEO in most organizations and performs a strategic role. His responsibilities include :

a. Estimating the total requirements of funds for a given period.

b. Raising funds through various sources, both national and international, keeping in mind the cost effectiveness;

c. Investing the funds in both long term as well as short term capital needs;

d. Funding day-to-day working capital requirements of business;

e. Collecting on time from debtors and paying to creditors on time;

f. Managing funds and treasury operations;

g. Ensuring a satisfactory return to all the stake holders;

h. Paying interest on borrowings;

i. Repaying lenders on due dates;

j. Maximizing the wealth of the shareholders over the long term;

k. Interfacing with the capital markets;

l. Awareness to all the latest developments in the financial markets;

m. Increasing the firm's competitive financial strength in the market; and

n. Adhering to the requirements of corporate governance.

Role of Financial Manager

The traditional role of the finance manager is to confine to the raising of funds in order to meet operating requirements of the business. This traditional approach has been criticized by modern scholars on the following grounds. It was prevalent till the mid-1950s.

1. The traditional approach of raising funds alone is too narrow and thus it is outsider- looking-in approach.

2. It viewed finance as a staff specialty.

3. It has little concern how the funds are utilized.

4. It over-emphasized episodic events and non-recurring problems like the securities

and its markets, incorporation, merger, consolidation, reorganization, recapitalization and liquidation etc.

5. It ignored the importance of working capital management.

6. It concentrated on corporate finance only and ignored the financial problems of sole trader and partnership firms.

7. Traditional approach concentrated on the problems of long-term financing and ignored the problems of short-term financing.

There was a change from traditional approach to the modern concept of finance function since the mid-1950s. the industrialization, technological innovations and inventions and a change in economic and environment factors since the mid-1950s necessitated the efficient and effective utilization of financial resources. Since then, finance has been viewed as an integral part of the management. The finance manager is, therefore, concerned with all financial activities of planning, raising, allocating and controlling the funds in an efficient manner. In addition, profit planning is another important function of the finance manager.

This can be done by decision making in respect of the following areas:

1. Investment Decisions for obtaining maximum profitability after taking the time value of the money into account.
2. Financing decisions through a balanced capital structure of Debt-Equity ratio, sources of finance, EBIT/EPS computations and interest coverage ratio etc.
3. Dividend decisions, issue of Bonus Shares and retention of profits with objective of maximization of market value of the equity share.
4. Best utilization of fixed assets.
5. Efficient working capital management (inventory, debtors, cash marketable securities and current liabilities).
6. Taking the cost of capital, risk, return and control aspects into account.
7. Tax administration and tax planning.
8. Pricing, volume of output, product-mix and cost-volume-profit analysis (CVP Analysis).
9. Cost control.
10. Stock Market— Analyse the trends in the stock market and their impact on the price of Company's share and share buy-back.

TIME VALUE OF MONEY

Concept

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

Why should money have time value?

Money should have time value for the following reasons :

(a) Money can be employed productively to generate real returns;

(b) In an inflationary period, a rupee today has higher purchasing power than a rupee in the future;

(c) Due to uncertainties in the future, current consumption is preferred to future consumption.

(d) The three determinants combined together can be expressed to determine the rate of interest as follows :

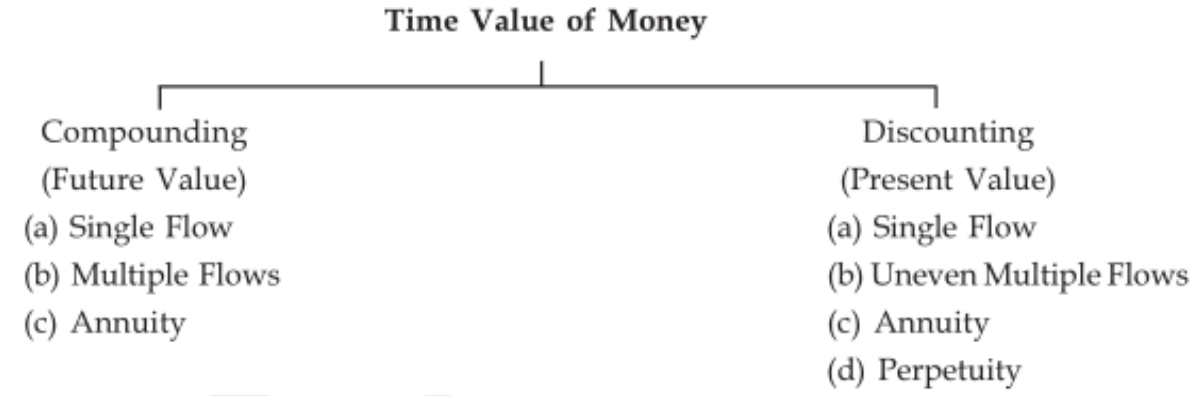
Nominal or market interest rate

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

Methods of Time Value of Money

(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.



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)

Illustration :

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 :

FV n = PV (1+i) n

= PV × FVIF (6,3)

= PV × (1.06) 3

= 15,000 (1.191)

= Rs. 17,865

Future Value of Annuity

Annuity is a term used to describe a series of periodic flows of equal amounts. These flows can be inflows or outflows.

The future value of annuity is expressed as :

$$FVA_n = A\left[\frac{(1+i)^n - 1}{i}\right]$$

where, A = Amount of Annuity

i = rate of interest

n = time period

FVA_n = compounded at the end of n years.

and $\left[\frac{(1+i)^n - 1}{i}\right]$ is the Future Value of Interest Factor for Annuity (FVIFA)

Illustration :

Calculation the maturity value of a recurring deposit of Rs. 500 p.a. for 12 months @ 9% p.a. compounded quarterly.

Solution :

Effective rate of interest per annum $= \left(1+\frac{0.09}{4}\right)^4 - 1$

$= 1.0931 - 1 = 0.0931$

Rate of interest per month

$= (1+i)^{\frac{1}{m}} - 1$

$= (1+0.0931)^{\frac{1}{12}} - 1$

$= 1.0074 - 1$

$= 0.0074$

$= 0.74\%$

Maturity Value can be calculated as follows :

$$FVAn = A\left\{\frac{(1+i)^n - 1}{i}\right\}$$

$$= 500\left\{\frac{(1+0.0074)^{12} - 1}{0.0074}\right\}$$

$= 500 \times 12.50 =$ Rs. 6250/-

Present Value of a Single Flow :

$$PV = \frac{FV_n}{FVIF(i,n)} = \frac{FV_n}{(1+i)^n}$$

Where, PV = Present Value

FV_n = Future Value receivable after n years

i = rate of interest

n = time period

and $\frac{1}{FVIF(i,n)} = PVIF(i,n)$ [Present Value of Interest Factor]

Present Value of Uneven Multiple Flows

Year	Cash Inflows	P.V.F @ 10%	Discounted Cash Flows
1	50,000	0.9091	45,455
2	90,000	0.8264	74,376
3	1,20,000	0.7513	90,156

2,60,000 2,09,987

∴ The present value of Rs. 2,60,000 discounted @ 10% will be Rs. 2,09,987.

Present Value of Even Cash Inflows

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

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

= 50,000 × 2.4868 = Rs. 1,24,340/-

Present Value of an Annuity

The present value of an annuity 'A' receivable at the end of every year for a period of n years at the rate of interest 'i' is equal to

$$PVA_n = \frac{A}{(1+i)} + \frac{A}{(1+i)^2} + \frac{A}{(1+i)^3} + \frac{A}{(1+i)^n}$$

$$= A\left[\frac{(1+i)^n - 1}{i(1+i)^n}\right]$$

Where, $\left[\frac{(1+i)^n - 1}{i(1+i)^n}\right]$ is called the PVIFA (Present Value of Interest Factor Annuity) and it represents the present value of Rs. 1 for the given values of i and n.

RISK AND RETURN

Expected Return and Variance

- "What is the chance of an investment's price or return going up and down?"
- Investment risk

Expected Return: Return on a risky asset expected in the future

$$E(R_i) = \sum_{s=1}^{S} p(s) * R(s)_i$$

where $p(s)$ denotes the probability of state s, $R(s)$ denotes the return in state s.

Variance: Measures the dispersion of an asset's returns around its expected return.

$$var(R_i) = \sum_{s=1}^{S} p(s) * \left[(R(s)_i - E(R_i))^2\right]$$

Standard deviation: The square root of the variance.

Expected Return and Variance

Example: What is the expected return to the amusement park and ski resort stock?

State of weather	Probability	Return on amusement park stock	Return on ski resort stock
Very Cold	0.1	-15%	35%
Cold	0.3	-5%	15%
Average	0.4	10%	5%
Hot	0.2	30%	-5%

Mean or expected value:

$E(X) = prob_1X_1 + prob_2X_2 + ... + prob_nX_n =$

Where i = one possible outcome

$prob_I$ = the probability of outcome i

X_i = the return if outcome i happens

n = the total number of possible outcomes

Example: Let A denote the amusement park and S denote the ski resort

$E(R_A) = 0.1\ (-0.15) + 0.3\ (-0.05) + 0.4\ (0.10) + 0.2\ (0.30) = 7.00\%$

$E(R_S) = 0.1\ (-0.35) + 0.3\ (0.15) + 0.4\ (0.05) + 0.2\ (-0.05) = 9.00\%$

Variance and standard deviation:

Variance of $X = \sum^{n}_{i=1} (prob_i[x_i-(E(x)]^2)$

Standard deviation=$(var)^{1/2}$

For the amusement park and the ski resort we have:

$$\sigma_A = \sqrt{0.1(-0.150 - .07)^2 + 0.3(-0.050 - .07)^2 + 0.4(0.10 - .07)^2 + 0.2(0.30 - .07)^2} = 14.18\%$$

$$\sigma_S = \sqrt{0.1(0.350 - .09)^2 + 0.3(0.150 - .09)^2 + 0.4(0.050 - .09)^2 + 0.2(-0.050 - .09)^2} = 11.14\%$$

The standard deviation is a measure of **stand-alone risk**.

Risk: Systematic and Unsystematic

Stand-alone risk is measured by dispersion of returns about the mean and is relevant *only* for assets held in isolation. It consists of:

- Diversifiable (company-specific, unique, or unsystematic)
- Non-diversifiable (market or systematic)

Risk	Type of Risk
Risk of inflation	
Risk of a CEO resigning	
Risk of a takeover	
Risk of a labor strike	

Coefficient of Variation - Standardized measure of dispersion about the expected value. Shows risk per unit of return.

Covariance and correlation

It is important in portfolio theory to know how two stocks move together, or how a stock moves with the market. There are two measures of this, covariance and correlation.

We can calculate the covariance as follows:

Covariance of X and Y = $COV_{xy} = \sum_{i=1}^{n} prob_i \left(X_i - E(R_X)\right) \times \left(Y_i - E(R_Y)\right)$

For the amusement park and the ski resort we have:

$$\text{Cov}_{AS} = 0.1(-0.150 - .07)(0.350 - .09) + 0.3(-0.050 - .07)(0.150 - .09)$$

$$+ 0.4(0.10. - .07)(0.050 - .09) + 0.2(0.30 - .07)(-0.050 - .09) = -0.0148$$

The negative covariance tells you that the stocks tend to move in opposite directions.

The covariance gives you a sense of both the magnitude and the direction of how stocks move together. Sometimes it is useful to have a measure of how stock move together, which is independent of the size of the "swings", and just gives an idea of how tightly two stock "track" each other.

We can calculate the correlation coefficient as follows.

$$Corr_{XY} = \frac{Cov_{XY}}{\sigma_X \sigma_Y}$$

The correlation coefficient is always between -1.0 and 1.0:

$$-1.0 \leq Corr_{XY} \leq 1.0$$

For the amusement park and the ski resort we find the correlation is:

$$Corr_{XY} = \frac{Cov_{XY}}{\sigma_X \sigma_Y} = \frac{-0.0148}{(0.1418)(0.1114)} = -0.93746$$

Portfolios

Portfolio: A group of securities, such as stocks and bonds, held by an investor.

Portfolio weights: Percentages of the portfolio's total value invested in each security.

Example: Your portfolio consists of IBM stock and GM stock. You have $2,500 invested in IBM and $7,500 invested in GM. What are the portfolio weights?

Expected Return on a portfolio: Weighted average of the expected returns on the individual securities in the portfolio. Let w_n denote a security's portfolio weight, then

$$E(R_p) = \sum_{n=1}^{N} [w_n E(R_n)]$$

Portfolio Variance: Unlike the expected return, the variance of a portfolio is not a simple weighted average of the individual security variances,

$$Var(R_p) = w_a^2 var(R_A) + w_B^2 var(R_A) + 2 w_A w_B cov(R_A, R_B)$$

We can use this formula or we can compute the returns for the portfolio and then computes its expected return and variance.

Example: **Expected Return and Variance of Portfolio Returns**

In our earlier example, there are two stocks, the Amusement Park and the Ski Resort.

We know the following:

$E(R_A) = 7\%$ $E(R_S) = 9\%$

$\sigma_A = 14.18\%$ $\sigma_S = 11.14\%$

Say we have $100 and invest $50 into *A* and $50 into *S*. What can we expect to make on our portfolio?

We have a weight of 50% in A and 50% in S (the weights don't have to be 50-50)

$$E(R_p) = 0.5\ (7\%) + 0.5\ (9\%) = 8\%$$

Generally, expected portfolio return = $E(R_p) = \sum w_i \times E(r_i)$

Expected portfolio risk

To measure the risk of the portfolio, we have to account for how the stocks move together. For two stocks X and Y the relation is:

$$SD(R_p) = \sqrt{W_X^2 \sigma_X^2 + W_Y^2 \sigma_Y^2 + 2 \times W_X W_Y\ Cov_{XY}}$$

Where: W_X = % of wealth in asset X

W_Y = % of wealth in asset Y

$W_X + W_Y = 1$

And $Cov_{XY} = Corr_{XY}\ \sigma_X\ \sigma_Y$

As the covariance gets more negative, the portfolio can be made less risky.

Risk - Return tradeoffs.

In the Ski Resort example, say we divide our money 50-50 between the two stocks.

The correlation between the two stocks is -0.9375, σ_A = 14.18%, σ_S = 11.14%,

W_A = 0.5, W_S = 0.5.

So:

$$Cov_{XY} = Corr_{XY}\ \sigma_X\ \sigma_Y = -0.9374 \times 0.1418 \times 0.1114 = -0.0148$$

And:

$$SD(R_p) = \sqrt{(0.5)^2(.1418)^2 + (0.5)^2(.1114)^2 + 2(0.5)(0.5)(-0.0148)} = 2.70\%$$

Our answer tells us something very important - the risk of the portfolio of the two stocks is less than the risk of either one by itself.

In general, the lower the correlation between the stocks the lower the risk of the portfolios of both stocks.

As a reminder, so far we have found the following:

$E(R_A)$ = 7% $E(R_S)$ = 9%

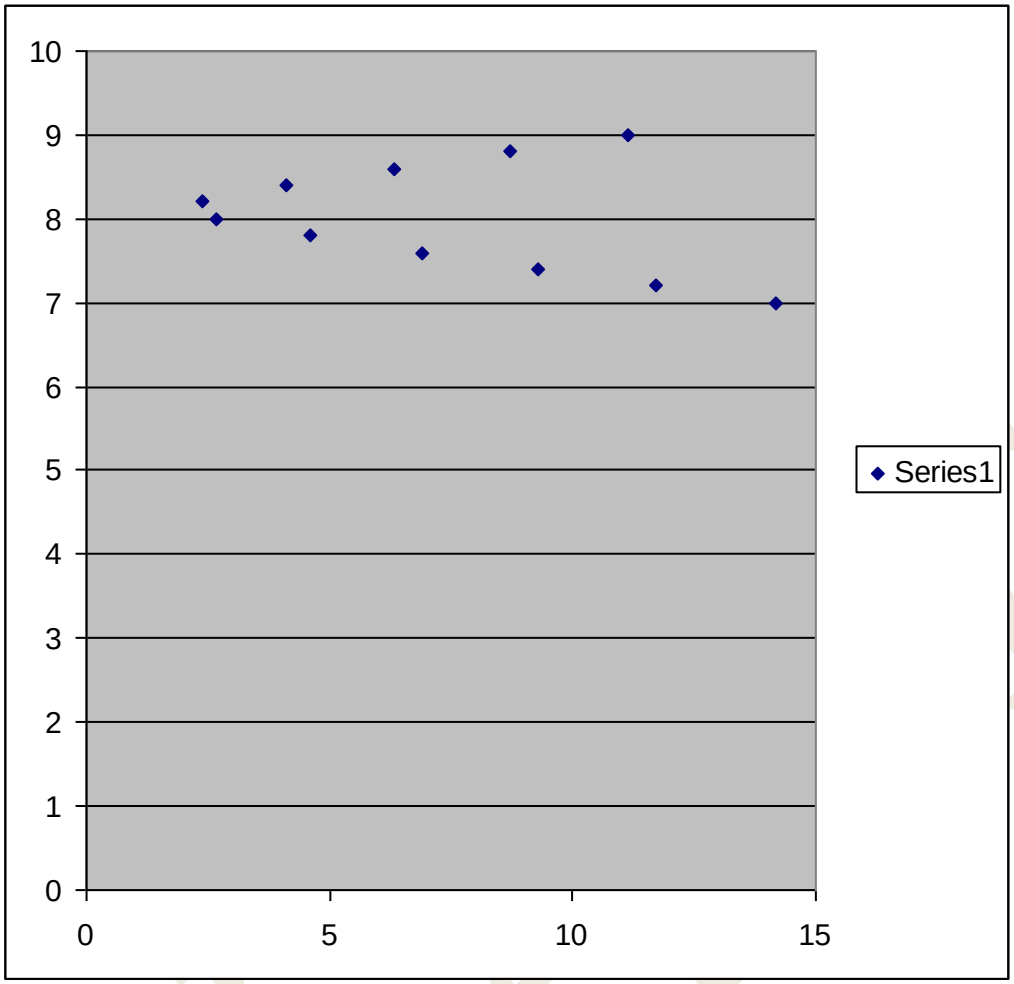
σ_A = 14.18% σ_S = 11.14% $Corr_{AS}$ = -0.9375

And we have the portfolio expected returns and portfolio standard deviations:

W_A (%)	W_B (%)	$SD(R_P)$ (%)	$E(R_P)$ (%)
100.00	0.00	14.18	7.00
90.00	10.00	11.72	7.20
80.00	20.00	9.29	7.40

70.00	30.00	6.89	7.60
60.00	40.00	4.60	7.80
50.00	50.00	2.69	8.00
40.00	60.00	2.40	8.20
30.00	70.00	4.09	8.40
20.00	80.00	6.33	8.60
10.00	90.00	8.71	8.80
0.00	100.00	11.14	9.00

We can plot these risk-return combinations in a graph:



Risk Free Asset

Say that we have 2 assets, X and Y, but Y is risk free, i.e., $\sigma_Y = 0$.

Then:

$$E(R_p) = W_X E(R_X) + W_Y E(R_Y)$$

$$SD(R_p) = \sqrt{W_X^2\sigma_X^2 + W_Y^2\sigma_Y^2 + 2 \times W_X W_Y Cov_{XY}}$$

or

$$SD(R_p) = \sqrt{W_X^2\sigma_X^2 + W_Y^2\sigma_Y^2 + 2 \times W_X W_Y \sigma_X \sigma_Y Corr_{XY}} = W_X \sigma_X$$

Let's say that there is a risky asset (X) and a risk free asset (F)

Risky Asset: $E(R_X) = 0.16$, $\sigma_X = 8\%$

Risk Free Asset: $E(R_F) = 0.06$, $\sigma_F = 0\%$

You have \$100, you put \$50 in X and \$50 in F (i.e., lending \$50 at the risk free rate). The weights are:

$$W_X = \frac{amount\ in\ X}{my\ initial\ wealth} = \frac{50}{100} = 0.50$$

$$W_F = \frac{amount\ in\ F}{my\ initial\ wealth} = \frac{50}{100} = 0.50$$

$E(R_p) = W_X E(R_X) + W_Y E(R_Y) = 0.5\ (16) + 0.5\ (6) = 11\%$

$SD(R_P) = W_X \sigma_X = 0.5\ (8) = 4\%$

You have \$100 and you borrow \$50 from F and put \$150 in X

$$W_X = \frac{amount\ in\ X}{my\ initial\ wealth} = \frac{150}{100} = 1.50$$

$$W_F = \frac{amount\ in\ F}{my\ initial\ wealth} = \frac{-50}{100} = -0.50$$

Note: the weights always add up to 1.0.

$E(R_p) = W_X E(R_X) + W_Y E(R_Y) = 1.5\ (16\%) + (-0.5)\ (6\%) = 21\%$

$SD(R_P) = W_X \sigma_X = 1.5\ (8) = 12\%$

If we compute the expected return and standard deviation for a variety of weights, we can build a table as we did before:

W_F (%)	W_X (%)	SD(R_P) (%)	E(R_P) (%)
100.00	0.00	0.00	6.00
80.00	20.00	1.60	8.00
50.00	50.00	4.00	11.00
20.00	80.00	6.40	14.00
0.00	100.00	8.00	16.00
-50.00	150.00	12.00	21.00

And plot the expected portfolio return vs. the standard deviation:

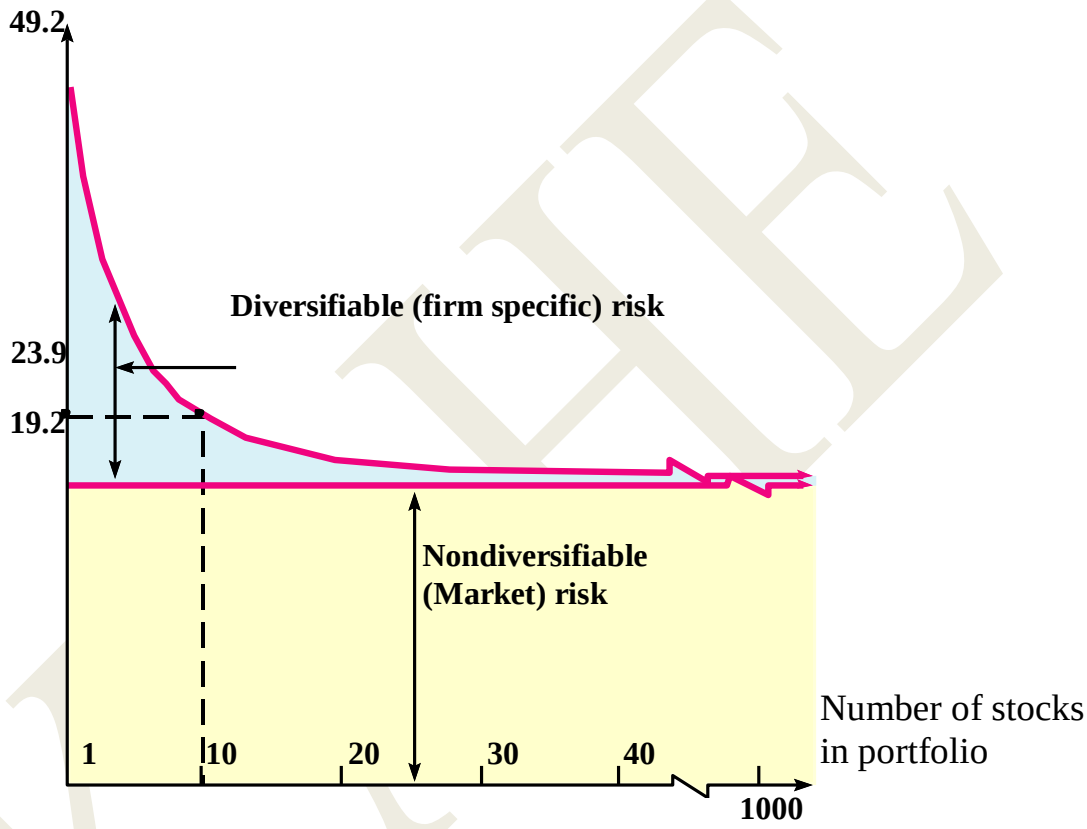
In our return - standard deviation graph, when we combine a risk free asset with a risky asset the risk - return tradeoff is a straight line.

Diversification

Principle of Diversification: Spreading an investment across a number of assets will eliminate some, but not all, of the risk. Diversification is not putting all your eggs in one basket.

- A typical NYSE stock has a standard deviation of annual returns of 49.24%, while the typical portfolio of 100 or more stocks has a standard deviation just under 20%.
- **Diversifiable risk:** The variability present in a typical single security that is not present in a portfolio of securities.
- **Nondiversifiable risk:** The level of variance that is present in a collection or portfolio of assets.

Portfolio Diversification (Figure 13.1)



Systematic Risk and Beta

The Systematic Risk Principle

- The reward for bearing risk depends only upon systematic risk of investment since unsystematic risk can be diversified away.
- This implies that the expected return on any asset depends only on that asset's systematic risk

Measuring Systematic Risk

- ***Beta,*** □ **,**is a measure of how much systematic risk an asset has relative to an average risky asset. An example of an average risky asset is the market portfolio. An example of the market portfolio is the S&P index.

- **Portfolio Betas:** While portfolio variance is not equal to a simple weighed sum of individual security variances, portfolio betas are equal to the weighed sum of individual security betas.

$$\beta_P = \sum_{i=1}^{N} w_i \beta_i$$

- You have $6,000 invested in IBM, $4,000 in GM. The beta of IBM and GM is 0.75 and 1.2 respectively. What is the beta of the portfolio?

Calculating Betas

Run a regression line of past returns on Stock *i* versus returns on the market.

The regression line is called the characteristic line.

The slope coefficient of the characteristic line is defined as the beta coefficient.

- If beta = 1.0, stock is average risk.
- If beta > 1.0, stock is riskier than average.
- If beta < 1.0, stock is less risky than average.
- Most stocks have betas in the range of 0.5 to 1.5.

Beta and Risk Premium

- A risk free asset has a beta of zero
- When a risky asset is combined with a risk free asset, the resulting portfolio expected return is a

weighted sum of their expected returns and the portfolio beta is the weighted sum of their betas.

- Considers various portfolios comprised of an investment in stock A with a beta ( ) of 1.2 and expected return of 18%, and a Treasury bill with a 7% return. Compute the expected return and beta for different portfolios of stock A and a Treasury bill.

w_A	w_{rf}	$E(R_p)$	$_p$
0.0	1.00		
0.25	0.75		
0.50	0.50		
0.75	0.25		
1.00	0.00		

- We can vary the amount invested in each type of asset and get an idea of the relation between portfolio expected return and portfolio beta.
- Reward-to-Risk-Ratio: $Reward\text{-}to\text{-}Risk\ Ratio = \frac{E(R_P) - R_f}{\beta_P}$

What if 2 assets (stocks, or risk free asset) have different Reward-to-Risk-Ratios?

Fundamental Results:

- Portfolio expected returns and beta combinations lie on a straight line with slope (=rise/run) equal to: $Reward\text{-}to\text{-}Risk\ Ratio = \frac{E(R_P) - R_f}{\beta_P}$
- The reward-to-risk ratio is the expected return per "unit" of systematic risk, or, in other words, the ratio of the risk premium and the amount of systematic risk.
- Since systematic risk is all that matters in determining expected return, the reward-to-risk ratio must be the same for all assets and portfolios. If not, investors would only buy the assets (portfolios) that offer a higher reward-to-risk ratio.
- Because the reward-to-risk ratio is the same for all assets, it must hold for the risk free asset as well as for the market portfolio.

- Result:

Security Market Line

Security Market Line: The security market line is the line which gives the expected return-systematic risk (beta) combinations of assets in a well functioning, active financial market.

- In an active, competitive market in which only systematic risk affects expected return, the *reward-to-risk ratio must be the same for all assets in the market*.
- ***Market Portfolio***: Portfolio of all the assets in the market. This portfolio by definition has "average" systematic risk. That is, its beta is one. Since all assets must lie on the security market line, so must the market portfolio. Let $E(R_M)$ denote the expected return on the market portfolio.
- ***Expected Market risk premium:*** $E(R_M) - R_f$

Capital Asset Pricing Model (CAPM)

Since all assets have the same reward-to-risk ratio as well as the market portfolio we can prove:

$$\mathbf{E(R_i) = R_f + [E(R_M) - R_f]\beta_i}$$

The expected return on an asset depends on:

- ! ***time value of money***, as measure by
- ! ***reward per unit of systematic risk***, as measured by
- ! ***systematic risk***, as measured by

Example of using CAPM: Suppose an asset has 1.5 times the systematic risk as the market portfolio (average asset). If the risk-free rate as measured by the Treasury bill rate is 5% and the expected risk premium on the market portfolio is 8%, what is the stock's expected return according to the CAPM?

CAPM and Capital Budgeting: To determine the appropriate discount rate for use in evaluating an investment's value, we need a discount rate that reflects risk. CAPM measures risk.

- Determine an investment's beta
- Find the expected return using CAPM for that beta and use this interest rate as the appropriate discount rate.

Summary of Risk and Return

I. Total risk - the variance (or the standard deviation) of an asset's return.

II. Total return - the expected return + the unexpected return.

III. Systematic and unsystematic risks

IV. Systematic risks are unanticipated events that affect almost all assets to some degree.

V. Unsystematic risks are unanticipated events that affect single assets or small groups of assets.

VI. The effect of diversification - the elimination of unsystematic risk via the combination of assets into a portfolio.

VII. The systematic risk principle and beta - the reward for bearing risk depends *only* on its level of systematic risk.

VIII. The reward-to-risk ratio - the ratio of an asset's risk premium to its beta.

IX. The capital asset pricing model - $E(R_i) = R_f + [E(R_M) - R_f] \beta_i$

VALUATION OF SECURITIES

Valuation of bonds and shares

The valuation of any asset, real finance is equivalent to the current value of cash flows estimated from it.

Bond:

A bond is defined as a long-term debt tool that pays the bondholder a specified amount of periodic interest over a specified period of time. In financial area, a bond is an instrument of obligation of the bond issuer to the holders. It is a debt security, under which the issuer owes the holders a debt and, depending on the terms of the bond, is obliged to pay them interest and/or to recompense the principal at a later date, called the maturity date. Interest is generally payable at fixed intervals such as semi-annual, annual, and monthly. Sometimes, the bond is negotiable, i.e. the ownership of the instrument can be relocated in the secondary market. This means that once the transfer agents at the bank medallion stamp the bond, it is highly liquid on the second market.

It can be established that Bonds signify loans extended by investors to companies and/or the government. Bonds are issued by the debtor, and acquired by the lender. The legal contract underlying the loan is called a bond indenture.

Normally, bonds are issued by public establishments, credit institutions, companies and supranational institutions in the major markets. Simple process for issuing bonds is through countersigning. When a bond issue is underwritten, one or more securities firms or banks, forming a syndicate, buy the whole issue of bonds from the issuer and re-sell them to investors. The security firm takes the risk of being unable to sell on the issue to end investors. Primary issuance is organised by book runners who arrange the bond issue, have direct contact with depositors and act as consultants to the bond issuer in terms of timing and price of the bond issue. The book runner is listed first among all underwriters participating in the issuance in the tombstone ads commonly used to announce bonds to the public. The book-runners' willingness to underwrite must be discussed prior to any decision on the terms of the bond issue as there may be limited demand for the bonds.

On the contrary, government bonds are generally issued in an auction. In some cases both members of the public and banks may bid for bonds. In other cases, only market makers may bid for bonds. The overall rate of return on the bond depends on both the terms of the bond and the price paid. The terms of the bond, such as the coupon, are fixed in advance and the price is determined by the market.

Key Features of Bonds:

1. The par (or face or maturity) value is the amount repaid (excluding interest) by the borrower to the lender (bondholder) at the end of the bond's life.
2. The coupon rate decides the "interest" payments. Total annual amount = coupon rate x par value.
3. A bond's maturity is its remaining life, which drops over time. Original maturity is its maturity when it is issued. The firm promises to repay the par value at the end of the bond's maturity.
4. A sinking fund involves principle repayments (buying bonds) prior to the issue's maturity.
5. Exchangeable bonds can be converted into a pre-specified number of shares of stock. Characteristically, these are shares of the issuer's common stock.
6. The call provision permits the issuer to buy the bonds (repay the loan) prior to maturity for the call price. Calling may not be allowed in the first few years.

Bond valuation:

Valuation of a bond needs an estimate of predictable cash flows and a required rate of return specified by the investor for whom the bond is being valued. If it is being valued for the market, the markets expected rate of return is to be determined or estimated. The bond's fair value is the present value of the promised future coupon and principal payments. At the time of issue, the coupon rate is set such that the fair value of the bonds is very close to its par value. Afterwards, as market conditions change, the fair value may differ from the par value.

At the time of issue of the bond, the interest rate and other conditions of the bond would have been impacted by numerous factors, such as current market interest rates, the length of the term and the creditworthiness of the issuer. These factors are likely to change with time, so the market price of a bond will diverge after it is issued. The market price is expressed as a percentage of nominal value. Bonds are not necessarily issued at par (100% of face value, corresponding to a price of 100), but bond prices will move towards par as they approach maturity (if the market expects the maturity payment to be made in full and on time) as this is the price the issuer will pay to redeem the bond. This is termed as "Pull to Par". At other times, prices can be above par (bond is priced at greater than 100), which is called trading at a premium, or below par (bond is priced at less than 100), which is called trading at a discount.

The market price of a bond is the present value of all expected future interest and principal payments of the bond discounted at the bond's yield to maturity, or rate of return. That relationship is the definition of the redemption yield on the bond, which is expected to be close to the current market interest rate for other bonds with similar characteristics. The yield and price of a bond are inversely related so that when market interest rates rise, bond prices fall and vice versa. The market price of a bond may be cited including the accumulated interest since the last coupon date. The price including

accrued interest is known as the "full" or "dirty price". The price excluding accrued interest is known as the "flat" or "clean price".

The interest rate divided by the current price of the bond is termed as current yield. This is the nominal yield multiplied by the par value and divided by the price. There are other yield measures that exist such as the yield to first call, yield to worst, yield to first par call, yield to put, cash flow yield and yield to maturity.

The link between yield and term to maturity for otherwise identical bonds is called a yield curve. The yield curve is a graph plotting this relationship. Bond markets, dissimilar to stock or share markets, sometimes do not have a centralized exchange or trading system. Reasonably, in developed bond markets such as the U.S., Japan and Western Europe, bonds trade in decentralized, dealer-based over-the-counter markets. In such a market, market liquidity is offered by dealers and other market contributors committing risk capital to trading activity. In the bond market, when an investor buys or sells a bond, the counterparty to the trade is almost always a bank or securities firm which act as a dealer. In some cases, when a dealer buys a bond from an investor, the dealer carries the bond "in inventory", i.e. holds it for his own account. The dealer is then subject to risks of price fluctuation. In other cases, the dealer instantly resells the bond to another investor.

Bond markets can also diverge from stock markets in respect that in some markets, investors sometimes do not pay brokerage commissions to dealers with whom they buy or sell bonds. Rather, the dealers earn income through the spread, or difference, between the prices at which the dealer buys a bond from one investor the "bid" price and the price at which he or she sells the same bond to another investor the "ask" or "offer" price. The bid/offer spread signifies the total transaction cost associated with transferring a bond from one investor to another.

Share:

In financial markets, a share is described as a unit of account for different investments. It is also explained as the stock of a company, but is also used for collective investments such as mutual funds, limited partnerships, and real estate investment trusts. The phrase 'share' is delineated by section 2(46) of the Companies Act 1956 as "share means a share in the share capital of a company includes stock except where a distinction between stock and share is expressed or implied".

Companies issue shares which are accessible for sale to increase share capital. The owner of shares in the company is a shareholder (or stockholder) of the corporation. A share is an indivisible unit of capital, expressing the ownership affiliation between the company and the shareholder. The denominated value of a share is its face value, and the total of the face value of issued shares represent the capital of a company, which may not reflect the market value of those shares. The revenue generated from the ownership of shares is a dividend. The process of purchasing and selling shares often involves going through a stockbroker as a middle man.

Share valuation:

Shares valuation is done according to numerous principles in different markets, but a basic standard is that a share is worth price at which a transaction would be expected to occur to sell the shares. The liquidity of markets is a major consideration as to whether a share is able to be sold at any given time. An actual sale transaction of shares between buyer and seller is usually considered to provide the best prima facie market indicator as to the "true value" of shares at that specific time.

Shares are often promised as security for raising loans. When one company acquires majority of the shares of another company, it is required to value such shares. The survivors of deceased person who get some shares of company made by will. When shares are held by the associates mutually in a company and dissolution takes place, it is important to value the shares for proper distribution of partnership property among the partners. Shares of private companies are not listed on the stock exchange. If such shares are appraisable by the shareholders or if such shares are to be sold, the value of such shares will have to be determined. When shares are received as a gift, to determine the Gift Tax & Wealth Tax, the value of such shares will have to be ascertained.

Values of shares:

1. Face Value: A Company may divide its capital into shares of @10 or @50 or @100 etc. Company's share capital is presented as per Face Value of Shares. Face Value of Share = Share Capital / Total No of Share. This Face Value is printed on the share certificate. Share may be issued at less (or discount) or more (or premium) of face value.
2. Book Value: Book value is the value of an asset according to its balance sheet account balance. For assets, the value is based on the original cost of the asset less any devaluation, amortization or impairment costs made against the asset.
3. Cost Value: Cost value is represented as price on which the shares are purchased with purchase expenses such as brokerage, commission.
4. Market Value: This values is signified as price on which the shares are purchased or sold. This value may be more or less or equal than face value.
5. Capitalised Value:

$$\text{Capitalised Value of share} = \frac{\text{Capitalised Value of profit}}{\text{Total no. of shares}}$$

6. Fair Value: This value is the price of a share which agreed in an open and unrestricted market between well-informed and willing parties dealing at arm's length who are fully informed and are not under any compulsion to transact.

7. Yield Value: This value of a share is also called Capitalised value of Earning Capacity. Normal rate of return in the industry and actual or expected rate of return of the firm are taken into consideration to find out yield value of a share.

Need for Valuation:

1. When two or more companies merge
2. When absorption of a company takes place.
3. When some shareholders do not give their approval for reconstruction of the company, there shares are valued for the purpose of acquisition.
4. When shares are held by the associates jointly in a company and dissolution takes place, it becomes essential to value the shares for proper distribution of partnership property among the partners.
5. When a loan is advanced on the security of shares.
6. When shares of one type are converted in to shares of another type.
7. When some company is taken over by the government, compensation is paid to the shareholders of such company and in such circumstances, valuation of shares is made.
8. When a portion of shares is to be given by a member of proprietary company to another member, fair price of these shares has to be made by an auditor or accountant.

Methods of valuation:

1. Net Assets Value (NAV) Method: This method is called intrinsic value method or breakup value method (Naseem Ahmed, 2007). It aims to find out the possible value of share in at the time of liquidation of the company. It starts with calculation of market value of the company. Then amount pay off to debenture holders, preference shareholders, creditors and other liabilities are deducted from the realized amount of assets. The remaining amount is available for equity shareholders. Under this method, the net value of assets of the company are divided by the number of shares to arrive at the value of each share. For the determination of net value of assets, it is necessary to estimate the worth of the assets and liabilities. The goodwill as well as non-trading assets should also be included in total assets. The following points should be considered while valuing of shares according to this method:

- Goodwill must be properly valued
- The fictitious assets such as preliminary expenses, discount on issue of shares and debentures, accumulated losses etc. should be eliminated.
- The fixed assets should be taken at their realizable value.
- Provision for bad debts, depreciation etc. must be considered.
- All unrecorded assets and liabilities (if any) should be considered.
- Floating assets should be taken at market value.

- The external liabilities such as sundry creditors, bills payable, loan, debentures etc. should be deducted from the value of assets for the determination of net value.

The net value of assets, determined so has to be divided by number of equity shares for finding out the value of share. Thus the value per share can be determined by using the following formula:

Value Per Share= (Net Assets-Preference Share Capital)/Number Of Equity Shares

Net asset method is useful in case of amalgamation, merger, acquisition, or any other form of liquidation of a company. This method determines the rights of various types of shares in an efficient manner. Since all the assets and liabilities are values properly including ambiguous and intangibles, this method creates no problem for valuation of preference or equity share. However it is difficult to make proper valuation of good will and estimate net realisation value of various other assets of the company. Such estimates are likely to be influenced by personal factors of valuers. This method is suitable in case of companies likely to be liquidated in near future or future maintainable profits cannot be estimated properly or where valuation of shares by this method is required statutorily (Naseem Ahmed, 2007).

2. Yield-Basis Method: Yield is the effective rate of return on investments which is invested by the investors. It is always expressed in terms of percentage. Since the valuation of shares is made on the basis of Yield, it is termed as Yield-Basis Method.

Yield may be calculated as under:

$$\text{Yield} = \frac{\text{Normal profit}}{\text{Capital Employed}} \times 100$$

Under Yield-Basis method, valuation of shares is made on;
I. Profit Basis: Under this method, profit should be determined on the basis of past average profit; subsequently, capitalized value of profit is to be determined on the basis of normal rate of return, and, the same (capitalized value of profit) is divided by the number of shares in order to find out the value of each share.
Following procedure is adopted:

$$\text{Capitalised value of profit} = \frac{\text{Profit}}{\text{Normal rate of return}} \times 100$$

Capitalised value of profit

Value of each equity share = Number of shares

Or, Value of each equity share = $\frac{\text{Profit}}{\text{Normal rate of return X Number of equity shares}}$ X 100

II. Dividend Basis: In this type of valuation, shares are valued on the basis of expected dividend and normal rate of return. The value per share is calculated through following formula:

Expected rate of dividend = (profit available for dividend/paid up equity share capital) X 100

Value per share = (Expected rate of dividend/normal rate of return) X 100

Valuation of shares may be made either (a) on the basis of total amount of dividend, or (b) on the basis of percentage or rate of dividend

3. Earning Capacity (Capitalisation) Method: In this valuation procedure, the value per share is calculated on the basis of disposable profit of the company. The disposable profit is found out by deducting reserves and taxes from net profit (Naseem Ahmed, 2007). The following steps are applied for the determination of value per share under earning capacity:

Step 1: To find out the profit available for dividend
Step 2: To find out the capitalized value
Capitalized Value = (Profit available for equity dividend/Normal rate of return) X 100
Step 3: To find out value per share

Value per share = Capitalized Value/Number of Shares
In this method, profit available for equity shareholders, as calculated under capitalization method, are capitalized on the basis of normal rate of return. Then the value of equity share is ascertained by dividing the capitalized profit by number of equity share as shown under (Naseem Ahmed, 2007):

Capitalised value of profits = $\frac{\textbf{Future maintainable profits}}{\textbf{Normal rate of return}}$ X **100**

Value of Equity Share = $\frac{\textbf{Capitalised value of profits}}{\textbf{No. of equity shares}}$

Appraisal of Earning Capacity: This method is suited only when maintainable profit and normal rate of return (NRR) can be ascertained clearly. It is possible when market information is easily available. However, while calculating NRR, risk factors must be taken into consideration (Naseem Ahmed, 2007).

4. Average (Fair Value) Method: In order to overcome the inadequacy of any single method of valuation of shares, Fair Value Method of shares is considered as the most appropriate process. It is simply an average of intrinsic value and yield value or earning capacity method. For valuing shares of investment companies for wealth tax purposes, Fair Value Method of shares is recognized by government. It is well suited to manufacturing and other companies. The fair value can be calculated by following formula (Naseem Ahmed, 2007):

$$\text{Fair value of share} = \frac{\text{Intrinsic Value} + \text{Yield Value}}{2}$$

$$\text{OR} = \frac{\text{Intrinsic Value} + \text{Capitalised Value / Earning Capacity}}{2}$$

To summarize, bonds and their alternatives such as loan notes, debentures and loan stock, are IOUs issued by governments and companies in order to increase finance. They are often called fixed income or fixed interest securities, to differentiate them from equities, in that they often make known returns for the investors (the bond holders) at regular intervals. These interest payments, paid as bond coupons, are fixed, unlike dividends paid on equities, which can be variable. Most corporate bonds are redeemable after a specified period of time. Valuation of share involves the use of financial and accounting data. It depends on valuer's judgement experience and knowledge.

S.No	Question	Option A	Option B	Option C	Option D	Answer
1	financial management is part of	business management	management accounting	cost accounting	structural management	business management
2	Financial management also referred to as	corporate finance	Sole trader finance	co-operative finance	all of the above	corporate finance
3	The appropriate objective of an enterprise is :	Maximization of sales	Maximization of owners wealth	Maximization of profit	Maximization of production	Maximization of owners wealth
4	Which of the following is NEVER consistent with the objective of maximising shareholder wealth?	Increase sales	Corporate social responsibility	Paying dividend	Satisfying	Increase sales
5	---------- is the life blood of an enterprises	finance	production	sales	purchases	finance
6	Management of all matters related to an organisations finance is called	cash inflow and cash outflow	allocation of resources	financial management	paying dividend	financial management
7	The process of raising, providing and administering the funds used in a corporate enterprise is termed as ----------	corporate finance	partnership finance	sole trader finance	co-operative finance	corporate finance
8	---------- refers to that part of the management activity which is concerned with planning and controlling of firms financial resources.	financial management	Human resource management	Management accounting	Auditing	financial management
9	---------- focus all the financial activities in an organization.	finance function	marketing function	production function	personnel function	finance function
10	Early in the history of finances an important issue was	Liquidity	Capital structure	technology	financing options	Liquidity
11	According to traditional approach of finance function deals with only ----------	procurement of funds	utilization of funds	Private deposit	public deposit	procurement of funds
12	According to modern approach, the finance function deals with ----------	Investment	utilization of funds	finance decision	capital decision	utilization of funds
13	The most important goal of financial management is	profit maximization	matching income and expenditure	wealth maximisation	using business assets effectively	wealth maximisation
14	Financial management is ---------- process	dynamic	rigid	continuous	discontinuous	continuous
15	which one is not scope of financial management	Determining Financial Needs	Determining source of funds	Cost Reduction	Capital Structure	Cost Reduction
16	which are sources of funds	issue of shares	issue of debentures	borrowing from bank	all of the above	all of the above
17	The decision function of financial management can be broken down into the ____ decisions.	financing and investment	financing and dividend	Investment, financing and	Financing decision only	Investment, financing and

				dividend		dividend
18	The focal point of financial management in a firm is:	No of products produced	earning profits	create value for shareholders	Minimise tax	create value for shareholders
19	The primary objective of financial management is ----------	profit maximization	wealth maximization	both	current assets	wealth maximization
20	financial management is least concern for	financial forecasting	allocation of resources	establishing assets management	gross profit ratio	gross profit ratio
21	what is ignored in profit maximisation	Wealth	Net value	time value of money	Historical Cost	time value of money
22	raising more capital than required denotes situation of	overdraft	excess of capital	over liquidity	tangible	excess of capital
23	The higher the stock price per share the ---------- will be the stockholders wealth.	Greater	Lower	Profit before tax	profit after depreciation and taxes	Greater
24	CVP stands for----------	Cost Volume Profit	Cost value profit	Cost Volume Programme	Change Volume Profit	Cost Volume Profit
25	break Even Point = _____	Maximum profit	Maximum loss	At least Profit	No Profit and No loss	No Profit and No loss
26	---------- refers to decision concerning financial matters of a business firm	financial decision	investment decision	production decision	marketing decision	financial decision
27	_____ and _____ are the two versions of goals of the financial management of the firm.	Profit maximisation, Wealth maximization	Production maximisation, Sales maximisation	Sales maximisation, Profit maximization	Value maximisation, Wealth maximisation	Profit maximisation, Wealth maximization
28	The ---------- investment decision is known as capital budgeting	short term	long term	medium term	long term as well as short term profits	long term
29	The ---------- investment decision is referred to the working capital requirement	short term	long term	medium term	Quick term	short term
30	---------- is the process of making investment decisions in capital expenditure	capital budgeting	working capital management	cost of capital	leverage	capital budgeting
31	The term ---------- refers to the part of profit of a company which si distributed by it among its shareholders.	Interest	Dividend	Share	Ownership	Dividend
32	Planning refer to----------	forecasting	event	happened	activity	forecasting

33	Financial forecasting and planning are the function of ----------	production manager	financial manager	marketing manager	personnel manager.	financial manager
34	Planning is ----------	Secondary function	Primary function	Intermediary function	End function	Primary function
35	Financial Planning deals with:	Preparation of Financial Statements,	planning for capital issue	preparing budget	financial statement and capital issues	preparing budget
36	The following are examples of intangible assets except:	Machinery	Trade marks	Patents	Technical expertise	Machinery
37	Which one is not included in ideal financial plan	rigid	flexible	Foresight	simplicity	rigid
38	Principles of sound financial planning doest not include	clear cut objective	simple	More depend on outsider funds	flexible	More depend on outsider funds
39	Long term finance requires to purchase----------assets	Fixed	tangible	Intangible	variable	Fixed
40	which is not include in role of financial manager	Estimating Financial Requirements	Deciding the Capital Structure	Selecting Source of Finance	Earning profit	Earning profit
41	which one is not considered as Financial control device	Budgetary control	Return on investment	Performance appraisal	cost control	Performance appraisal
42	The appropriate objective of an enterprise is ----------	Maximization of sales.	Maximization of owners wealth	Maximization of profit	Maximization of production	Maximization of owners wealth
43	Financial forecasting and planning are ----------function financial manager	first	second	Third	end	first
44	which one least functions of financial management	forecasting	acquiring funds	earning profit	investing funds	earning profit
45	The job of a finance manager is confined to,	raising of funds	management of cash	raising of funds and their effective utilization	Raising of employees	raising of funds and their effective utilization
46	Financial decisions involve	Investment , finance and dividend decisions	Investment , finance and sales decisions	Investment , finance and cash decisions	Investment , finance and marketing decisions	Investment , finance and dividend decisions
47	Investment decisions classified into ----------	Two	Three	Four	five	Two
48	Higher is the risk higher is the ----------	return	risk	Cost	sales	return

49	The financial management is responsible for the----------function of the concern.	marketing	Accounting	Finance	managerial	finance
50	If an investor invests his money on purchase of debenture ha can get ----------	Dividend	Interest	Fee	Rent	Interest
51	---------- can be defined in terms of variability of returns	Return	Risk	Decision	Profit	Risk
52	Financial goals may be stated as maximizing_____	Long term profits	Short term profits	Minimizing risks	Long term as well as short term profits	Long term as well as short term profits
53	The primary aim of finance function is to _____for the business as are required from time to time.	Proper utilization of fund	Increasing profitability	Maximizing firms value	Acquiring sufficient fund	Acquiring sufficient fund
54	_____ relates to the determination of total amount of assets to be held in the firm.	Financing decision	Investment decision	Dividend decision	Capital decision	Investment decision
55	_____ is concerned with the quantum of profits to be distributed among share holders.	Dividend decision	Capital decision	Investment decision	Financing decision	Dividend decision
56	_____ is concerned with the best overall mix of financing for the firm.	Investment decision	Financing decision	Dividend decision	Capital decision	Financing decision
57	The first step in the financial management process_____	Financial planning and controlling	Risk and return	Financing decision	Analysis	Financial planning and controlling
58	The broad activities of financial management are ----------	financial analysis	avoidance of risk	prevention of risk	retention of risk	financial analysis
59	In finance, "short-term" means	less than three months	less than six months	less than one year	less than five years	less than one year
60	Finance is aimed at ----------	value maximization	service maximization	deflation risk	monetary value risk	value maximization

UNIT II

INVESTMENT DECISIONS

Investment Decisions - The Capital Budgeting Process - Cash Flow Estimation - Payback Period Method, Accounting Rate of Return - Net Present Value (NPV) - Net Terminal Value - Internal Rate of Return (IRR) - Profitability Index, Capital Budgeting under Risk - Certainty Equivalent Approach and Risk- Adjusted Discount Rate.

CAPITAL BUDGETING:

Introduction: Capital Budgeting is the process of making investment decision in capital expenditure. It involves the planning and control of capital expenditure. It is the process of deciding whether or not to commit resources to particular long-term projects whose benefits are to be realized over a period of time.

According To Charles T Horngreen: "Capital Budgeting is the long term planning for making and financing proposed capital outlays"

According To Lynch: "Capital Budgeting consists in planning development of available capital for the purpose of maximizing the long term profitability of the concern"

From the above definition, it may be concluded that it is the process by which the companies allocate funds to various investment projects designs to ensure profitability and growth.

Features of Capital Budgeting

1. Exchange of funds for future benefits:
2. The future benefits are expected to be realized over a period of time.
3. The funds are invested vested in long-term activities.
4. They have a long term and significant effect on the profitability of the concern,
5. They involve huge funds.

Importance of Capital Budgeting

1. **Large Investment:** Capital budgeting decision involves large investment of funds. But the funds available with the firm are always limited and the demand for funds far exceeds the resources. Hence it is very important for a firm to plan and control its capital expenditure.
2. **Long Term Commitment of Funds:** capital expenditures involves not only large amount of funds but also funds for long term or permanent basis. The long tern commitments of funds increases, the financial risk involved in the investment decision. Greater the risk involved, greater is need for careful planning of capital expenditure i.e. Capital Budgeting.

3. **Irreversible Nature:** The Capital expenditure decision is of irreversible nature. Once the decision for acquiring a permanent asset is taken, it becomes very difficult to dispose of these assets without incurring heavy losses.

4. **Long term Effect on profitability:** Capital budgeting decisions have a long term and significant effect on the profitability of a concern. Not only the present earnings of the firm are effected by the investments in capital asserts but also the future growth and profitability of the firm depends upon the investment decision taken today. An unwise decision may prove disastrous and fatal to the very existence of the concern.

5. **Difficulties of investment Decisions:** The long tern investment decision are difficult to be taken because decision extends to a series of years beyond the current accounting period, uncertainties of future, higher degree of risk.

6. **National Importance:** Investment decision though taken by individual concern is of national importance because it determines employment, economic activities and growth.

EVALUATIONS TECHNIQUES OF PROJECTS

The commonly used methods are following:

1. **Traditional Method**

a. Pay backs period method or pay out or pay off method

b. Rate of return Method or Accounting Method

2. **Time adjusted Method or discounted method**

a. Net present value method

b. Internal rate of return method

c. Profitability Index

Traditional Method

Pay Back Period Method: It represents the period in which the total investments in permanent assts pay backs itself. This method is based on the principal that every capital expenditures pays itself back within a certain period out of the additional earnings generated from the capital assets thus it measures the period of time for the original cost of a project to be recovered from the additional earnings of the project itself.

In case of evaluation of a single project, it is adopted if it pays back itself within a period specified by the management and if the project does not pay back itself within the period specified by the management than it is rejected.

The payback period can be ascertained in the following manner: Calculate annual net earning (profit) before depreciation and after taxes; these are called the annual cash flows.

Where the annual cash inflows are equal, Divide the initial outlay (cost) of the project by annual cash flows, where the project generates constant annual cash inflows.

Where the annual cash inflows are unequal, the pat back period can be found by adding up the cash inflows until the total is equal to the initial cash outlay of project or original cost of the asset.

$$\text{Payback period} = \frac{\text{Cash outlay of the project or original cost of the asset}}{\text{Annual cash Inflows}}$$

Illustration 1. A project costs Rs1, 00,000 and yields annual cash inflow of Rs. 20,000 for 8 years. Calculate its pay back period.

Solution:

Pay back period = Cash outlay of the project or original cost of the asset

Annual cash Inflows

= 1, 00,000 = 5 years

20,000

Advantages of Pay Back Period

1. It is simple to understand and easy to calculate.
2. It saves in cost; it requires lesser time and labor as compared to other methods of capital budgeting.
3. This method is particularly suited to firm, which has shortage of cash or whose liquidity position is not particularly good.

Disadvantages of Pay Back Period

1. It does not take into account the cash inflows earned after the pay back period and hence the true profitability of the project cannot be correctly assessed.
2. It ignores the time value of money and does not consider the magnitude and timing of cash inflows. it treats all cash flows as equal though they occur in different time periods.
3. It does not take into consideration the cost of capital, which is very important; factor in making sound investment decision.
4. It treats each asset individually in isolation with other asset, which is not feasible in real practice.
5. It does not measure the true profitability of the project, as the period considered under this method is limited to a short period only and not the full life of the asset.

Rate of Return Method: This method take into account the earnings expected from the investment over their whole life. It is known as accounting rate if Return method for the reasons

that under this method, the accounting Concept of profit is used rather than cash inflows. According

to this method, various projects are ranked in order of the rate of earnings or rate of return. The project with the higher rate of return is selected as compared to the one with the lower rate of return. This method can be used to make decisions as to accepting or rejecting a proposal. The expected return is determined and the project with a higher rate of return than the minimum rate specified by the firm called cut-off rate, is accepted and the one which gives a lower expected rate of return than the minimum rate is rejected.

The return in investment can be used in several ways as follows:

Average rate of return method (ARR): Under this method average profit after tax and deprecation is calculated and than it is divided by the total capital outlay or total investment in the project.

$$\frac{\text{Total Profits (after dep. \& taxes)}}{\text{Net Investment in project x No. Of years of profits}} \times 100$$

Or

$$\frac{\text{Average annual profit}}{\text{Net investment in the Project}} \times 100$$

Illustration 2. A project requires an investment of Rs.5, 00,000 and has a scrap value of Rs.20, 000 After 5 years. It is expected to yield profits after depreciation and taxes during the 5 years amounting to Rs. 40,000. Rs. 60,000, Rs. 70,000, Rs. 50,000 and Rs.20, 000. Calculate the average rate of return on the investment.

Solution:

Total profits = Rs. 40,000+60,000+70,000+50,000+20,000 = Rs. 2, 40,000

Average Profit = $\frac{\text{Rs. 2, 40,000}}{5}$ = Rs.48, 000

Net Investment in the project = Rs. 5, 00,000 – 20,000(scrap value)

= Rs 4, 80,000

Average annual profit X 100

Net investment in the Project

48,000 X 100 = 10%

4, 80,000

Return per unit of investment method: This method is small variation of the average rate of return method. In this method, the total profit after tax and depreciation is divided by the total investment i.e.

Return per Unit of Investment = Total profit (after depreciation and tax) X 100

Net investment in the project

Illustration 3. Continuing above illustration, the return per unit of investment shall be:

2, 40,000 X 100 = 50%

4, 80,000

Return on average Investment method: In this method the return on average investment is calculated. Using of average investment for the purpose of return in investment is referred because the original investment is recovered over the life of the asset on account of depreciation charges.

Return on Average Investment = Total profit (after depreciation and tax) X 100

Total Net investment/2

Advantages of Rate of Return Method

1. It is very simple to understand and easy to operate.
2. This method is based upon the accounting concept of profits; it can be readily calculated from the

financial data.

3. It uses the entire earnings of the projects in calculating rate of return.

Dis Advantages of Rate of Return Method

1. It does not take into consideration the cash flows, which are more important than the accounting profits.
2. It ignores the time value of money as the profits earned at different points of time are given the equal weighs.

Time Adjusted or Discounted Cash Flows Methods

The traditional methods of capital budgeting suffer from serious limitations that give the equal weights to present and future flow of income. These do not take into accounts the time value of money. Following are the discounted cash flow methods:

Net Present Value Method: This method is the modern method of evaluating the investment proposals. This method takes into consideration the time value of money and attempts to calculate the return in investments by introducing the factor of time element. It recognizes the fact that a rupee earned today is more valuable earned tomorrow. The net present value of all inflows and outflows of cash occurring during the entire life of the project is determined separately for each year by discounting these flows by the firm's cost of capital.

Following are the necessary steps for adopting the net present value method of evaluating investment proposals.

1. Determine appropriate rate of interest that should be selected as the minimum required rate of return called discount rate.
2. Compute the present value of total investment outlay.
3. Compute the present value of total investment proceeds.

4. Calculate the net present value of each project by subtracting the present value of cash inflows from the present value of cash outflows for each project.
5. If the net present value is positive or zero, the proposal mat be accepted otherwise rejected.

Advantages of Net Present Value

1. It recognizes the time value of money and is suitable to be applied in situations with uniform cash outflows and cash flows at different period of time.
2. It takes into account the earnings over the entire life of the projects and the true profitability of the investment proposal can be evaluated.
3. It takes into consideration the on\objective of maximum profitability.

Disadvantages of Net Present Value

1. This method is more difficult to understand and operate.
2. It is not easy to determine an appropriate discount rate.
3. It may not give good results while comparing projects with unequal lives and investment of funds.

Internal Rate of Return Method: It is a modern technique of capital budgeting that takes into account the time value of money. It is also known as "time adjusted rate of return discounted cash flows" "yield method" "trial and error yield method"

Under this method, the cash flows of the project are discounted at a suitable rate by hit and trial method, which equates the net present value so calculated to the amount of the investment. Under this method, since the discount rate is determined internally, this method is called as the internal rate of return method. It can be defined as the rate of discount at which the present value of cash inflows is equal to the present value of cash outflows.

Steps required for calculating the internal rate of return.

1. Determine the future net cash flows during the entire economic life of the project. The cash inflows are estimated for future profits before depreciation and after taxes.

2. Determine the rate of discount at which the value of cash inflows is equal to the present value of cash outflows.
3. Accept the proposal if the internal rate of return is higher than or equal to the minimum required rate of return.
4. In case of alternative proposals select the proposals with the highest rate of return as long as the rates are higher than the cost of capital.

Determination of Internal Rate of Return:

1. **When the annual net cash flows are equal over the life of the assets.**

Present value Factor = Initial Outlay

Annual cash Flows

2. **When the annual net cash flows care Unequal over the life of the assets.**

Following are the steps

i. Prepare the cash flow table using an arbitrary assumed discount rate to discount the net cash flows to the present value.
ii. Find out the net present value by deducting from the present value of total cash flows calculated in above the initial cost of the investment
iii. If the NPV is positive, apply higher rate of discount.
iv. If the higher discount rate still gives a positive NPV, increase the discount rate further the NPV becomes become negative.
v. If the NPV is negative at this higher rate, the internal rate of return must be between these two rates.

Advantages of Internal Rate of Return Method

1. It takes into account the time value of money and can be usefully applied in situations with even as well as uneven cash flows at different periods of time.
2. It considers the profitability of the project for its entire economic life.

3. It provides for uniform ranking of various proposals due to the % rate of return.

Disadvantages of Internal Rate of Return Method

1. It is difficult to understand.
2. This method is based upon the assumption that the earnings are reinvested at the internal rate of return for the remaining life of the project, which is not a justified assumption particularly when the rate of return earned by the firm is not close ton the internal rate of return.
3. The result of NPV and IRR method may differ when the project under evaluation differ their size.

Profitability Index or PI: This is also known as benefit cost ratio. This is similar to NPV method. The major drawback of NPV method that not does not give satisfactory results while evaluating the projects requiring different initial investments. PI method provides solution to this. PI is calculated as:

$$PI = \frac{\text{Present value of cash Inflows}}{\text{Present value of cash outflows}}$$

If PI > 1project will be accepted, if PI<1 then project is rejected and if PI= 1 then decision is based on non-financial consideration.

Advantages of PI method

1. It considers Time value of money
2. It considers all cash flow during life time of project.
3. More reliable than NPV method when evaluating the projects requiring different initial investments.

Disadvantages of PI method

1. This method is difficult to understand.

2. Calculations under this method arte complex

Risk and Uncertainty in Capital Budgeting

All the techniques of capital budgeting require the estimation of future cash inflows and cash outflows. But due to uncertainties about the future, the estimates if demand, production, sales cannot be exact. All these elements of uncertainty have to be taken into account in the form of forcible risk while taking a decision on investment proposals. The following two methods are suggested for accounting for risk in capital budgeting.

1. Risk adjusted cut off rate or method of varying discount rate.
2. Certainty equivalent method.

Risk adjusted cut off rate or method of varying discount rate: The simplest method for accounting for risk in capital budgeting is to increase the cut-off rate or the discount factor by certain % on account of risk. The projects which are more risky and which have greater variability in expected returns should discounted at higher rate as compared to the projects which are less risky and are expected to have lesser variability in returns.

The greater drawback of this method is that it is not possible to determine the risk premium rate appropriately and moreover it is the future cash flow, which is uncertain and requires the adjustment and not the discount rate.

Illustration 4. The Beta Company Is considering the purchase of new investment. Two alternatives investments are available (A and B) Rs.1, 00,000. Cash flows are expected to be as follows:

YEAR	**CASH FLOWS**	
	INVESTMENT A (Rs)	**INVESTMENT B(Rs)**
1	40,000	50,000
2	35,000	40,000

3	25,000	30,000
4	20,000	30,000

The company has a target return on capital at 10%. Risk premium rates are 2% and 8%. For investments A and B. which investments should be preferred?

Solution:

The profitability of the investments can be compared on the basis of net present values cash inflows adjusted for risk premiums rate as follows:

Year		**Investment A**			**Investment B**	
	Discount Factor@ 10%+ 2% = 12%	**Cash Inflows Rs.**	**Present Value Rs.**	**Discount Factor@ 10%+ 8% = 18%**	**Cash Inflows Rs.**	**Present Value Rs.**
1	.893	40,000	35,720	.847	50,000	42,350
2	.797	35,000	27,895	.718	40,000	28,720
3	.712	25,000	17,800	.609	30,000	18,270
4	.635	20,000	12,700	.516	30,000	15,480

			94,115			1,04,820
			Investment A			Investment B
			Rs 94,115-1,00,000			Rs. 1,04,820-1,00,000
Net Present Value			= Rs(-) 5,885			= Rs. 4,820

As even at a higher discount rate investment B gives a higher present value, investment B Should be preferred.

Certainty Equivalent Method: Another simple method of accounting foe risk n capital budgeting is to reduce the expected cash flows by certain amounts. It can be employed by multiplying the expected cash flows by certainty equivalent co-efficient as to convert the cash floe to certain cash flows.

Illustration 5. There are two projects X and Y. each involves an investment of Rs40,000. The expected cash flows and the certainty co-efficient are as under:

		Project X		**Project Y**
Year	**Cash Inflows**	**Certainty Coefficient**	**Cash Inflows**	**Certainty Coefficient**
1	25,000	.8	20,000	.9
2	20,000	.7	30,000	.8
3	20,000	.9	20,000	.7

Risk free cut off rate is 10%. Suggest which of the two projects should be preferred?

Solution:

Calculation of cash inflows with certainty

	Project X			**Project Y**		
Year	Cash Inflows	Certainty Coefficient	Certain Cash Inflow	Cash Inflows	Certainty Coefficient	Certain Cash flow
1	25,000	.8	20,000	20,000	.9	18,000
2	20,000	.7	14,000	30,000	.8	24,000
3	20,000	.9	18,000	20,000	.7	14,000

Calculations of Present Values of cash Inflows

	Project X			**Project Y**	
Year	Discount Factor @10%	Cash inflows Rs.	Present Values Rs.	Cash inflows Rs.	Present Value Rs.
1	.909	20,000	18,180	18,000	16,362
2	.826	14,000	11,564	24,000	19,824
3	.751	18,000	13,518	14,000	10,514
				46,700	
	Project X			Project Y	
	Rs 43,262-40,000			Rs 46,700-40,000	
	Net Present Value		Rs. 3262	Rs.6700	

As the Net present value of project Y is more than that of Project X, Project Y should be preferred.

Illustration 6.A Company is considering a new project for which the investment data are as Follows:

Capital outlay Rs.2, 00,000
Depreciation 20% per annum

Forecasted annual income before charging depreciation, but after all other charges as follows:

Year	Rs.
1	100,000
2	100,000
3	80,000
4	80,000
5	40,000
	400,000

On the basis of available data, set out calculations, illustrating and comparing the following methods of evaluating the return of capital employed a. Pay back method b. Rate of return of original investment. State clearly any assumption you make. Ignore taxation.

Solution:

Annual income before depreciation and after all other charges is equivalent to CFAT.

PB period is 2 years. Capital outlay of Rs.2, 00,000 is recovered in first two years: [(Rs 1, 00,000 (year 1) + Rs 1, 00,000 (year 2)]

Rate of return on original investment

Year	**CFAT**	**Depreciation**	**Net Income**
	(Rs)	**(Rs)**	**(Rs)**
1	1, 00,000	40,000	60,000
2	1, 00,000	40,000	60,000

3	80,000	40,000	40,000
4	80,000	40,000	40,000
5	40,000	40,000	---
			2,
			00,000

Rate of return = Average income x 100
Original investment

Where, Average Income = Rs 2, 00,000 = Rs. 40,000
5

Rate of return = 40,000 x 100 = 20%
2, 00,000

Illustration 7: A project of Rs. 20, 00,000 yielded annually a profit of Rs. 3, 00,000 after depreciation @12.5% and is subject to income tax @ 50%. Calculate pay-back period

Solution: Calculation of Annual Cash Flow

	Rs.
Profit after Depreciation but before tax	3, 00,000
Less: - Tax @ 50%	1, 50,000
Profit after Tax	1, 50,000
Add: - Depreciation	2, 50,000
Cash Flow	4, 00,000

Pay back period = Initial outlay/ Annual Cash Flow 20, 00,000/4, 00,000 = 5 Years

Illustration 8 The Alpha company ltd is considering the purchase of a new machine. Two alternatives machines (A and B) have been suggested each costing

Rs. 4, 00,000. Earnings after taxation are expected to be as follows:

Year	**Cash Flow (Rs.)**	
	Machine A	**Machine B**
1	40,000	1, 20,000
2	1, 20,000	1, 60,000
3	1, 60,000	2, 00,000
4	2, 40,000	1, 20,000
5	1, 60,000	80,000

You are require to suggest which machine should be preferred based on

a) NPV Method and

b) Profitability Index

Note: The present value of Rs. 1 @ 10 %

Due in 1 Year = 0.91

Due in 2 Years = 0.83

Due in 3 years = 0.75

Due in 4 years = 0.68

Due in 5 years = 0.62

Solution:

a) Computation of net present value

Year	PVIF	Machine A cash inflow	present value	Machine B cash inflow	present value
1	0.91	40000	36400	120000	109200
2	0.83	120000	99600	160000	132800
3	0.75	160000	120000	200000	150000
4	0.68	240000	163200	120000	81600
5	0.62	160000	99200	80000	49600
Total Present value of Cash inflow			518400		5, 23,200
Less: Cash Outflow			4, 00,000		4, 00,000
Net present Value			118400		1, 23,200

b) Computation of Profitability Index

Present value of cash inflow	5, 18,400	5, 23,200
Present value of cash outflow	4, 00,000	4, 00,000
Profitability index	1.3	1.31

Since net present value and profitability index of Machine B is higher. Machine B is therefore recommended.

Illustration9. One of the two machines A and B is to be purchased. Form the following information find out which of the two will be more profitable? The average rate of tax may be taken at 50%.

	Machine A (Rs.)	**Machine B (Rs.)**
Cost of machine	50000	80000
Machine Life	4 years	6 years
Earnings Before Tax		

1st year	10000	8000
2nd year	15000	14000
3rd year	20000	25000
4th year	15000	30000
5th year		18000
6th year		13000

Solution:

Machine A

year	**EBT**	**Tax@ 50%**	**EAT**	**Cash flows**	**Cumulative cash flows**
1	10000	5000	5000	17500	17500
2	15000	7500	7500	20000	37500
3	20000	10000	10000	22500	60000
4	15000	7500	7500	20000	80000

a) Pay back period:

Investment = 50000

Recovery up to 2nd year is 37,500

Balance 12500 in 3rd year = 12500/22500 = 0.55 years i.e. 2.55 years

b) Average rate of returns:

(on original investment basis)

= Average earnings/net investment x 100

= 30000 x 4 / 50000 x 100 = 15%

Machine B

year	**EBT**	**Tax@**	**EAT**	**Cash flows**	**Cumula**

		50%			**tive cash flows**
1	8000	4000	4000	17333	17333
2	14000	7000	7000	20333	37666
3	25000	12500	12500	25833	63499
4	30000	15000	15000	28333	91832
5	18000	9000	9000	22333	141165
6	13000	6500	6500	19833	133498

(a) P

ay back

period

Investme

nt = Rs.

80,000

Cumulative Cash Flows shows that the recovery up to 3rd year = 63499 therefore for the balance of Rs. 16501 will be recovered in 4th year.

i.e. 16501/28333 = 0.58 year

therefore payback period is 3.58 years

b) Average rate of return (based on original investment)

= Average Profits/net investment x 100

= 54000/6 x 100

= 11.25%

Machine A is profitable in both the cases

Note: - It has been assumed that Earnings Before tax in the problem is after considering depreciation on straight line basis.

Illustration 10. No Project is acceptable unless the yield is 10%. Cash inflows of a certain project along with cash outflows are given below:

Year	Outflow (Rs.)	Inflow(Rs.)
0	150000	-
1	30000	20000
2	-	30000
3	-	60000
4	-	80000
5	-	70000

Calculate net present value

Solution:

Calculation of Net Present Value

Year	PVIF	Outflows		Inflows	
		Amount (rs.)	Present Value (Rs.)	Amount (Rs.)	Present Value(Rs.)
0	1.000	150000	150000		
1	0.909	30000	27270	20000	18180
2	0.826			30000	24780
3	0.751			60000	45060
4	0.683			80000	54640
5	0.621			70000	43470
			177270		186130

Net present value = Present value of Inflows - Present value of Inflows

= Rs.186130 – Rs. 177270

=Rs 8860

CONVENTIONAL TECHNIQUES :

There are several conventional techniques which attempt to incorporate the risk in capital

budgeting proposals. Some of these techniques have been discussed hereunder.

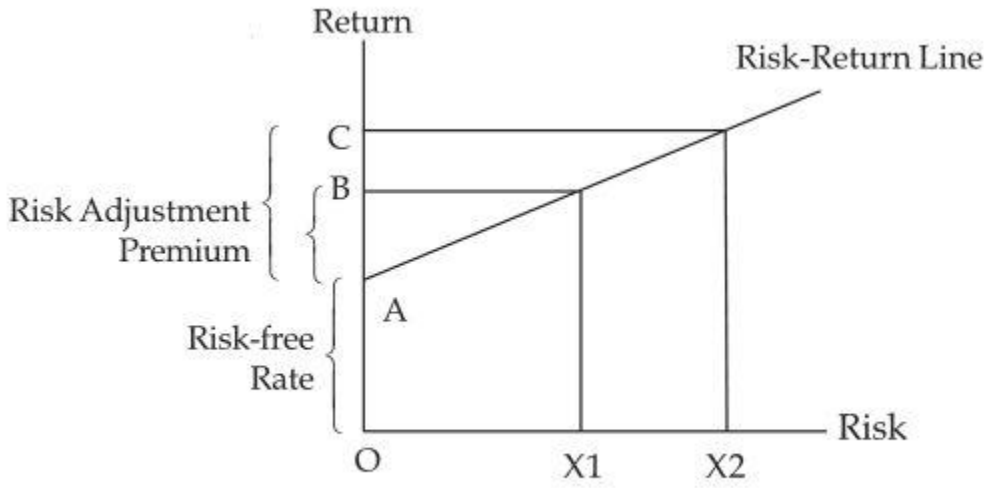
1. Risk Adjusted Discount Rate (RADR)

Every firm is basically risk averse and tries to avoid risk. However, it may be ready to take risk provided it is rewarded for undertaking risk by higher returns. So, more risky the investment is, the greater would be the expected return. The expected return is expressed in terms of discount rate which is also termed as the minimum required rate of return generated by a proposal if it is to be accepted. Therefore, there is a positive correlation between risk of a proposal and the discount rate. A firm at any point of time has a risk level emanating from the existing investment. The firm also has a discount rate to reflect that level of risk. In case, there is no risk of the existing investment, then the discount rate may be known as the risk free discount rate. If the risk level of the new proposal is higher than the risk level of the existing investment, then the discount rate to be applied to find out the present values of the cash flows of the proposals having varying degrees of risk should be evaluated at different discount rates. The difference between the discount rate applied to a riskless proposal and to a risky proposal is known as risk premium.

RADR attempts to incorporate risk by modifying the discount rate. A risk premium is added to the riskless discount rate, to reflect the risk inherent in the project. The reasoning behind adding the risk premium is quite simple. i.e., the greater the risk, the higher should be the desired return from a proposal. The RADR approach to handle risk in a capital budgeting decision process is a

more direct method. The RADR is based on the premise that riskiness of a proposal may be taken care of, by adjusting the discount rate. The cash flows from a more risky proposal should be discounted at a relatively higher discount rate as compared to other proposals whose cash flows are less risky. The RADR may be expressed in terms of Equation RADR = Risk Free Return + Premium for facing the Risk The risk free discount rate is described as the rate of return on the government securities.

Since all the business proposals have higher degree of risk as computed to zero degree of risk of government securities, the RADR is always greater than the risk free rate. Moreover, as the risk of a proposal increases, the risk adjustment premium also increases. The relationship between the risk free rate, the risk premium, the RADR and the risk return line has been explained in the figure below :



Risk-free rate, Risk Premium and Risk-return relationship

The figures reflects that if the risk of proposal is zero, then the minimum required rate of return, i.e., the discount rate will be just equal to the risk free rate,

i.e., OA. However, as the risk increases, say, up to X1, then the required rate of return also increases from OA to OB.

The component AB is known as the risk adjustment premium. Similarly, if the level of risk of a proposal is X2, then the risk premium may be AC and the discount rate for such proposal

will be equal to OC. The risk premium being added to the risk free rate reflects the greater

risk attached to a proposal. As the risk increases, the risk premium also increases and the

RADR also increases. The RADR is used to find out the risk adjusted NPV of the proposal as

per Equation

RANPV = Risk adjusted NPV

CF 1 = Cash inflows occurring at different points of time

C 0 = Initial cash outflow

R a = Risk adjusted discount rate.

Difference between the NPV method, discussed in the previous chapter, and the RADR is that the rate of discount used in RADR, i.e., Ra is higher than the original discount rate, i.e., R. The RADR reflects the return that must be earned by a proposal to compensate the firm for undertaking the risk. The higher the risk of a proposal, the higher the RADR would be and therefore the lower the NPV of a given set of cash flows. The decision rule of RADR is that a firm should select the proposal if the RANPV is positive or even zero and reject the proposal if it is negative. In case of mutually exclusive proposals, the rule may be : select the

alternative which has the highest positive RANPV. In case, the firm is applying the IRR technique for evaluation of capital budgeting proposals, then IRR of the project can be compared with the RADR, i.e., the minimum required rate of return to accept or reject the proposal.

Evaluation of RADR Approach— The RADR approach considers the time value of money and explicitly incorporates the risk involved in the project by making the discount rate as a function of the proposal's risk. The RADR helps finding out the expected future wealth generated by a risk project over and above the RADR, However, the RADR suffers from the basic shortcoming relating to the determination of the risk adjustment premium or the RADR

itself. Moreover, the RADR does not adjust the future cash flows which are risky and uncertain.

2. Certainty Equivalents (CE)

The CE approach to incorporate the risk is to adjust the cash flows of a proposal to reflect the riskiness. The CE approach attempts at adjusting the future cash flows instead of adjusting the discount rates. The expected future cash flows which are taken as risky and uncertain are converted into certainty cash flows. Initiatively, more risky cash flows will be adjusted down lower than the less risky cash flows. The extent of adjustment will vary and it can be either subjective or based on a risk return model. These adjusted cash flows are then discounted at risk free discount rate to find out the NPV of the proposal. The procedure for the CE approach can be explained as follows:

1. Estimate the future cash flows from the proposal. These cash flows do have some degree of risk involved.

2. Calculate the CE factors for different years. These CE factors reflect the proportion of the future cash flow a finance manager would be ready to accept now in exchange for the future cash flow. For example, cash inflow of Rs. 10,000 is receivable after 2 years.

However, if the inflow is available right now, the firm may be ready to accept even 70% of Rs. 10,000, i.e., Rs.7,000 only. This 70% or 0.7 is the CE factor. The CE factor will be different from year to year. The higher the riskiness of cash flow, the lower would be the CE factor.

3. The expected cash flows for different years as calculated in step 1 above are multiplied by the respective CE factors and the resultant figures are described as certainty equivalent cash flows.

4. Once all the cash flows are reduced to CE cash flows, then these CE cash flows are discounted at risk free rate to find out the NPV of the proposal. The CE approach may be described in terms of Equation

In the above equation, the value of a 1 i.e., the CE factors will vary between 0 and 1, and will vary inversely to risk. The greater the risk involve (may be due to time factor or otherwise), the lower will be the value of a.

The decision rule associated with the CE approach is that accept a proposal with positive CE NPV. In case of mutually exclusive proposals, the rule is that the proposal having the highest positive CE NPV is accepted. If a firm is using IRR technique to evaluate the capital budgeting proposals, then the IRR of the CE cash flows can be calculated and computed with the minimum required rate of return to make an appropriate decision.

Evaluation of CE Approach— The CE approach explicitly recognises the risk and incorporates it by deflating the cash flows to CE cash flows. This approach

seems to be conceptually superior to the RADR and does not assume that risk increases over time at a constant rate.

But the CE approach involves the determination of CE factors which is a tedious job.

S.No	Question	Option A	Option B	Option C	Option D	Answer
1	Capital budgeting is also known as _____.	Cost of capital	Capital structure	Investment decision making	Dividend decision	Investment decision making
2	Capital Budgeting is a part of:	Investment decision	Capital structure	Marketing management	working capital management	Investment decision
3	_____ is also known as capital expenditure decision.	Capital budgeting	Capital structure	Investment decision making	Dividend decision	Capital budgeting
4	_____ is also known as analysis of capital expenditure.	Cost of capital	Capital budgeting	Investment decision making	Dividend decision	Capital budgeting
5	_____is the process of making investment decision in capital expenditure	Working capital management	Cost of capital	Capital structure	Capital budgeting	Capital budgeting
6	Capital Budgeting Decisions are:	Recoverable	Irreversible	reversible	Unimportant	Irreversible
7	_____method is also called as pay out period method	Accounting rate of return	Net present ratio	Rate of return	Pay back period	Pay back period
8	_____ Method is also called as pay off period method.	Pay back period	Net present ratio	Accounting rate of return	Rate of return	Pay back period
9	Pay back period =	Cash inflow/cash outflow	Profit/cash outflow	EBIT/EBT	Initial Investment/annual cash inflow	Initial Investment/annual cash inflow
10	A project cost Rs 50000 and yields an annual cash inflow of Rs10000 for 7 yrs. Calculate the pay back period.	6 yrs	5 yrs	5 1/2 yrs	7 yrs	5 yrs
11	A project costs Rs100000 and yield an annual cash inflow of Rs 20000 for 8 yrs. Calculate the pay back period..	5 yrs	4 yrs	7 yrs	6 yrs	5 yrs
12	_____ is also known as accounting rate of return	Pay back period method	Average Rate of return method	NPV method	Internal rate of return method	Average Rate of return method
13	The _____ method taken into account the profitability and also the time value of money	NPV	Pay back period	Accounting rate of return	Rate of return	NPV
14	The discounted cash flow method take into account the_____	Profitability	Time value of money	Profitability and time value of money	Cash inflow	Profitability and time value of money
15	NPV =	Net present valuation	Net prescribed value	Net present value	Net profit value	Net present value
16	_____ method is also known as time adjusted rate of return.	Pay back period	Average rate of return	NPV	Internal rate of return	Internal rate of return
17	Which of the following is not incorporated in Capital Budgeting?	Time value of money	rate of Cash discount	Required rate of return	tax effect	Rate of Cash discount

18	Which of the following is not a capital budgeting decision?	Stock level	Expansion Programme	merger	Replacement of asset	Stock level
19	A sound Capital Budgeting technique is based on:	Accounting profit	cash flows	interest on Borrowings	last dividend paid	Cash flows
20	_____method is also known as trial and error yield method.	Internal rate of return	Average rate of return	NPV	Pay back period	Internal rate of return
21	IRR =	Investment realized return	Internal rate of return	Internal realized return	Investment rate of return	Internal rate of return
22	The _____ can be defined as that rate of discount at which present value of cash inflow is equal to the present value of cash outflow.	NPV	Accounting rate of return	Profitability index	Internal rate of return	Internal rate of return
23	_____ method is also called as benefit-cost ratio	Internal rate of return	NPV	Pay back period	Profitability index	Profitability index
24	_____ method reveals the relationship between present value of cash inflow and present value of cash outflow.	pay back period	average rate of return	accounting rate of return	profitability index	profitability index
25	Profitability index =	present value of cash outflow/ present value of cash inflow	cash inflow /cash outflow	cash outflow/ cash inflow	present value of cash inflow/ present value of cash outflow	present value of cash inflow/ present value of cash outflow
26	In calculating pay-back period method, earnings means	Profit before depreciation and after taxes	Profit after depreciation	Profit before tax	Profit after depreciation and taxes	Profit before depreciation and after taxes
27	The_____ is the minimum rate of return expected by an investor	Capital Structure	Cost of Capital	Capital Budgeting	Working Capital	Cost of Capital
28	_____ is the weighted average cost of various source of finance used by a firm	Capital Structure	Capital Budgeting	Cost of Capital	Working Capital	Cost of Capital
29	Higher the risk involved in a firm higher is the _____	Capital Structure	Capital Budgeting	Working Capital	Cost of Capital	Cost of Capital
30	_____ is the minimum required rate of earnings or the cut-off rate of capital expenditure	Cost of Capital	Capital Budgeting	Working Capital	Capital Structure	Cost of Capital
31	_____ for a firm may be defined as the cost of obtaining funds	Cost of Capital	Capital Budgeting	Working Capital	Capital Structure	Cost of Capital
32	Cost of Capital refers to:	Required rate of return	Floation cost	dividend	borrowing	Required rate of return
33	_____ concept an be used as a basis for evaluating the performance of the firm	Capital Structure	Cost of Capital	Capital Budgeting	Working Capital	Cost of Capital

34	_____ are book cost which are related to the past	Future Cost	Explicit Cost	Historical Cost	Implicit Cost	Historical Cost
35	_____ are estimated costs for the future	Future Cost	Explicit Cost	Historical Cost	Implicit Cost	Future Cost
36	_____ refers to the cost of specific source of capital	Explicit Cost	Specific Cost	Historical Cost	Implicit Cost	Specific Cost
37	_____ is combined cost of various source of Capital	Future Cost	Explicit Cost	Composite cost	Historical Cost	Composite cost
38	Which of the following sources of funds has an Implicit Cost of Capital?	equity capital	Preference capital	Debenture	Retained Earnings	Retained Earnings
39	_____ is the weighted average cost of Capital	Future Cost	Explicit Cost	Historical Cost	Composite cost	Composite cost
40	Which of the following has the highest cost of capital?	Equity shares	bonds	loans	Preference shares	Equity shares
41	In Capital structure decision, the _____ should be given consideration	Cost of Debt	Cost of Preference Capital	Cost of Equity Capital	Weighted average cost of Capital	Weighted average cost of Capital
42	_____ is the discount rate which equates the present value of cash inflow with the present value of cash out flow	Explicit Cost	Specific Cost	Historical Cost	Implicit Cost	Explicit Cost
43	_____ also known as the opportunity cost	Implicit Cost	Specific Cost	Historical Cost	Implicit Cost	Implicit Cost
44	_____ is the Cost of the opportunity foregone in order to take up a particular project	Implicit Cost	Specific Cost	Historical Cost	Implicit Cost	Implicit Cost
45	An _____ refers to the combined cost of Various source of Capital	Explicit Cost	Specific Cost	Average Cost	Implicit Cost	Average Cost
46	Weighted Average Cost of Capital is generally denoted by:	k_w	k_A	k_o	k_{wc}	k_w
47	_____ refers to the average cost of Capital	Marginal Cost of Capital	Specific Cost	Historical Cost	Implicit Cost	Marginal Cost of Capital
48	_____refers to the average cost of capital which has to be incurred to obtain additional funds required by a firm	Explicit Cost	Specific Cost	Marginal Cost	Implicit Cost	Marginal Cost
49	---------- is the rate of interest payable on Debt	Cost of Debt	Cost of Equity	Cost of Preference Capital	Marginal Cost	Cost of Debt
50	Cost of Debt = _____	Interest	Interest/ Net Proceeds	Investment/Interest	Earnings/ Net Interest	Interest/ Net Proceeds
51	Which of the following cost of capital require tax adjustment?	Cost of Preference Capital	Cost of Equity	Cost of debt	Cost of Retained Earnings	Cost of debt
52	Which is the most expensive source of funds?	New Preference	New Equity shares	New Debt	Retained Earnings	New Equity

		Capital				shares
53	Cost of Preference Capital = _____	Earnings	Dividend	Dividend / Net Proceeds	EBIT / Net Proceeds	Dividend / Net Proceeds
54	Cost of Capital for Bonds and Debentures is calculated on:	before tax basis	after tax basis	Risk free rate of interest	both a and b	After Tax basis
55	Firm's Cost of Capital is the average cost of:	All sources	All borrowings	Share capital	Bonds and debentures	All sources
56	Cost of capital may be defined as:	Weighted Average cost of all debts	Rate of Return expected by Equity Shareholders	Average IRR of the Projects of the firm	Minimum Rate of Return that the firm should earn.	Minimum Rate of Return that the firm should earn.
57	. Minimum Rate of Return that a firm must earn in order to satisfy its investors, is also known as	Weighted Average cost of capital	Average Return on Investment	Average cost of borrowing	Net profit ratio	Weighted Average cost of capital
58	Dividend Yield method = _____	Dividend / Net Proceeds	Interest / Net Proceeds	Dividend / Market Price	EBIT / 100	Dividend / Market Price
59	Earnings Yield method = _____	Dividend / Net Proceed	EPS / Market Price	Dividend / Mkt. Price	EBIT /100	EPS / Market Price
60	_____ is also known as trading on equity	Operating Leverage	Composite Leverage	Financial Leverage	Working Capital Leverage	Financial Leverage

UNIT-III

SYLLABUS

Financing Decisions - Cost of Capital and Financing Decision - Sources of Long Term Financing - Estimation of Components of Cost of Capital - Methods for Calculating Cost of Equity Capital - Cost of Retained Earnings - Cost of Debt and Cost of Preference Capital - Weighted Average Cost of Capital (WACC) and Marginal Cost of Capital - Capital Structure - Theories of Capital Structure (Net Income, Net Operating Income, MM Hypothesis, Traditional Approach) - Operating and Financial Leverage - Determinants of Capital Structure

COST OF CAPITAL

- Cost of Capital of a firm is the minimum rate of return expected by its investors
- The Cost of Capital is the rate of return a firm must earn on its investments so that the market value of the firm remain unchanged. Thus, it is a yardstick or basis of approval or rejection of an standard of assessment of performance of a project
- The capital used by a firm may in the form of debt, preference capital, retained earnings and equity shares. The concept of cost of capital is very important in the financial management. A decision to invest in a particular project depends upon the cost of capital of the firm or the cut off rate which is the minimum rate of return expected by its investors. In case a firm is not able to achieve even the cutoff rate, the market value of its shares will fall. In fact, cost of capital is the minimum rate of return expected by its investors which will maintain the market value of shares at its present level. Hence, to achieve the objective of wealth maximization, a firm must earn a rate of return more than its cost of capital. Further, optimal capital structure maximizes the value of a firm and hence the wealth of its owners and minimizes the firm's cost of capital. The cost of capital of a firm or the minimum rate of return expected by the investors has a direct relation with the risk involved in the firm. Generally, higher the risk involved in a firm, higher is the cost capital.

COST OF CAPITAL - DEFINITION

- The cost of capital is the minimum rate of return which a firm requires as a condition for undertaking an investment – Milton H. Spencer
- Cost of Capital is the minimum rate of earnings or the cutoff rate for capital expenditures – Solomon Ezra

IMPORTANCE OF COST OF CAPITAL

Designing the Optimal Capital Structure

- This concept is very helpful in designing a sound, optimal and economical capital structure of the firm. Each source of capital involves different cost and different risk. By comparing various specific costs of different sources, the financial manager can select the best and the most economical source of finance

Helpful in Evaluation of Expansion Projects

- It helps in the evaluation of financial soundness of a given expansion project. An expansion project will be accepted by the management only when the marginal return on investment exceeds the cost of its financing

Rational Allocation of National Resources

- The concept of cost of capital is important for national economy as well since its provides the basis of promotion allocation of financial resources

Evaluation of Financial Performance of Top Management

- The cost of capital framework can be used to evaluate the financial performance of top executives. Such an evaluation can be done by comparing the actual profitability of the projects undertaken with the projected overall cost of capital, and an appraisal of the actual costs incurred in the required funds

Financing and Dividend Decisions

- This concept is useful in other areas of financial decision making, such a dividend decisions, decision on capitalization of profits and rights issue, working capital management and capital expenditure control etc.,

COMPUTATION OF COST OF CAPITAL or CLASSIFICATION OF COST OF CAPITAL

- Computation of overall cost of capital of a firm consists of the following steps
  - Computation of the cost of specific source such as debentures, preference share capital and equity capital
  - Computation of the weighted average cost of capital or the overall cost of capital

COMPUTATION OF COST OF SPECIFIC SOURCES

COST OF DEBT

a) Cost of Irredeemable Debt

- Irredeemable debt is debt which is not redeemable during the life time of the company

Before Tax Cost of Debt = Interest / Net Proceeds (NP)

a) When debt is issued at par: NP = Face Value – Issue Expense

b) When debt is issued at a Premium: NP = Face Value + Premium – Issue Expenses

c) When debt is issued at a discount: NP = Face Value – Discount – Issue Expenses

After Tax Cost of Debt

- In the computation of income tax, interest is allowed as a deduction. Hence, a firm saves tax on interest paid. As a result, after tax cost is lower than the before tax cost of

debt After Tax Cost of Debt = Interest – Tax Savings / Net Proceeds

Net Proceeds = Net Amount Realized

b) Cost of Redeemable Debt

- Redeemable debt refers to debt which is to be redeemed after the stipulated period.

Before Tax Cost of Redeemable Debt = Annual Cost Before Tax / Average Value of Debt

Annual Cost Before Tax

Interest Per Annum

Add: Issue Expenses, amortized p.a.

Add: Discount on issue, amortized p.a.

Add: Premium on Redemption, amortized p.a.

Less: Premium on Issue, amortized p.a.

Annual Cost Before Tax

- To calculate annual cost, the issue expenses, discount on issue, premium on redemption and premium on issue are amortized over (spread over) the tenure of the debt.

Average Value of Debt

- Average Value of Debt is the average of net proceeds (NP) and redemption value (RV) of debt
- AV = NP + RV / 2

After Tax Cost of Redeemable Debt

After Tax Cost of Debt = Annual Cost After Tax / Average Value of Debt

Annual Cost After Tax = Annual Cost Before Tax – Tax Savings

Average Value of Debt = NP + RV / 2

COST OF PREFERENCE SHARE CAPITAL

- A fixed rate of dividend is payable on preference shares. The dividend is payable at the discretion of directors. Yet, preference dividend is regularly paid by companies when they earn profit.

Cost of Irredeemable Preference Capital

- The cost of preference capital which is perpetual is calculated by the following formula:

Cost of Preference Capital = Annual Divided / Net Proceeds

Where,

Annual Dividend = Annual preference dividend payable

Net Proceeds = Net amount realized from the issue of preference shares

a) When preference shares are issued at par:

Net Proceeds = Face Value – Issue Expenses

b) When preference shares are issued at a Premium

Net Proceeds = Face Value +Premium – Issue Expenses

c) When preference shares are issued at a Discount

Net Proceeds = Face Value –Discount – Issue Expenses

- Preference dividend is not allowed as a deduction in the computation of income tax. Hence, before tax cost and after tax cost are the same

Cost of Redeemable Preference Share Capital

- Preference shares which are to be redeemed after the expiry of the stipulated period are known as redeemable preference shares

Cost of Redeemable Preference Shares = Annual Cost / Average Value of RPS

Annual Cost

Preference Dividend p.a

Add: Issue Expenses, amortized p.a.

Add: Discount on Issue, amortized p.a.

Add: Premium on Redemption, amortized p.a.

Less: Premium on Issue, amortized p.a.

Annual Cost

Average Value of RPS

- Average value is the average of net proceeds (NP) on the issue and the redemption value (RV)

Average Value = NP + RV / 2

Net Proceeds = Net amount realized from the issue of preference shares

a) When preference shares are issued at par:

Net Proceeds = Face Value – Issue Expenses

b) When preference shares are issued at a Premium

Net Proceeds = Face Value +Premium – Issue Expenses

c) When preference shares are issued at a Discount

Net Proceeds = Face Value –Discount – Issue Expenses

COST OF EQUITY CAPITAL

- It is not legally binding on a company to pay dividend on equity shares even if it earns profits. Further, the rate of equity dividend is not fixed while the rate of preference dividend and interest on debt are fixed. Hence, it is sometimes argued that the equity capital is cost free. This view is not correct. The share holders invest in equity shares with the expectation of receiving dividends. The market price of equity shares also depends on the return expected by shareholders.
- Therefore, the cost of equity capital is the minimum rate of return that must be earned to maintain the market price of the share unchanged.

Dividend Price Method (or) Dividend Yield Method

- According to this method, cost of equity capital is the discount rate at which the present value of expected future dividends per share is equal to the net proceeds (or current market price) per share

Cost of Equity Capital = D/NP (or) D/MP

Where,

D = Expected Dividend Per Share

NP = Net Proceeds Per Share (in case of new issue)

MP = Market Price Per Share (in case of existing shares)

Net Proceeds

- When a company issues new shares it incurs floatation cost such as fees to investment bankers, brokerage, underwriting commission and commission to agents. So, the net proceeds per share is considered to calculate the cost equity capital
- In the case of existing equity shares, market price is considered
- The dividend /price method recognizes the importance of dividends. But it ignores retained earnings which have an impact on the market price. The D/P method also ignores growth in

dividends, capital gains and future earnings. The method is suitable only when the company has stable earnings and a stable dividend policy over a reasonable length of time.

Dividend Price + Growth Method

- Under this method, cost of equity capital is determined on the basis of dividend yield and the growth rate in dividends
- Cost of Equity Capital = D/NP + g (or) D/MP+ g

Where,

D = Expected Dividend Per Share

NP = Net Proceeds Per Share (in case of new issue)

MP = Market Price Per Share (in case of existing shares)

G = Growth rate in dividends

- The D/P + g method recognizes the importance of dividends as well the growth in dividends. But, the method assumes that dividends grow at a constant rate. In reality, it is not true

Earnings Price Method

- Earnings price method is also called earnings model. It considers earnings as more appropriate than dividends in computing the cost of equity capital. The cost of equity is the rate at which total present value of expected future EPS is equal to the market price per share.
- Cost of Equity Capital = EPS/NP (or) EPS/MP

Where,

EPS = EarningsPer Share

NP = Net Proceeds Per Share (in case of new issue)

MP = Market Price Per Share (in case of existing shares)

- The E/P Method takes into account the retained earnings. But it is criticized on the ground that the E/P ratio does not reflect the expectations of shareholders.

- Earnings Model is suitable when
- The EPS is expected to remain constant
- The pay out is 100 per cent (all the profits are distributed as dividends)
- The firm does not employ any debt

COST OF RETAINED EARNINGS

- All the profits earned by a company are not distributed as dividends to shareholders. Generally, companies retain a portion of the earnings for use in business. This is called as retained earnings.
- The company does not have to pay any dividend on the retained earnings. Hence, it is sometimes argued that retained earnings do not have any cost. This view is not correct. If the amount retained by the company had been distributed to the shareholders, they would have invested the amount elsewhere and earned some return. As the earnings have been retained by the company the shareholders have foregone the return. Therefore, retained earnings do have a cost. The cost of retained earnings is the return foregone by the shareholders. It is thus, the opportunity cost of dividend foregone by the shareholders.
- It is to be noted that the shareholders cannot invest the entire dividend income. They have to pay income tax on dividends. Further, they have to pay brokerage for the purchase of securities. Therefore, adjustments are made for tax and brokerage in the computation of cost of retained earnings.

Cost of Retained Earnings may be ascertained as follows:

a) Cost of Equity Capital (Ke)
b) Less: Tax on Cost of Equity
c) Less: Brokerage (% on a-b)

Cost of Retained Earnings (Kr)

Weighted Average Cost of Capital

- Weighted Average Cost of Capital is very important in financial decision making. WACC is the weighted average of the costs of different sources of finance. It is also known as composite cost of capital or overall cost of capital

Steps for the calculation of WACC

- After tax cost is relevant in financial decision making. Therefore, the after tax cost of each of the source (x) of finance is ascertained
- The proportion of each of the source in the total capital (w) is determined. The proportions are used as weights for finding out WACC
- The cost of each source (x) is multiplied by the appropriate weight (x) X (w)
- The total of the weighted cost of each source is the weighted average cost of capital

Book Value Weights Vs Market Value Weights

- In order to calculate the WACC, the proportion of each source of finance in the total capital is used as weights. To determine the weights, book value or market value may be used. Theoretically, market value weights are superior as they reflect the expectations of investors. But in practice, book value weights are widely used. The reasons are:
  - Book values are readily available
  - It is difficult to use market values because of their fluctuations
  - Firms use only book values in designing their capital structure
  - Equity share capital gets more importance if market values are used.

CAPITAL BUDGETING

- Capital budgeting is concerned with designing and carrying through a systematic investment program. This is planning of such expenditures whose benefits accrue for more than one year. Under it proposed capital expenditure and their financing are considered and plans are formulated for the best investment of available resources.

Definition

- Capital Budgeting is long-term planning for making and financing proposed outlays – Charles T. Horngren
- Capital Budgeting involves the planning of expenditures for assets the returns from which will be realized in future time periods – Milton H. Spencer

- Capital Budgeting consists in planning the development of available capital for the purpose of maximizing the long-term profitability (return on investment) of the firm

SIGNIFICANCE OF CAPITAL BUDGETING

- Capital Budgeting is helpful for taking proper decision on Capital Expenditure
- It facilitates proper adjustment of production facilities with the sales budget
- It provides the basis for long-term financial planning
- It avoids over-investment and under-investment in fixed assets
- It indicates proper timings for purchase of fixed assets
- It provides a sound policy for depreciation and replacement of fixed assets
- It serves as a means of controlling capital expenditure
- It furnishes essential information for cash budgeting. Without a capital budget, the cash budget will become a futile (useless) exercise
- A well-established capital budget would enable the management to decide in advance the finances required and ensure their availability at the right time

REDEEMABLE DEBT

Issued at Par and Redeemable at Par

A firm issue debentures of Rs. 100000 and realizes Rs. 98000 after allowing 2% commission to brokers. The debentures carry an interest rate of 10%. The debentures are due for maturity at the end of the 10^{th} year. Calculate the effective cost of debt before tax.

Before tax Cost of Debt = Annual Cost Before Tax / Average Value of Debt X 100

Annual Cost Before Tax

Interest at 10% on 100000	10000
Add: Commission p.a. 2% on 100000= 2000 / 10	200
Annual Cost Before Tax	10200

Average Value of Debt

Issue Price	100000
Less: Commission	2000
Net Proceeds (NP)	98000

Redemption Value = 100000

Average Value = NP + RV / 2 = 98000 + 100000 / 2 = 99000

Before Tax Cost of Debt = 10200 / 99000 X 100 = 10.30%

Issued at a Premium and Redeemable at Par

Venus Ltd. issued 10000 9% debentures of Rs. 100 each at a premium of 5%. The maturity period is 5 years and the tax rate is 50%. Compute the cost of debentures to the company if the debentures are redeemable at par.

Annual Cost Before Tax

Interest p.a. 9% on 1000000	90000

Less: Premium Received on Issue (5% on 1000000= 50000/5)	10000
Annual Cost Before Tax	80000
Less: Tax Savings at 50%	40000
Annual Cost After Tax	40000

Average Value of Debt

Net Proceeds (1000000 + 50000) = 1050000

Redemption Value = 1000000

Average Value = 1050000 + 1000000 / 2 = 1025000

Before Tax Cost of Debt = 80000 / 1025000 X 100 = 7.80%

After Tax Cost of Debt = 40000 / 1025000 X 100 = 3.90%

Issued at Discount and Redeemable at Par

Sunrise Ltd. issues Rs. 5000000 12% redeemable debentures at a discount of 10%. The flotation costs are 4% and the debentures are redeemable after five years. Calculate before and after tax cost of debt assuming a tax rate of 40%.

Annual Cost Before Tax

Interest 12% p.a. on 5000000	600000
Add: Discount p.a. (10% on Rs. 5000000) = 500000 / 5	100000
Add: Flotation Cost p.a. (4% on 4500000) = 180000 / 5	36000
Annual Cost Before Tax	736000

Less: Tax Savings 40%	294400
Annual Cost After Tax	441600

Average Value of Debt

Face Value of Debentures	5000000
Less: Discount at 10%	500000
Issue Price	4500000
Less: Floatation Cost 4% on 4500000	180000
Net Proceeds	4320000

Redemption Value = 5000000

Average Value = 4320000 + 5000000 / 2 = 4660000

Before Tax Cost of Debt = 736000 / 4660000 X 100 = 15.79%

After Tax Cost of Debt = 441600/ 4660000 X 100 = 9.48%

Issued at Par and Redeemable at Premium

A Company issues 10% debentures at par for a total value of Rs. 1000000. The debentures are redeemable after 10 years at a premium of 10%. If the tax rate is 40%, compute the cost of debentures to the company (a) before tax and (b) after tax.

Annual Cost Before Tax

Interest p.a. 10% on 1000000	100000
Add: Premium on Redemption 10% on 1000000 = 100000 / 10	10000
Annual Cost Before Tax	110000

Less: Tax Savings 40%	44000
Annual Cost After Tax	66000

Average Value of Debt

Face Value of Debentures	=	1000000	
Redemption Value of Debentures	=	1100000	
Average Value	=	1000000 + 1100000 / 2	= 1050000
Before Tax Cost of Debt	=	110000 / 1050000 X 100	= 10.47%
After Tax Cost of Debt	=	66000 / 1050000 X 100	= 6.28%

Issued at a Discount and Redeemable at a Premium

A Company issues Rs. 1000000, 13% debentures at a discount of 5%. The debentures are redeemable after 5 years at a premium of 5%. Calculate before tax and after tax cost of debt, if the tax rate is 50%

Annual Cost Before Tax

Interest p.a. 13% on 1000000	130000
Add: Discount p.a.(5% on 1000000) = 50000/5	10000
Add: Premium on Redemption p.a. (50000 /5)	10000
Annual Cost Before Tax	150000
Less: Tax Savings 50%	75000
Annual Cost After Tax	75000

Average Value of Debt

Face Value of Debentures	1000000
Less: Discount at 5%	50000
Net Proceeds	950000

Redemption Value = 1050000

Average Value = 950000 + 1050000/ 2 = 1000000

Before Tax Cost of Debt = 150000 / 1000000 X 100 = 15.00%

After Tax Cost of Debt = 75000/ 1000000sX 100 = 7.5%

Issued at Discount and Redeemable at Premium

A five year Rs. 100 debentures can be sold for a net price of Rs. 97.50. The coupon rate of interest is 14% p.a. and the debenture will be redeemed at 5% premium. The tax rate is 50%. Compute the after tax cost of debenture

Annual Cost Before Tax

Interest p.a.	12.50
Add: Discount p.a	0.50
Add: Premium on Redemption p.a.	1
Annual Cost Before Tax	15.50
Less: Tax Savings 50%	7.75
Annual Cost After Tax	7.75

Average Value of Debt

Net Proceeds = 97.50

Redemption Value	=	105	
Average Value	=	97.50 + 105/ 2 = 101.25	
Before Tax Cost of Debt	=	15.50/ 101.25 X 100	= 15.30%
After Tax Cost of Debt	=	7.75 / 101.25 X 100	= 7.65%

A Company issues 10000 bonds of Rs. 100 each at 14% p.a. Marketing costs are Rs. 20000. The bonds are to be redeemed after 10 years and the company is taxed at the rate of 40%.

Compute the cost of debt if the bonds are issued (a) at Par (b) at a discount of 5% and (c) at a premium of 5%

a) Bonds issued at par

Before tax cost of debt = Annual Cost Before Tax / Average Value of Debt

After Tax Cost of Debt = Annual Cost After Tax / Average Value of Debt

Annual Cost Before Tax

Interest at 14% on 1000000	140000
Add: Marketing Costs p.a. (20000 / 10 Years)	2000
Annual Cost Before Tax	10200
Less: Tax 40%	56800
Annual Cost After Tax	85200

Average Value of Debt

Face Value of Bonds Rs. 100 X 10000	1000000
Less: Marketing Costs	20000
Net Proceeds	980000
Redemption Value	1000000

Average Value = Net Proceeds + Redemption Value / 2

= 980000 + 1000000 / 2

= 990000

Before Tax Cost of Debt = 142000 / 990000 X 100 = 14.40%

After Tax Cost of Debt = 85200 / 990000 X 100 = 8.60%

b) Bond Issued at a Discount of 5%

Annual Cost Before Tax

Interest at 14% on 1000000	140000
Add: Marketing Costs p.a. (20000 / 10 Years)	2000
Add: Discount p.a. 50000 / 10 Years	5000
Annual Cost Before Tax	147000
Less: Tax at 40%	58800
Annual Cost After Tax	88200

Average Value of Debt

Face Value of Bonds Rs. 100 X 10000	1000000

Less: Marketing Costs	20000
Less: Discount 5%	50000
Net Proceeds	930000
Redemption Value	1000000

Average Value = Net Proceeds + Redemption Value / 2

= 930000 + 1000000 / 2

= 965000

Before Tax Cost of Debt = 147000 / 965000 X 100 = 15.20%

After Tax Cost of Debt = 88200 / 965000 X 100 = 9.10%

c) Bonds Issued at a Premium of 5%

Interest at 14% on 1000000	140000
Add: Marketing Costs p.a. (20000 / 10 Years)	2000
	142000
Premium received on issue 5%= 50000 / 10 Years	5000
Annual Cost Before Tax	137000
Less: Tax 40%	54800
Annual Cost After Tax	82200

Average Value of Debt

Face Value of Bonds Rs. 100 X 10000	1000000
Add: Premium on Issue 5%	50000
	1050000
Less: Marketing Costs	20000
Net Proceeds	1030000
Redemption Value	1000000

Average Value = Net Proceeds + Redemption Value / 2

= 1030000 + 1000000 / 2

= 1015000

Before Tax Cost of Debt = 137000 / 1015000X 100 = 13.49%

After Tax Cost of Debt = 82200 / 1015000 X 100 = 8.09%

COST OF REDEEMABLE PREFERENCE CAPITAL

A company issues 20000 10% shares of Rs. 10 each. The issue expenses were Rs. 2 per share. Calculate the cost of preference share capital if the shares are issued at (a) Par (b) at a premium of 10% and (c) at a discount 5%

Cost of Redeemable Preference Share Capital = Annual Dividend / Net Proceeds

Annual Dividend

Face Value of Preference Share Capital 100 X 20000	2000000
Annual Dividend at 10%	200000

a) Shares issued at Par

Face Value of Preference Share Capital 100 X 20000	2000000
Less: Issue Expenses Rs. 2 X 20000	40000
Net Proceeds	1960000

Cost of Preference Capital = 200000 / 1960000 X 100 = 10.20%

b) Shares Issued at a Premium of 10%

Face Value of Preference Share Capital 100 X 20000	2000000
Add: Premium 10%	200000
	2200000
Less: Issue Expenses	40000
Net Proceeds (NP)	2160000

Cost of Preference Capital = 200000 / 2160000 X 100 = 9.26%

c) Shares Issued at a Discount of 5%

Face Value of Preference Share Capital 100 X 20000	2000000

Less: Discount on Issue 5%	100000
Less: Issue Expenses	40000
Net Proceeds (NP)	1860000

Cost of Preference Capital = 200000 / 1860000 X 100 = 10.75%

COST OF REDEEMABLE PREFERENCE SHARE CAPITAL

Issued at Par , Redeemable at a Premium

A Ltd, issues 10000 9% preference shares of Rs. 100 each. The shares are redeemable after 10 years at a premium of 5%. Flotation Costs are 2%. Calculate the effective of redeemable preference share capital.

Cost of Redeemable Preference Shares (RPS) = Annual Cost / Average Value of Preference Capital

Annual Cost

Face Value 100 X 10000	1000000
Preference Dividend 9% on 1000000	90000
Add: Flotation Cost 2% on 1000000 = 20000 / 10	2000
Add: Premium on Redemption 5% of 1000000 = 50000 / 10	5000
Annual Cost	**97000**

Average Value

Issue Price	1000000
Less: Flotation Cost	20000
Net Proceeds	**980000**
Face Value	1000000
Add: Premium on Redemption	50000
Redemption Value (RV)	**1050000**

Average Value = Net Proceeds + Redemption Value / 2

= 980000 + 1050000 / 2

= 1015000

Cost of Redeemable Preference Capital = 97000 / 1015000 X 100 = 9.56%

Issued at a Premium, Redeemable at Par

Jayant Ltd. issued 5000 10% preference shares of Rs. 100 each at a premium of 10%. The shares are redeemable after 10 years. Flotation costs are 4%. Calculate the effective cost of redeemable preference capital.

Cost of Redeemable Preference Capital = Annual Cost / Average Value of Preference Capital

Annual Cost

Preference Dividend 10% on 500000	50000
Add: Floatation Cost 4% on 550000 = 22000 / 10 Years	2200
	52200
Less: Premium p.a. 50000 / 10 Years	50000
Annual Cost	**47200**

Average Value

Face Value Rs. 100 X 5000	500000
Add: Premium on Issue 10%	50000
Issue Price	550000
Less: Floatation Costs	22000
Net Proceeds (NP)	528000
Redemption Value	500000

Average Value = Net Proceeds + Redemption Value / 2

= 528000 + 500000 / 2

= 514000

Cost of Redeemable Preference Capital = 47200 / 514000 X 100 = 9.18%

Issued at a Discount, Redeemable at Par

B Ltd., issues 10000 10% preference shares of Rs. 100 each at a discount of 5%. The shares are redeemable after ten years and the issue expenses are 4%. Calculate the effective cost of redeemable preference share capital.

Cost of Redeemable Preference Capital (RPS) = Annual Cost / Average Value of Preference Capital

Annual Cost

Preference Dividend 10% on 1000000	100000
Add: Discount p.a. 50000 / 10 Years	5000
Add: Issue Expenses p.a. 38000 / 10 Years	3800
Annual Cost	**108800**

Average Value

Face Value Rs. 100 X 10000	1000000
Less: Discount on issue 5%	50000
Issue Amount	950000
Less: Issue Expenses 4%	38000
Net Proceed (NP)	912000
Redemption Value (RV)	**1000000**

Average Value = Net Proceeds + Redemption Value / 2

= 912000 + 1000000 / 2

= 956000

Cost of RPS = 108800 / 956000 X 100 = 11.38%

Alpha Ltd., issued 10% redeemable preference shares (RPS) of Rs. 100 each, redeemable after 10 years. The floatation costs were 5% of the nominal value. Compute the effective cost to the company if the issue is made at (a) Par (b) a premium of 5% (c) at a discount of 5%

Cost of Redeemable Preference Capital (RPS) = Annual Cost / Average Value of RPS

a) Shares Issued at Par

Face Value	100
Annual Cost	
Preference Dividend p.a. at 10%	10.00
Add: Floatation Cost p.a.= Rs. 5 / 10 Years	0.50
Annual Cost	10.50

Average Value

Issue Price	100
Less: Floatation Cost 5%	5
Net Proceeds (NP)	95
Redemption Value	100

Average Value = Net Proceeds + Redemption Value / 2

= 95 + 100 / 2

= 97.50

Cost of RPS = 10.50 / 97.50 X 100 = 10.77%

b) Shares Issued at a Premium of 5%

Annual Cost	
Preference Dividend p.a. at 10%	10.00
Add: Floatation Cost p.a.= Rs. 5/10 Years	0.50
	10.50
Less: Premium p.a. 5 / 10 Years	0.50
Annual Cost	**10.00**

Average Value

Issue Price 100 + 5% Premium	105
Less: Floatation Costs	5
Net Proceeds (NP)	100
Redemption Value (RV)	100

Average Value = Net Proceeds + Redemption Value / 2

= 100 + 100 / 2

= 100

Cost of RPS = 10 / 100 X 100 = 10%

c) Shares issued at a discount of 5%

Annual Cost	

Preference Dividend p.a. at 10%	10.00
Add: Discount on issue p.a. Rs.5/ 10 Years	0.50
Add: Floatation Cost p.a. Rs. 5 / 10 Years	0.50
Annual Cost	**11.00**

Average Value	
Issue Price Rs. 100 – 5% Discount	95
Less: Floatation Cost	5
Net Proceeds (NP)	90
Redemption Value (RV)	100

Average Value = Net Proceeds + Redemption Value / 2

= 90 + 100 / 2

= 95

Cost of RPS = 11 / 95 X 100 = 11.57%

COST OF EQUITY SHARE CAPITAL

Dividend Yield Method (or) Dividend Price Method

A company issues one crore equity shares of Rs. 100 each at a premium of 10%. The company has been consistently paying a dividend of 18 per cent for the past five years. It is expected to maintain the dividend in future also.

a) Compute the cost of equity capital

b) What will be the cost of equity capital if the market price of the share is Rs. 200?

Cost of Equity = Dividend / Net Proceeds

Expected Dividend Per Shares = 18% on Rs. 100 = 18

Net Proceeds = Net Proceeds Per Share = Rs. 100 + Premium 10 = 110

Cost of Equity Capial = 18 / 110 = 16.36%

b) If the market price is Rs. 200

Cost of Equity Capital = Dividend / Market Price

D = Expected Dividend = 18

Market Price = 200

Cost of Equity Capital = 18 /200 X 100 = 9%

Anand Ltd. offers for public subscription equity shares of Rs. 10 each at a premium of 10%. The company pays an underwriting commission of 5% on the issue price. The equity shareholders expect a dividend of 15%.

a) Calculate the cost of equity capital

b) Calculate the cost of equity capital, if the market price of the shares is Rs. 20

Cost of Equity Capital

Cost of Equity = D1/NP

Expected Dividend Per Share = 15/100 X 10	1.50
Net Proceeds	
Issue Price = Face Value + Premium 10% (10+1)	11.00
Less: Underwriting Commission 5%	0.55

Net Proceeds Per Share	10.45

Cost of Equity Capital = 1.50/10.45 X 100 = 14.35%

b) If the Market Price is Rs. 20

Cost of Equity Capital = D1/MP

Expected Dividend Per Share	1.50
Market Price Per Share	20

Cost of Equity Capital = 1.50/ 20 X 100 = 7.50%

Ajit is a Shareholder in India Polyester Ltd., The earnings of the company have varied considerably. Ajit feels that the long run average dividend would be Rs. 3 per share. He expects that the same pattern would continue in future. Ajit expects a minimum rate of earning of 15%.

Cost of Equity = D/MP

Market Price Per Share = D1 / K_e

Expected Dividend = Rs. 3

Cost of Equity Capital = 15%

Market Price = 3 / 0.15 = Rs.20

DIVIDEND YIELD + GROWTH METHOD

The market price of an equity shares of G Ltd., is Rs. 80. The dividend expected a year hence is Rs.1.60 per share. The shareholders anticipate a growth of 7% in dividends. Calculate the cost of equity capital.

Cost of Equity = D1/MP + g

Expected Dividend per share = Rs. 1.60

Market price per share = Rs. 80

Growth Rate in dividend = 7%

Cost of Equity Capital = 1.60 / 80 X 7%

= 0.2 + 0.7= 9%

The Current market price of a company's share is Rs. 100. The company plans to issue new shares to raise one crore rupees. The net proceeds per share will be the market price less the floatation cost which is 5% of the share price.

If the company plans to pay dividend of Rs.4.75 and the growth in dividend is expected to be 8%, calculate the cost of new issue of equity shares.

Cost of Equity capital = D1 / NP + g

Expected Dividend = 4.75

Net Proceeds

Issue Price = 100

Less: Floatation Costs 5% = 5

Net Proceeds = 95

Growth Rate in Dividend = 8%

Cost of Equity Capital = 4.75 / 95 + 8%

= 0.05 + 0.08 = 13%

A Company's share is quoted in the market at Rs. 40 and the expected dividend for the next year is Rs. 2 per share. Thereafter, the investors expect a growth rate of 5% p.a.

a) Calculate the cost of equity capital

b) Calculate the market price per share if the expected growth rate is 6% p.a.

c) Calculate the market price per share if the dividend of Rs. 2 is maintained, the cost of equity is 9% and the expected growth in dividends is 6% p.a.

a) Cost of Equity Capital

K_e = D/MP +g

Expected Dividend Rs. 2; Market Price = Rs. 40; Growth Rate = 5%

Cost of Equity Capital = 2 / 40 + 5%

= 0.05 + 0.05 = 10%

b) Market Price, if growth rate is 6%

K_e = D/MP +g

10% = 2/MP + 6%

10% - 6% = 2/MP

4% = 2/MP

MP = 2 / 0.04

MP = Rs. 50

c) Market Price, if growth rate is 6% and K_e is

9% K_e = D/MP +g

9% = 2/MP + 6%

9%-6%= 2/MP

3% = 2/MP

MP =2/0.03

MP = Rs.66.67

The Shares of a company are selling at Rs.50 per share and it had paid a dividend of Rs. 5 per share last year. The investors expect a growth rate of 5% per year.

a) Compute the company's cost of equity capital

b) If the anticipated growth in dividends is 7% p.a., calculate the indicated market price per share

a) Cost of Equity Capital

Ke= D/MP + g

Expected Dividend : Last Year's Dividend	5.00
Add: Growth at 5%	0.25
Current Year Dividend	5.25

Market Price = Rs. 50; Growth Rate = 5%

Cost of Equity Capital = 5.25 / 50 +5 %

= 0.105 + 0.05 = 15.50%

b) Market Price, if growth rate is 7%

Cost of Equity Capital Ke = D / MP + g

Expected Dividend : Last Year's Dividend	5.00
Add: Growth at 5%	0.35
Current Year Dividend	5.35

15.5% = 5.35 / MP + 7%

15.5% - 7% = 5.35 / MP

8.5% = 5.35/ MP

MP = 5.35 / 0.085 = Rs. 62.94

The Shares of a Steel Company are quoted at Rs. 42 per share. The firm had paid a dividend of Rs. 4 per share last year. The expected growth in dividends is 5% p.a.

i) Determine the cost of equity capital of the company

ii) Determine the market price of the equity share, if the anticipated growth rate of the firm. (a) rise to 8% and (b) falls to 3%

Cost of Equity Capital

Ke = D/ MP + g

Expected Dividend : Last Year's Dividend	4.00
Add: Growth at 5%	0.20
Current Year Dividend	4.20

Market Price = Rs. 42; Growth Rate = 5%

Cost of Equity Capital = 4.20 / 42 + 5%

= 0.10 + 0.05 = 15%

ii) a) Market Price, if the growth rate is 8%

Ke = D/ MP + g

Expected Dividend : Last Year's Dividend	4.00
Add: Growth at 8%	0.32
Current Year Dividend	4.32

Ke = D/MP + g

15% = 4.32/MP + 8%

15%-8% = 4.32/MP

7% = 4.32/MP

MP = 4.32/0.07

MP = Rs. 61.71

b) Market Price, if the growth rate is 3%

Ke = D/ MP + g

Expected Dividend : Last Year's Dividend	4.00
Add: Growth at 3%	0.12
Current Year Dividend	4.12

Ke = D/MP + g

15% = 4.12/MP + 3%

15%-3% = 4.12/MP

12% = 4.12/MP

MP = 4.12/0.12

MP = Rs. 34.33

A Ltd., is a mining company. Its iron ore reserves are being depleted and cost of recovering iron ore is increasing each year. As a result, the company's earnings and dividends are declining at the rate of 8% p.a. The previous year's dividend (D) was Rs. 10 and the required rate of return is 15%. What would be the market price of the equity share of A Ltd?

i) Cost of Equity Capital = D / MP + g

Cost of Equity Capital = 15%; Growth Rate = -8%

Expected Dividend : Last Year's Dividend	10.00
Less: Declined at 8%	0.80

Current Year Dividend	9.20

Ke = D/MP + g

15% = 9.20/MP + (-8%)

15%+8% = 9.20/MP

23% = 9.20/MP

MP = 9.20/0.23

MP = Rs. 40

EARNINGS PRICE METHOD

Blue Star Ltd. is a dynamic growth firm. It pays no dividends and anticipates a long-run future earnings of Rs. 7 per share. The current market price of the company's shares is Rs. 55.45. Floatation cost for the issue of equity shares would be about 10% of the share price. What is the cost of new equity capital to Blue Star?

Cost of Equity Capital = EPS / NP

Earnings Per Share = Rs. 7

Net Proceeds = Issue Price – Floatation Costs

= 55.45 – 10%

= 55.45 – 5.55

= 49.90

Cost of Equity Capital = 7 / 49.90

= 14.02%

The entire capital of J Ltd. consists of five lakh shares of Rs. 100 each. The profit after tax of the current year is Rs. 50 lakhs. The company wants to raise Rs. 2 crore by issuing new shares. The floatation costs are expected to be 10% of the face value of the shares. Calculate the cost of

equity capital assuming that the earnings of the company are expected to be stable over the next five years.

Cost of Equity Capital = EPS / NP

Earnings Per Share = Profit After Tax / No. of Shares

= 5000000 / 500000

= Rs. 10

Net Proceeds = Issue Price – Floatation Costs

= 100 – 10 = 90

Cost of Equity = 10 / 90 = 11%

Vijay Ltd. wants to raise Rs. 50 lakhs by the issue of new equity shares. The relevant information is given below:

No. of Existing Equity Shares	10 lakhs
Profit after tax	Rs. 60 lakhs
Market value of existing shares	Rs. 400 lakhs

a) Compute the cost of existing equity capital

b) Compute the cost of new capital if the shares are issued at a price of Rs. 32 per share and the issue expenses are Rs. 2 per share

a) Cost of Equity Capital = EPS / MP

EPS = Profit after tax /No. of Equity Shares

= 6000000 / 100000 = Rs. 6

MP = Market Value / No. of Shares

= 40000000 / 1000000 = Rs. 40

Cost of Equity Capital = 6 / 40

= 15%

b) Cost of New Equity Capital = EPS /NP

Net Proceeds per share = Issue Price – Expenses

= Rs. 32 – Rs.2 = 30

Cost of New Capital = 6/30 = 20%

COST OF RETAINED EARNINGS

A Company's Cost of Equity Capital is 15%. The average tax rate of shareholder's is 40% and the brokerage cost for purchase of securities is 2%. Calculate the cost of retained earnings.

	%
Cost of Equity Capital	15.00
Less: Tax at 40% on 15	6.00
	9.00
Less: Brokerage at 2% on 8	0.18
Cost of Retained Earnings	8.82

.

The following particulars relate to Prakash Ltd.,

	RS.
Equity Share Capital 100000 shares of Rs. 10 each	1000000
Profit After Tax	900000
Current Market Price of Equity Shares	75

a) Calculate the Cost of Equity .

b) What is the cost of retained earnings if the average personal tax rate of shareholders is 30% and the brokerage cost for making new investments is 2%

Cost of Equity Capital = EPS/MP

EPS = Profit after tax / No. of Equity Shares

= 9000000/1000000

= Rs. 9.

Market Price = Rs.75

Cost of Equity Capital = 9/75 =12%

b) Cost of Retained Earnings

	%
Cost of Equity Capital	12.00
Less: Tax at 30% on 12	3.60
	8.40
Less: Brokerage at 2% on 8.40	0.17
Cost of Retained Earnings	8.23

Ajanta Ltd., is earning a profit of Rs. 100000 p.a. The shareholder's required rate of return is 10%. It is expected that if the earnings are distributed to the shareholders, after paying taxes on dividends, they will invest the proceeds in the shares of similar firms and earn a 10% return. It is also estimated that the brokerage cost will be 2% of the investments. What rate of return should be earned by the firm if the earnings are retained? Assume that the shareholders are in 30% tax bracket.

	Rs.
Profit available for distribution	100000
Less: Income tax payable by shareholders @30%	30000

	70000
Less: Brokerage on new investments @ 2%	1400
Net amount available for investment	68600

Expected return on investment 10% on 68600 = 6860

Rate of return to be earned by the firm on retained earnings = 6860/100000 = 6.86%

WEIGHTED AVERAGE COST OF CAPITAL

The capital structure and after tax cost of different sources of funds are given below:

Sources of Funds	Amount (Rs.)	Proportion to Total	After Tax Cost %
Equity Share Capital	720000	.30	15
Retained Earnings	600000	.25	14
Preference Share Capital	480000	.20	10
Debentures	600000	.25	8

You are required to compute the weighted average cost of capital.

Sources of Funds	**Proportion to Total (w)**	**After Tax Cost % (x)**	**Weighted Cost % (w) X (x)**
Equity Share Capital	.30	15	4.5
Retained Earnings	.25	14	3.5
Preference Share Capital	.20	10	2.0
Debentures	.25	8	2.0
Weighted Average Cost of Capital (WACC)			12.00

A firm finances all its investments by 60% equity and 40% debt. The estimated return on equity is 18% after taxes. Cost of debt is 8% after taxes. The firm is considering an investment proposal costing Rs. 400000 with an expected return that will continue for ever. What amount (in rupees) must the proposal yield per year so that the market price of the share does not change?

Sources of Funds	Proportion to Total (w)	After Tax Cost % (x)	Weighted Cost % (w) X (x)
Equity Share Capital	.60	18	10.80
Debentures	.40	8	3.2
Weighted Average Cost of Capital (WACC)			14.00

The investment must earn 14%

Earnings Required in Rs. 14% on 400000 = Rs. 56000

From the following particulars, calculate the overall cost of capital using book value weights

Sources of Funds	Book Value (Rs.)	After Tax Cost (%)
Equity Share Capital	400000	14
Retained Earnings	200000	13
Preference Share Capital	100000	10
Debentures	300000	6

Sources of Funds	Amount (Rs.)	Proportion to Total (w)	After Tax Cost % (x)	Weighted Cost % (w) X (x)

ESC	400000	.40	14	5.6
RE	200000	.20	13	2.6
PS	100000	.10	10	1.0
Debt	300000	.30	6	1.8
Total	1000000	**WACC**		**11.0**

From the following particulars relating to the capital structure of Blue Ltd., calculate the overall cost of capital, using (a) book value weights and (b) Market value weights

Sources of Funds	**Book Value (Rs.)**	**Market Value (Rs.)**
Equity Share Capital	45000	90000
Retained Earnings	15000	-
Preference Share Capital	10000	10000
Debentures	30000	30000

The after-tax cost of different sources of finance is:

Equity Share Capital : 14% Retained Earnings : 13%

Preference Share Capital : 10% Debentures : 8%

a) Book Value

Sources of Funds	**Amount (Rs.)**	**Proportion to Total (w)**	**After Tax Cost % (x)**	**Weighted Cost % (w) X (x)**
ESC	45000	.45	14	6.30
RE	15000	.15	13	1.95
PS	10000	.10	10	1.00
Debt	30000	.30	8	2.40

Total	100000	**WACC**	**11.65**

b) Market Value

Sources of Funds	Amount (Rs.)	Proportion to Total (w)	After Tax Cost % (x)	Weighted Cost % (w) X (x)
ESC	90000	.692	14	9.69
PS	10000	.077	10	0.77
Debt	30000	.231	8	1.85
Total	130000	**WACC**		**12.31**

Capital Budgeting

Pay Back Method

1. Firm is considering two projects X and y following particulars are available

	Project X	Project Y
Cost	1, 00,000	1, 00,000
Annual cash in flow	25,000	20,000
Economic life	10 years	10 year

Which project will you suggest under?

a) Pay back period

b) Post pay back profit

c) Post profitability index

Solution

a) Pay back period = Initial Investment\ Annual Cash Inflows

Project A =100000\2500=4 years

Project B=100000\2000= 5 years

Project A has shorter pay back period and hence it is suggested

Post pay back profit= annual cash inflow* life of the asset-payback period Project A =25000(10yeras-4 years)

=25000*6

= 150000

Project B =20000(10yeras-5 years)

= 2000*5

years =100000

b) Post pay back profit is higher in Project A than project B. Hence project A is suggested

Post pay back profit index =Post Pay Back Profit\Initial Investment*100

Project A =150000\100000*100 = 150%

Project B=100000\100000*100 = 100%

Discounted Pay Back Period

2. The following particulars relating to a project Cost of project -50500

Annual cash inflows:

Year	**Amount**	**P.V factor at 10%**
1 year	5000	0.909
2 year	20000	0.826
3 year	30000	0.751
4 year	30000	0.683

5 year 10000 0.621

Calculated discounted pay back period

Year	Annual cash inflows	P.V factor 10%	P.V of cash inflows	Cumulative discounted cash inflows
1	5000	0.909	4545	4545
2	20000	0.826	16520	21065
3	30000	0.751	22530	43595
4	30000	0.683	20490	64085
5	10000	0.621	6210	70295

Discounted pay back period = 3 years+50500-43595\20490*12

= 4 months

= 3 years and 4 months

Accounting Rate of Return

1. ARR= average annual profit\original investment *100
2. ARR= average annual profit\average investment *100

3. Investment data for a new product are as follows

Capital outlay 200000

Depreciation 20% on written down value basis

Forecasted annul income before charging depreciation but after all other charges are as follows

Year	Amount
1	100000
2	100000
3	80000
4	80000
5	40000
Total	**400000**

Calculate accounting rate of return

Year	Earnings before Depreciation	Depreciation @ 20 %	Earnings after Depreciation
1	100000	40000	60000
2	100000	32000	68000
3	80000	25600	54400
4	80000	20480	59520
5	4000	16384	23616
Total profits 5 years			**265536**

Average profits =265536\5

=53107

Accounting rate of return

=Rate of return on original investment = average annual profit\original investment *100

=53107\200000*100

=26.55%

Rate of return on average investment

= Average Annual Profit\Average Investment *100

=Investment in the beginning+ Investment at the end\2

= 200000\2

=10000

=53107/100000*100

=53.11%

Discounted Cash Flow Method

Discounted cash flow methods for evaluating capital investment proposals are three types

a) Net present value method
b) Excess present value method
c) Internal rate of return

4. Rock fort steel ltd whose cost of capital is 10% is considering investing in a project. The following particulars are available

Initial Investment	90000	
Cash inflows year 1		1000
Year 2		20000
Year 3		30000
Year 4		40000
Year 5		50000
Total		**150000**

a) Compute N.P.V
b) Profitability index
c) Internal rate of return

Year	**Cash inflows**	**P.V factor**	**P.V of cash**

		10%	**inflows**
1	10000	0.909	9090
2	20000	0.826	16520
3	30000	0.751	22530
4	40000	0.683	27320
5	50000	0.621	31050
Total present value of cash inflows			**106510**
Less initial investment			**90000**
Net present value			**16510**

b). profitability index = Total present value of cash inflows\ Total present value of cash outflows*100

=106510/90000*100

=118.34%

c).Internal rate of return

P.V. Factor= Initial investment\average cash inflow*100 =15000\5 years

=30000

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LEVERAGE

The term leverage refers to a relationship between two interrelated variables. With reference to a business firm, these variables may be costs, output, sales, revenue, EBIT, Earning per share etc. In financial analysis, the leverage reflects the responsiveness or influence of one variable over some other financial variables. It helps in understanding the relationship between any two variables. In he leverage analysis, the emphasis is on the measurement of the relationship of two variables rather than on measuring these variables.

The leverage may be defined as the % change in one variable divided by the % change in some other variable. Impliedly, the numerator is the dependent variable say X and the Y is the independent variable. The leverage analysis reflects as to how responsiveness is the dependent variable to a change in the independent variable.

Algebraically,

$$\textbf{Leverage} = \frac{\textbf{\% Change in the dependent variable}}{\textbf{\% Change in Independent variable}}$$

Illustration 1: A firm increased its sales promotion expenses from Rs 5,000 to Rs. 6,000 i.e. an increase of 20%. This resulted in the increase in no. Of unit sold from 200 to 300 i.e. an increase of 50%. The leverage may be defined as

$$\text{Leverage} = \frac{\text{\% Change in the dependent variable}}{\text{\% Change in Independent variable}}$$

$$= \frac{.50}{.20}$$

= 2.5

This means that % increase in number of unit sold is 2.5 times that of % increase in sales promotion expenses. The operating profit of a firm is a direct consequence of the sales revenue of the firm and in turn operating profit determines the profit available to the equity shareholders. The functional relationship between the sales revenue and the EPS can be established through operating profit (EBIT) as follow:

Sales Revenue	EBIT
-Variable costs	**- Interest**
Contribution	**Profit before tax**
-Fixed Costs	**- Tax**
EBIT	**Profit after Tax (EPS)**

The left hand side sows that the level of EBIT depends upon the level of sales revenue and the right hand side shoes that the level of profit after tax or EPS depends upon the level of EBIT. The relationship between Sales revenue and EBIT is defined as operating leverage and the relationship between EBIT and EPS is defined as financial leverage. The direct relationship between sales revenue and EPS can also be established by combining the operating leverage and financial leverage and is defined as the Composite leverage.

Operating Leverage

When the sale increases or decreases, the EBIT also changes. The operating leverage measures

the relationship between the sales revenue and the EBIT or in other words, it measures the effect of change in sales revenue on the level of EBIT. The operating leverage is calculated by:-

$$\text{Operating Leverage} = \frac{\text{\% Change in EBIT}}{\textbf{\% Change in Sales Revenue}}$$

Illustration 2. ABC ltd. Sells 1000 unit @ Rs. 10 per unit. The cost of production is Rs. 7 per unit and is of variable nature. The profit of the firm is 1000 x (Rs 10 – 7) = 3000. Suppose the firm is able to increase the sales level by 40% resulting in total sales of 1400 unit. The profit of the firm would now be 1400 x (Rs10 – Rs7) = Rs 4200. The operating leverage of the firm is

$$\text{Operating Leverage} = \frac{\text{\% Change in EBIT}}{\text{\% Change in Sales Revenue}}$$

$$= \frac{\text{Increase in EBIT / EBIT}}{\text{Increase in Sales / Sales}}$$

$$= \frac{\text{Rs.1200 / Rs 3000}}{\text{Rs. 4000 / Rs.10, 000}}$$

$$= 1$$

The operating leverage of 1 denotes that the EBIT level increase or decreases in direct proportion to the increase or decrease in sales level. This is due to the fact that there is not any fixed cost and total cost is variable in nature. Thus, impliedly, the profit level i.e. the EBIT varies in direct proportion to the sales level. So EBIT varies in direct proportion to sales level.

Illustration 3. Suppose the firm has a fixed cost of Rs. 1000 in addition to the variable costs of Rs 7 per unit.

	Present	Expected
Sales @ Rs. 10 per unit	10,000	14,000
- Variable cists @ Rs. 7 per unit	7000	9800
Contribution	3000	4200

- Fixed Cost	1000	1000
EBIT	2000	3200

Operating Leverage = $\frac{\text{\% Change in EBIT}}{\text{\% Change in Sales Revenue}}$

= $\frac{\text{Increase in EBIT / EBIT}}{\text{Increase in Sales / Sales}}$

= $\frac{\text{Rs.1200 / Rs 2000}}{\text{Rs. 4000 / Rs.10, 000}}$

= 1.5

The OL of 1.5 means that the % increase in the level of EBIT is 1.5 times that of % increase in sales level. In this case, the % increase in EBIT is 60% and % increase in sales is 40%. It means that for every increase of 1% in sales level, the % increase in EBIT would be 1.5%. The above figures of 1 time and 1.5 times are known as degree of operating leverage. Whenever the % change in EBIT resulting from given % change in sales is greater then % change in sales, the OL exists and the relationship is known as Degree of Operating leverage.

Degree of operating leverage = $\frac{\text{Contribution}}{\textbf{EBIT}}$

Illustration 4. Sales level is 1000 units and 1400 units. The per unit cost is Rs. 10. Variable cost is Rs. 7 per unit. Fixed cist is Rs. 1000. Calculate DOL.

Sales Level	**1000 units**	**1400 units**
Sales @ Rs.10 per unit	10,000	14,000

- Variable Cost@ Rs.7 per unit	7000	9800
Contribution	3000	4200
-Fixed cost	1000	1000
EBIT	**2000**	**3200**
	3000/2000	**4200/3200**
DOL		
=	1.5	1.31

So this is clear that:

- The OL is % change in EBIT as a result of 1% change in sales.
- A positive DOL means r\that the firm is operating at a level higher than the break-even level and both the EBIT and sales will vary in the same direction.
- A negative DOL means that the firm is operating at a level lower than the break even level.

Significance of Operating Leverage: Analysis of operating leverage of a firm is very useful to the financial manger. It tells the impact of changes in sales on operating income. A firm having higher D.O.L. (Degree of operating Leverage) can experience a magnified effect on E.B.I.T for even a small change in sales level. Higher D.O.L can dramatically increase the operating profits. But if there is decline in sales level, E.B.I.T. may be wiped-out and a loss may be operated. As explained earlier, the operating leverage depends on fixed costs. If the fixed costs are higher, the higher would be firm's operating leverage and its operating risks. If operating leverage is high, it automatically means that the break-even point would also be reached at a high level of sales. Also, in the case of higher operating leverage, the margin of safety would be low. Therefore, it is preferred to operate sufficiently above break-even point to avoid the danger of fluctuations in sales and profits.

Financial Leverage

The financial leverage measures the relationship between the EBIT and the EPS and it reflects

the effect of change in EBIT on the level of EPS. The FL measures the responsiveness of the EPS to a change in EBIT and is defined as % change in EPS divided by the % change in EBIT.

$$\text{Financial leverage} = \frac{\%\ \text{Change in EPS}}{\%\ \textbf{Change in EBIT}}$$

$$\textbf{Financial leverage} = \frac{\textbf{EBIT}}{\textbf{EBT (EBIT – I)}}$$

Illustration 5. XYZ Company has currently and equity share capital of s 40 lakhs consisting of 40,000 equity shares of Rs. 100 each. The management is planning to raise another Rs. 30 lakhs to finance a major programme of expansion through one of the four possible financing plans. The options are:

- Entirely through equity shares
- Rs. 15 lakhs in equity shares of Rs. 100 each and the balance in 8% debentures.
- Rs. 10 lakhs in equity shares of Rs. 100 each and the balance through long-term borrowings at 9% interest p.a.
- Rs. 15 lakhs in equity shares of Rs. 100 each and the balance through preference shares with 5% dividend.

The company's EBIT will be Rs. 15 lakhs. Assuming corporate tax of 50%. Determine the EPS and financial leverage.

	Financial Plan I	**Financial Plan II**	**Financial Plan III**	**Financial Plan IV**
EBIT	Rs. 15,00,000	Rs. 15,00,000	Rs. 15,00,000	Rs. 15,00,000

- Interest on debentures	-	1,20,000	-	-
- Interest on long term borrowings	-	-	1,80,000	-
EBT	Rs 15,00,000	13,80,000	13,20,000	15,00,000
- Tax @ 50%	7,50,000	6,90,000	6,60,000	7,50,000
EAT	7,50,000	6,90,000	6,60,000	7,50,000
- Pref Dividend	-	-	-	75,000
Earning for Equity	7,50,000	6,90,000	6,60,000	6,75,000

No. of Equity Shares	70,000	55,000	50,000	55,000
EPS	Rs. 10.71	12.55	13.20	12.27
DFL EBIT EBIT - I	1.00	1.087	1.136	1.00

Significance of Financial Leverage

Planning of capital structure: the capital structure is concerned with the raising of long term funds both from the shareholders and long term creditors. A financial manager has to decide about the ratio between fixed cost funds and equity share capital. The effects of borrowing on cost of capital and financial risk have to be discussed before selecting a final capital structure.

Profit planning: the EPS is affected by the degree of financial leverage. If the profitability of the concern is increasing ten the fixed cost funds will help in increasing the availability of profits for equity shareholders. Financial leverage is important for profit planning.

Composite Leverage: Both the financial and operating leverage magnify the revenue of the firm. Operating leverage reflects the income which is the result of the production. On the other hand, the financial leverage of the result of financial decisions. The composite leverage focuses the attention on the entries income of the concern. The risk factor should be properly assessed by the management before using the composite leverage. The high financial leverage may be offset against low operating leverage vice versa.

The degree of composite leverage = $\frac{\% \text{ Change in EPS}}{\% \text{ Change in sales}}$

Composite Leverage = Operating leverage x Financial leverage

Illustration6. a company has sales of Rs. 5,00,000, Variable cost of Rs. 3,00,000, fixed cost of Rs. 1,00,000 and long term loans of Rs. 4,00,000 at 10% rate of interest. Calculate composite leverage.

Solution:

Operating leverage = **Contribution**
EBIT

= Rs 2, 00,000
Rs 1, 00,000

= 2

Financial leverage = **EBIT**
EBT

= 1, 00,000
60,000

= 5
3

Composite leverage = Operating leverage x financial leverage

= 2 x 5
3

= 10
3

CAPITAL STRUCTURE

In order to run and manage the company, funds are needed. Right from the promotional stage up to end, finances play an important role in the company's life. If funds are inadequate, the business suffers and if the funds are not properly managed. The entire organization suffers. It is therefore; necessary that correct estimate of the current and future needs of the capital to be made to have an optimum capital structure.

The capital structure is made up of debt and equity securities and refers to permanent financing of a firm. It is composed of long-term debt, preference share capital and shareholder's funds.

According to Gestenberg: "Capital structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources viz: loans, reserves, shares and bonds"

Forms of capital structure

a) Equity shares only
b) Equity and preference Shares
c) Equity Shares and Debentures
d) Equity, preference and Debentures.

Factors Determining the Capital Structure

1. **Financial Leverage:** The use of long term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage. The use of long-term debt magnifies the earning per share if the firm yields a return higher than the cost

of debt. The earning per share also increases with use of preference share capital but due to the fact that interest is allowed to be deducted while computing tax, the leverage impact of debt is more.

2. **Growth and Stability of Sales:** The capital structure of a firm is highly influenced by the growth and stability of its sales. If the sales are expected to remain fairly stable, it can raise a higher level of debt. Stability of sales ensures that the firm will not face any difficulty in meeting its fixed commitments of interest payment and repayments of debts. If sales are highly fluctuating, it should not employ debt financing in its capitals structure.

3. **Cost of Capital**: Cost of capital refers to the minimum rate of return expected by its suppliers. The capital structure should also provide for the minimum cost of capital. Usually, debt is cheaper source of finance compared to preference and equity. Preference capital is cheaper then equity because of lesser risk involved.

4. **Cash flow Ability to Service the Debt:** A firm which shall be able to generate larger and stable cash inflows can employ more debt in its capital structure as compared to the one which has unstable and lesser ability to generate cash inflows. Whenever a firm wants to raise additional funds, it should estimate, project its cash inflows to ensure the coverage of fixed charges.

5. **Nature and Size of Firm:** Nature and size of firm also influences the capital structure. A public utility concern has different capital structure as compared to manufacturing concern. Public utility concern may employ more of debt because of stability and regularity of their earnings. Small companies have to depend upon owned capital, as it is very difficult for them to raise ling term loans on reasonable terms.

6. **Control:** whenever additional funds are required, the management of the firm wants to raise the funds without any loss of control over the firm. In case funds are raised through

the issue of equity shares, the control of existing shares are diluted. Preference shareholders and debenture holders de not have the voting right. From the point of view of control, debt financing is recommended.

7. **Flexibility:** Capital structure of the firm should be flexible. I.e. it should be capable of the being adjusted according top the needs of changing conditions. A firm should arrange its capital structure in such a way that it can substitute one form of financing by other. Redeemable preference share capital and convertible debentures may be preferred on account of flexibility.

8. **Requirement of Investors**: It is necessary to meet the requirement of both institutional as well as private investors when debt financing is used. Investors who are over cautious prefer safety of investment, so debentures would satisfy such investors. Investors, who are less cautious in approach, will prefer preference share capital.

9. **Capital Market Conditions:** The choice of securities is also influenced by the market conditions. If share market is depressed the company should not issue equity share capital

as investors would prefer safety. In case of boom period, it would be advisable to issue equity share capital.

10. **Assets structure:** If fixed assets constitute a major portion of the total assets of the company, it may be possible for the company to raise more of long term debts.

11. **Period of Financial:** If finance is required for the limited period, 7 years, debentures should be preferred. If funds are needed for permanent basis, equity share capital is more appropriate.

12. **Purpose of financing:** If funds are required for the productive purpose, debt financing is suitable as interest can be paid out of profits generated from the investment.

13. **Costs of floatation**: The cost of financing a debt is generally less than the cost of floating equity and hence it may persuade the management to raise debt financing.

14. **Personal Consideration:** Management, which is experienced and very enterprising, does not hesitate to use more of debts in their financing as compared to less experienced and conservative management.

15. **Corporate Tax Rule:** High rate of corporate taxes on profits compels the companies' to prefer debt financing, because interest is allowed to deduct while computing taxable profits.

5.2.1 Theories of Capital Structure

Different kinds of theories have been propounded by different authors to explain the relationship between Capital structure and cost of capital and value of the firm. The important theories are:

1. Net income approach
2. Net Operating Income approach
3. The Traditional approach
4. Modigliani and Miller approach

Assumptions: In discussing the theories of capital structure, the following assumptions have been used:

1. There are only two sources of finance i.e. equity and debt
2. There would be no change in the investment decision.
3. That the firm has a policy of distributing the entire profits among the shareholders implying that there is no retained earnings.
4. The operating profits of the firm are given and nor expected to grow.
5. The business risk complexion of the firm is given and is not affected by the financing mix.
6. There is no corporate and personal tax.

In discussing the theories of capital structure, the following definitions and notations have been used:

E	=	Total market value of the Equity
D	=	Total market value of the Debt
V	=	Total market value of the firm i.e., D + E
I	=	Total Interest Payment
NOP	=	Net operating profit i.e. EBIT
NP	=	Net Profit or profit after Tax
Do	=	Dividend paid by the company at Time o
D1	=	Expected Dividend at the end of the year 1
Po	=	Current market price of the Share
P1	=	Expected Market Price of the share after 1 year.
Kd	=	After Tax Cost of Debt i.e. I/D
Ke	=	Cost of Equity i.e. D/Po
Ko	=	Overall Cost of Capital i.e. WACC

$$= \frac{D}{D+E} + \frac{E}{D+E}$$

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

1. Net Income Approach: According to Durand, this theory states that there is a relationship between Capital structure and the value of the Firm and therefore the firm Can affects its value by increasing or decreasing the Debt proportion in the overall financing mix. This approach is based on the following assumptions.

1. The total Capital requirement of the firm is given and remains constant.
2. The cost of debt is less than cost of Equity.
3. Both Kd and Ke remain constant and increase in financial leverage i.e. use of more and

debt financing in the capital structure does not affect the risk perception of the investors.

The line of argument in favor of Net Income approach is that as the proportion of Debt financing in capital structure increases, the proportion of an expensive source of fund increases. This results in the decrease in overall cost of capital leading to an increase in the value of the firm. The reason for assuming Kd less than Ke are that interest rates are usually lower than the dividend rates due to the element of risk and the benefit of tax as the interest is a deductible expense. The total market value of the firm on the basis of Net Income approach can be ascertained as below:

$V = E + D$

Where V = Total market value of the firm

E = Total market value of the Equity

= $\frac{\text{Earnings available to equity shareholder (NP)}}{}$

Equity Capitalization rate (Ke)

D = Total market value of the Debt.

Overall cost of Capital can be calculated as below:

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

Illustration 7: The expected EBIT of a firm is Rs. 80,000. It has Rs. 2, 00,000 8% debentures. The equity capitalization rate of the company is 10%. Calculate the value of the firm and over all Capitalization rate according to Net Income Approach.

Solution:

EBIT	Rs.80, 000
Less: Interest (8% on 2, 00,000)	16,000
Net profit	64,000
Ke	10%
Value of Equity (E) (64,000/.10)	6, 40,000
Market Value of Debentures (D)	2, 00,000
Value of the Firm (V=E+D)	8, 40,000

Overall Cost of Capital, Ko = $\frac{EBIT}{V}$

= $\frac{80,000}{8,40,000} * 100$

= 9.52%

a) Calculation of the Value of Firm if Debentures is raised to Rs. 3, 00,000

Solution:

EBIT	Rs.80, 000
Less: Interest (8% on 300,000	24,000
Net profit	56,000
Ke	10%
Value of Equity (E) (56,000/. 10)	5, 60,000
Market Value of Debentures (D)	3, 00,000
Value of the Firm (V=E +D)	8, 60,000

Overall Cost of Capital, Ko = EBIT

V

= 80,000 * 100

8, 60,000

= 9.30%

Thus it is evident that with the increase in debt financing, the value of the firm has increased and the overall cost of capital has decreased.

2. Net Operating Income Approach: The NOI approach is opposite to the NI approach. According to NOI approach, the market value of the firm depends upon the net operating profit or EBIT and the overall cost of Capital. The financing mix or the capital structure is irrelevant and does not affect the value of the firm. The NOI approach makes the following assumptions:

1. The Kd is taken as constant.
2. The K0 of the firm is also taken as constant.
3. The firm capitalizes the total earnings of the firm to find the value of the firm as a whole.
4. The use of more and more debt in capital structure increase the risk of the shareholders and thus results in the increase in cost of equity capital i.e. Ke. The increase in Ke is such as to completely offset the benefits of employing cheaper debts.

The value of a firm on the basis of NOI approach can be determined as below: V =

EBIT

Ko

Where, V = Value of the firm

EBIT = Earning before interest and tax

Ko = Overall cost of Capital

The market value of equity is residual value, calculated as

E = V – D

And the Cost of Equity is, Ke = $\frac{\text{EBIT - Interest}}{\text{V-D}}$

Thus financing Mix is irrelevant and does not affects the value of the firm.. The value of the firm remains for all types of debt – equity mix. Since there will be change in the risk of the shareholders as a result of change in Debt-Equity mix, therefore the Ke will be changing linearly with change in debt proportion.

Illustration 8: A firm has an EBIT of Rs. 2, 00,000 and belongs to a risk class of 10%. What is the value of equity capital if it employees 6% debt to the extent of 30%, 40%, 50% of the total capital fund of Rs. 10, 00,000.

Solution:

The effect of changing debt proportion on the cost of equity capital can be analyzed as follows:

	30% Debt	40% Debt	50% Debt
EBIT	Rs. 2, 00,000	2, 00,000	2, 00,000
Ko	10%	10%	10%
Value of the firm, V	Rs 20, 00,000	20, 00,000	20, 00,000
Value of 6% Debt, D	Rs. 3, 00,000	4, 00,000	5, 00,000
Value of Equity (E=V-D)	Rs. 17, 00,000	16, 00,000	15, 00,000
Net Profit(EBIT – Interest)	Rs. 1,82,000	1,76,000	1,70,000
Ke (NP/E)	10.7%	11%	11.33%

The Ke of 10.7%, 11% and 11.33% can be verified for different proportion of debt by calculating Ko as follows:

For 30% debt, Ko $= \frac{\text{EBIT}}{V}$

$= \frac{2, 00,000}{20, 00,000} * 100$

$= 10\%$

For 40% debt, Ko $= \frac{\text{EBIT}}{V} * 100$

$= \frac{2, 00,000}{20, 00,000}$

= 10%

For 50% debt, Ko = $\frac{\text{EBIT}}{V}$ *100

= $\frac{2,\ 00,000}{20,\ 00,000}$

= 10%

These calculations of cost of capital testify that the benefit of employment of more and more debt in capital structure is off set by the increase in equity capitalization rate.

3. Traditional Approach: The traditional approach also known as Intermediate approach is a compromise between the two extremes of Net income approach and Net operating income approach. According to this theory, the value of the firm can be increased initially or the cost of capital can be decreased by using more debt as the debt is the cheaper source if finance then

equity. Thus the optimum capital structure can be reached by a proper Debt Equity mix. Beyond a particular point, the cost of equity increases because increased debt increases the financial risk of the equity shareholders. The advantage of cheaper debt at this point of capital structure is offset by increased cost of equity. After this there comes a stage, when the increased cost of equity cannot be offset by the advantage of low cost debt. Thus the overall cost of debt decrease up to a certain point, remains more or less unchanged for l\moderate increase in debt thereafter and increases or rises beyond a certain point.

Thus as per the traditional approach, a firm can be benefited from a moderate level of leverage when then advantages of using debt outweighed the disadvantages of increasing Ke. The overall cost of capital is a function of financial leverage. The value of the firm can be affected, by the judicious use of debt and equity in capital structure.

Illustration 9: Compute the market value of the firm, value of shares and average cost of capital from the following information:

Net operating income	2,00,000
Total Investment	10,00,000
Equity Capitalization rate	
• If firm uses no Debt	10%
• If firm uses Rs.4,00,000 Debentures	11%
• If firm uses Rs. 6,00,000 Debentures	13%

Assume that Rs.4, 00,000 debentures can be raised at 5% rate of interest whereas Rs. 6, 00,000 Debentures can be raised at 6% rate of interest.

Solution:

Computation of market value of firm, value of shares & the average cost of capital.

	No Debt	**Rs. 4,00,000 5% Debentures**	**Rs.6,00,000 6%Debentures**
Net Operating Income	Rs.2,00,000	Rs.2,00,000	Rs.2,00,000
Less: Interest i.e. Cost of Debt		20,000	36,000
Earnings available to equity shareholders	Rs.2,00,000	Rs.1,80,000	Rs1,64,000
Cost of Equity, Ke	10%	11%	13%
Market value of shares, E	Rs20,00,000	Rs. 16,36,363	Rs. 12,61,538
Market value of Debentures, D	-	4,00,000	6,00,000
Market value of the firm (V = E+D)	Rs20,00,000	20,36,363	18,61,538
Cost of Capital (Ko = EBIT / V)	10%	9.8%	10.7%

It is clear from the above that if Debt of Rs. 4,00,000 is used the value of the firm increases and the overall cost of capital decreases, but if more debt is used to finance in place of equity i.e. Rs 6,00,000 debentures, the value of the firm decreases and the overall cost of capital increases.

4. Modigliani and Miller Approach: M&M Model, which was presented in 1958 on the relationship between the leverage, cost of capital and the value of the firm. The model emphasis that under a given set of assumptions the capital structure and its composition has no effect on

the value of the firm. There is nothing which may be called the optimal capital structure, the model is based ob the following assumptions:

1. The capital markets are perfect and the complete information is available to all the investors free of cost.
2. The securities are infinitely divisible.
3. Investors are rational and well informed about the risk return of all the securities.
4. The personal leverage and the corporate leverage are perfect substitute.

On the basis of the above assumptions, **the M&M Model derived that**:

1. The total value of the firm is equal to the capitalized value of the operating earnings of the firm.
2. The total value of the firm is independent of the financial mix.
3. The cut off rate of the investment decision of the firm depends upon the risk class to which the firm belongs, and thus is not affected by the financing pattern of this investment.

The M&M model argues that if two firms are alike in all respects except that they differ in respect of their financing patter and their market value, then the investors will develop a tendency to sell the shares of the overvalued firm and to buy the shares of the undervalued firm. This, buying and selling pressure will continue till the two firms have same market value Suppose there are two firms, LEV & Co. and ULE & Co.. These are alike and identical in all respect except that the LEV & Co. is a leveraged firm and has 10% debt of Rs. 30, 00,000 in its capital structure. O the other hand, the ULE & Co. is an unleveled firm and has raised funds only by the issue of the equity share capital. Both these firms have an EBIT of Rs. 10, 00,000 and the equity capitalization rate, Ke of 20%. The total value and WACC of both the firms may be ascertained as follows:

	LEV & Co.	ULE & Co.
EBIT	Rs 10, 00,000	Rs 10, 00,000
- Interest	3, 00,000	-
Net Profit	7, 00,000	10, 00,000
Equity Capitalization rate, Ke	20%	20%
Value of equity	35, 00,000	50, 00,000
Value of debt	30, 00,000	-
Total value, V 65, 00,000	50, 00,000	
WACC, Ko= EBIT/V	15.38%	20%

Though both the firm has same EBIT still the Levered firm has a lower Ko and higher value as against the Unleveled firm. MM argues that this position cannot exist for a long and there will be equality in the value of the two firms through the Arbitrage process.

The Arbitrage Process: The arbitrage process refers to undertaking by a person of two related actions or steps simultaneously in order to derive the some benefits. E.g. buying by a speculator in one market and selling the same at the same time in some other market. The benefit from the arbitrage process may be in any form: increased income from the same level of investment or same income from lesser investment.

For e.g. suppose an investor is an holder of 10% equity share capital of LEV & Co. the value of his ownership right is Rs 3,50,000 i.e. 10% of Rs. 35,00,000. Further that out of the total net profits of Rs. 7,00,000 of LEV & Co., he is entitled to n10% i.e. Rs &0,000 per annum and getti8ng a return of 20%. In order to avail the opportunity of making a profit, he now decides to convert his holdings from LEV & Co. to ULE & Co. he disposes off his holding in LEV & Co.

for Rs. 3,50,000, but in order to buy 10% holding of ULE & Co., he requires total funds of Rs. 5,00,000 whereas his proceeds are only Rs. 3,50,000. So he takes a loan @ 10 &% of an amount equal to Rs. 3,00,000 and now he is having total funds of Rs. 6,50,000.

Out of the total funds of Rs. 6, 50,000 he invests Rs 5, 00,000 to buy 10% shares of ULE & Co. still he has funds of Rs. 1, 50,000 available with him. Assum9ing that the ULE & Co. continues to earn the same EBIT of Rs. 10, 00,000, the net returns available to the investors from the ULE & Co. are:

Profits available from ULE & Co.	Rs. 10, 00,000 (Being 10% of net profits)
- Interest payable @ 10% on Rs 3, 00,000 Loan	**30,000**
Net Return	70,000

So the investor is able to get the same return of Rs. 70,000 from ULE & Co. also, which he was receiving as an investor of LEV & Co., but he has funds of Rs. 1,50,000 left over for investment elsewhere. Thus, his total income may now be more than Rs. 70,000. Moreover his risk is same as before. Though his new outlet i.e. ULE & Co. is an unleveled firm but the position of the investor is levered because he has created a homemade leverage by borrowing Rs. 3, 00,000 from the market. In fact, he has replaces the corporate leverage of LEV & C. by his personal leverage.

The above example shows that the investor, who originally owns a part of the levered firm and enters into the arbitrage process as above, will be better off selling the holding in levered firm and buying the holding in unleveled firm using his home made leverage.

MM Model argues that this opportunity to earn the extra income through arbitrage process will attract so many investors. The gradual increase in the sales of the shares of the levered firm, LEV & Co. will push its price down

and the tendency to purchase the shares of the unleveled firm, ULE & Co. will drive its price up. The selling and purchasing pressures will continue until the market value of the two firms is equal. At this stage, the value of the levered and the unleveled firm and their cost of capital are same and thus the overall coat of capital is independent of the financial leverage.

KARPAGAM ACADEMY OF HIGHER EDUCATION, COIMBATORE

Class: III B.COM(PA) **Course Name: Financial Management**

Course Code: 16PAU502A **Semester: V** **Batch: 2016-19**

S. No	QUESTIONS	OPTION A	OPTION B	OPTION C	OPTION D	ANSWER
1.	Degree of Financial Leverage = _____	EBIT / EBT	Contribution / Profit	Contribution / Sales	EBT / EBIT	EBIT / EBT
2.	Operating Leverage = _____	EBIT / EBT	Contribution / Operating Profit	Contribution / Sales	EBT / EBIT	Contribution / Operating Profit
3.	Operating Profit = _____	Sales – Total Cost	Contribution / Profit	EBT / EBIT	Contribution / Sales	Sales – Total Cost
4.	Operating leverage helps in analysis of:	Business risk	Financial Risk	Production Risk	Credit Risk	Business risk
5.	Which of the following is studied with the help of financial leverage?	Business risk	Financial Risk	Production Risk	Credit Risk	Financial Risk
6.	Combined Leverage is obtained from OL and FL by their:	Addition	Substraction	Multiplication	Division	Multiplication
7.	Contribution = _____	Sales – Total Cost	Sales – Fixed Cost	Sales – Explicit Cost	Sales – Variable Cost	Sales – Variable Cost
8.	A Company is highly geared when	It rises finance by only equity capital	More debentures are issued than preference shares	More debentures are issued than equity capital	More preference shares are issued than equity capital	More debentures are issued than equity capital

9.	Capital gearing is the ratio between	Equity capital and debenture	Equity capital and preference capital	Equity capital and fixed interest securities	Debentures and preference capital	Equity capital and fixed interest securities
10.	Financial Leverage measures relationship between	EBIT and EBT	EBIT and EPS	Sales and EBT	Sales and EPS	EBIT and EBT
11.	Trading on equity means	Trading in equity share of small face value	A relatively smaller equity capital than borrowed capital	Transaction between the company and its minority share holders	Restricted transaction on equity shares and stock exchange	A relatively smaller equity capital than borrowed capital
12.	Leverage implies that	The return on equity share capital exceeds the interest on borrowed capital	Return on borrowed capital	Return on equity capital	The return on borrowed capital exceeds the return on equity share capital	The return on equity share capital exceeds the interest on borrowed capital
13.	High degree of financial leverage means:	High debt	Lower debt	Equal debt and equity	High debt or low debt	High debt
14.	Operating leverage arises because of:	Fixed cost of production	Fixed Interest	variable cost	Sales	Fixed cost of production
15.	Financial Leverage arises because of:	Fixed cost of production	Interest cost	variable cost	Sales	Interest cost
16.	Which combination is generally good for firms	High OL, High FL	Low OL, Low FL	High FL , Low OL	High OL and Low FL	High OL and Low FL

17.	Financial Leverage is zero if:	EBIT=Zero	EBIT= 1	EPS=1	EPS=0	EBIT=Zero
18.	Business risk can be measured by:	Openrating Leverage	financial leverage	Combined Leverage	Operating or Financial leverage	Openrating Leverage
19.	Financial risk can be measured by:	Openrating Leverage	financial leverage	Combined Leverage	Operating or Financial leverage	financial leverage
20.	which is not included under type of leverage	Administrative leverage	financial leverage	Operating leverage	Combined leverage	Administrative leverage
21.	If interest expenses for a firm rise firm has taken on more	Openrating Leverage	financial leverage	Combined Leverage	fixed assets	financial leverage
22.	Combined leverage is a percentage change in relationship between sales and----------	operating income	earning per share	Operating leverage	break even point	earning per share
23.	contribution divided by operating profit is the formula of	Financial Leverage	Operating leverage	Administrative leverage	Combined leverage	Operating leverage
24.	Which of the following is correct?	CL= OL + FL	CL= OL - FL	CL= OL * FL	CL= OL/FL	CL= OL * FL
25.	Higher FL is related the use of:	Higher Equity	Higher Debt	Lower Debt	Lower Equity	Higher Debt

26.	Higher OL is related to the use of higher:	debt capital	Equity	Fixed cost	Variable cost	Fixed cost
27.	In order to calculate EPS, Profit after Tax and Preference Dividend is divided by:	MP of Equity Shares	No. of Equity Shares	Equity share capital	Face value of Equity shares	No. of Equity Shares
28.	If a firm has no debt, which one is correct?	OL is one	FL is one	FL is zero	OL is Zero	FL is one
29.	Point of indifference relates the	EPS and net profit	EBIT and tax level	Net profit and earnings	Gross and net profit	EBIT and tax level
30.	Traditional approach of capital structure is also known as ----------	older approach	intermediate approach	modern approach	walter approach	intermediate approach
31.	Ploughing back of profit means	Earning of black money	Reinvestment of earnings	Unclaimed dividends	Transferring a part of profit to reserve	Reinvestment of earnings
32.	A Company can trade on equity when it has issued	Only equity capital	Only preference capital	Equity and preference capital	Debenture preference and equity capital	Debenture preference and equity capital
33.	Composite leverage is a combination of	Financial and operating leverage	Financial and working capital leverage	Financial and trading on equity	Operating and working capital leverage	Financial and operating leverage

34.	_____ is an arrangement that provides a firm with the use and control over assets without buying and owning the same.	Hire purchase	Pledge	lease	Bailment	lease
35.	Which is a capital expenditure?	Wages paid	Plant & machinery acquired	Salaries paid	Advertisement cost	Plant & machinery acquired
36.	Which of the following is a capital expenditure?	Wages paid	Salary	depreciation	preliminary expenses	preliminary expenses
37.	Which of the following transaction is of capital nature?	purchase of truck by a company	replacement of old tyres	yearly premium to insure the truck	cost of repairs of the truck	purchase of truck by a company
38.	Sources of finance for a business include ----------	Equity	Land	Outstanding expenses	Depreciation	Equity
39.	Equity means ----------	Paid up share capital	Reserves	Depreciation	Outstanding expenses	Paid up share capital
40.	When will the company have to plan about its capital structure?	During Incorporation	During replacement	during modernization	During diversification	During Incorporation
41.	Financial leverage means ----------	equity is the base to raise the finance	Preference is the base to raise the finance	earning is the base to raise the finance	Dividend is the base to raise the finance	equity is the base to raise the finance

42.	What are the sources of finance for a business?	Equity	creditors wealth	Debtors wealth	Stock	Equity
43.	When will the company have to plan about its capital structure?	During Incorporation	During replacement	during modernization	During promotion	During Incorporation
44.	What do you mean by financial leverage?	equity is the base to raise the finance	Preference is the base to raise the finance	earning is the base to raise the finance	Dividend is the base to raise the finance	earning is the base to raise the finance
45.	---------- comprises of fixed assets and other non-current assets	fixed capital	working capital	Share capital	Equity capital	fixed capital
46.	The ---------- refers to the kind and proportion of different securities for raising funds.	Capital structure	cost of capital	capital budgeting	auditing	Capital structure
47.	In _____ approach, the capital structure decision is relevant to the valuation of the firm.	Net income approach	Net operating income approach	MM approach	Traditional approach	Net income approach
48.	Pattern of capital structure include ----------	Equity shares	Dividend	interest	Long term loan	Equity shares
49.	Which of the following is true for Net Income Approach?	Higher Equity is better	High Debt better	Debt is irrelavant	Low Debt is better	High Debt better

50.	Which of the following is true of Net Income Approach?	$V_F = V_E+V_D$	$V_E = V_F+V_D$	$V_D = V_F+V_E$	$V_F = V_E-V_E$	$V_F = V_E+V_D$
51.	Financial leverage is intended to	Increase return on Capital Employed	Increase net equity return	decrease volatility return	Increas return on capital employed and net equity	Increase return on Capital Employed
52.	which of the following statement is incorrect	Contribution- Fixed cost= Operating cost	FL=EBIT/OP	CL= OL * FL	FL=EBT / EBIT	FL=EBIT/OP
53.	NOI Approach advocates that the degree of debt financing is:	Relevant	may be relevant	may be irrelevant	irrelevant	irrelevant
54.	The use of long term fixed interest bearing debt and preference share capital along with equity shares is called ----------	operating leverage	financial leverage	combined leverage	Capital Structure	financial leverage
55.	Which of the following assumes constant k_d and k_e?	Net income approach	Net operating income approach	MM approach	Traditional approach	Net income approach
56.	'Judicious use of leverage' is suggested by:	Net income approach	Net operating income approach	MM approach	Traditional approach	Traditional approach
57.	Traditional approach of capital structure is also known as ----------	older approach	intermediate approach	modern approach	walter approach	intermediate approach

58.	In the Traditional Approach, which one of the following remains constant?	Cost of Equity	Cost of Debt	WACC	None	None
59.	In MM-Model, irrelevance of capital structure is based on:	Cost of Debt and Equity	Arbitrage Process	Decreasing k_0	Increasing k_0	Arbitrage Process
60.	Which of the following is incorrect for NOI?	k_0 is constant	k_d is constant	ke is constant	k_d & k_0 are constant	ke is constant
61.	---------- refers to the relationship between equity capital and long term debt	capital gearing	capital structure	capital budgeting	cost of capital	capital gearing

UNIT – IV

DIVIDEND DECISIONS

SYLLABUS

Dividend Decisions - Theories for Relevance and Irrelevance of Dividend Decision for Corporate Valuation - Cash and Stock Dividends - Dividend Policies in Practice.

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.

Dividend Decision and Value of Firms: 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 will discuss below the views of the two schools of thought under two groups:

1. The Irrelevance Concept of Dividend or the Theory of Irrelevance, and
2. The Relevance Concept of Dividend or the Theory of Relevance.

The Irrelevance Concept of Dividend or the Theory of Irrelevance:

Residual Approach: According to this theory, dividend decision has no effect on the wealth of the shareholders or the prices of the shares, and hence it is irrelevant so far as the valuation of the firm is concerned. This theory regards dividend decision merely as a part of financing decision because the earnings available may be retained in the business for re-investment. But, if the funds are not required in the business they may be distributed as dividends. This theory assumes that investors do not differentiate between dividends and retentions by the firm. Their basic desire is to earn higher return on their investment. In case the firm has profitable investment opportunities giving a higher rate of return than the cost of retained earnings, the investors would be content with the firm retaining the earnings to finance the same. However, if the firm is not in a position to find profitable investment opportunities, the investors would prefer to receive the earnings in the form of dividends. Thus, a firm should retain the earnings if it has profitable investment opportunities otherwise it should pay them as dividends.

Modlgliani and Miller Approach (MM Model): Modigliani and Miller have expressed in the most comprehensive manner in support of the theory of irrelevance. They maintain that dividend policy has no effect on the market price of the shares and the value of the firm is determined by the earning capacity of the firm or its investment policy. The splitting of earnings between retentions and dividends, may be in any manner the firm likes, does not affect the value of the firm. As observed by M.M. "Under conditions of perfect capital markets, rational investors, absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of the shares.'"

Assumptions of MM Hypothesis

a) There are perfect capital markets.
b) Investors behave rationally.
c) Information about the company is available to all without any cost.
d) There are no floatation and transaction costs.
e) No investor is large enough to affect the market price of shares.

f) There are no taxes or there are no differences in the tax rates applicable to dividends and capital gains.

g) The firm has a rigid investment policy.

The Argument of MM: The argument given by MM in support of their hypothesis is that whatever increase in the value of the firm results from the payment of dividend, will be exactly off set by the decline in the market price of shares because of external financing and there will be no change in the total wealth of the shareholders. For example, if a company, having investment opportunities, distributes all its earnings among the shareholders, it will have to raise additional funds from external sources. This will result in the increase in number of shares or payment of interest charges, resulting in fall in the earnings per share in the future. Thus whatever a shareholder gains on account of dividend payment is neutralized completely by the fall in the market price of shares due to decline in expected future earnings per share. To be more specific, the market price of a share in the beginning of a period is equal to the present value of dividends paid at the end of the period plus the market price of the shares at the end of the period. This can be put in the form of the following formula:

P0 = D1+P1 1+Ke

Where, P0 = Market price per share at the beginning of the period, or prevailing market price of a share.

D1 = Dividend to be received at the end of the period. P 1 = Market price per share at the end of the period. Ke = Cost of equity capital or rate of capitalization.

The value of P1 can be derived by the above equation as under:

P1 = P0 (1 = Ke) – D1

The MM hypothesis can be explained in another form also presuming that investment required by the firm, on account of payment of dividends is financed out of the new issue of equity shares.

In such a case, the number of shares to be issued can be computed with the help of the following equation:

m = I (E - n D1) P1

Further, the value of the firm can be ascertained with the help of the following formula :

n P0 = _(n + m) P1 - (I - E)

1+ke

Where, m = number of shares to be issued.

I = Investment required.

E = Total earnings of the firm during the period. P1 = Market price per share at the end of the period. Ke = Cost of equity capital.

n = number of shares outstanding at the beginning of the period.

. D1 = Dividend to be paid at the end of the period. n P0= Value of the firm

Let us take the following illustration to illustrate MM hypothesis of irrelevance of dividend to the valuation of firm.

Illustration 17: ABC Ltd. belongs to a risk class for which the appropriate capitalization rate is 10%. It currently has outstanding 5,000 shares selling at Rs.100 each. The firm is contemplating the declaration of dividend of Rs.6 per share at the end of the current financial year. The company expects to have a net income of Rs.50, 000 and has a proposal for making new investments of Rs.l,00,000. Show that under the MM hypothesis, the payment of dividend does not affect the value of the firm.

Solution:

(A) Value of the firm when dividends are paid:

(i) Price of the share at the end of the current financial year P1 = P0 (1 = Ke) – D1

= 100(1+.10)-6

= Rs. 104

(i) Numbers of shares to be issued

m = I (E - n D1) P1

= 1, 00,000 - (50,000 – 5,000 x 6)

104

= 80,000

104

(ii) Value of the firm

n P0 = _(n + m) P1 - (I - E)

1+ke

= 5000 + 80,000 x 104 – (1, 00,000 – 50,000)

104

1 + .10

= 6, 00,000 – 50,000

1.10

= Rs.5, 00,000

(B) Value of the firm when dividends are not paid:

(i) Price per share at the end of the current financial year P1 = P0 (1 = Ke) – D1

= 100 (1 + .10) – 0

= Rs.110

(ii) Numbers of shares to be issued

m = I (E - n D1) P1

= 1, 00,000 - (50,000 - 0)

110

= 50,000

110

(iii) Value of the firm

n P0 = _(n + m) P1 - (I - E)

1+ke

= 5000 + 50,000 x 1.10 – (1, 00,000 – 50,000)

110

1 + .10

= 6, 00,000 – 50,000

1.10

= Rs.5, 00,000

Hence, whether dividends are paid or not value of the remains same i.e Rs. 500,000

Criticism of MM Approach

1. Prefect 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 exit and there is normally different tax treatment for dividends and capital gains.
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.

The Relevance Concept of Dividend Or The Theory Of Relevance: The other school of thought on dividend decision holds that the dividend decisions considerably affect the value of the firm. The advocates of this school of thought include Myron Gordon, James Walter and Richardson. According to them dividends communicate information to the investors about the firms' profitability and hence dividend decision becomes relevant Those firms which pay higher dividends, will have

greater value as compared to those which do not pay dividends or have a lower dividend payout ratio. We have examined below two theories representing this notion:

(i) Walter's Approach, and (ii) Gordon's Approach

Walter's Approach: Prof. Walter's approach supports the doctrine that dividend decisions are relevant and affect the value of the firm. Prof. Walter's model is based on the relationship between the firms's (i) return on investment. i.e. r. and (ii) the cost of capital or the required rate of return, i.e., k.•

According to Prof. Walter, If r > k i.e., if the firm earns a higher rate of return on its investment than the required rate of return, the firm should retain the earnings. Such 'firms are termed as growth firm and the optimum pay-out would be zero in their case.

In case of declining firms which do not have profitable investments, i.e., where r < k, the shareholders would stand to gain if the firm distributes its earnings. For such firms, the optimum pay-out would be 100% and the firms should distribute the entire earnings as dividends.

In case of normal firms where r = k, the dividend policy will not affect the market value of shares as the shareholders will get the same return from the firm as expected by them. For such firms, there is no optimum dividend payout and the value of the firm would not change with the change in dividend rate.

Assumption of Walter's Model

a) The investments of the firm are financed through retained earnings only and the firm does not use external sources of funds.

b) The internal rate of return (r) and the cost of capital (k) of the firm are constant.

c) Earnings and dividends do not change while determining the value.

d) The firm has a very long life.

Walter's formula for determining the value of a share: $P = \frac{D + r(E + D)}{Ke \quad Ke}$

Or p = D + r(E-D) / Ke Ke Ke

Where, P = Price of Equity Share

D = Initial dividend per share Ke = Cost of Equity capital

r = Internal rate of return E = Earning per share

Let us illustrate this with following :

Illustration 18: The following information is available in respect of a firm: Capitalization Rate = 10%

Earning per share = Rs.50 Assumed rate of return on investment:

i) 12%

ii) 8%

iii) 10%

Show the effect of dividend policy on market price of shares applying walter's model when dividend pay out ratio isi) 0% ii) 40% iii) 100%

Solution:

p = D + r(E-D) / Ke

Ke Ke

Effect of dividend policy on market price of shares

(i) = 12% (ii) r = 8% (iii)r = 10%

a) When dividend payout ratio is 0%.

P = 0 + .12(50 – 0) /.10 P = 0 + .08(50 – 0) /.10 P = 0 + .10(50 – 0) /.10

.10 .10 .10 .10 .10 .10

= Rs.600 = Rs.400 = Rs.500

b) When dividend payout ratio is 40%.

P = 20 + .12(50 – 20) /.10 P = 20 + .08(50 – 20) /.10 P = 20 + .10(50 – 20) /.10

.10 .10 .10 .10 .10 .10

= Rs.560 = Rs.440 = Rs.500

c) When dividend payout ratio is 100%

P = 50 + .12(50 –50) /.10 P = 50 + .08(50 – 50) /.10 P = 50 + .10(50 – 50) /.10

.10 .10 .10 .10 .10 .10

= Rs.500 = Rs.500 = Rs.500

Conclusion: when,

r > k, the company should retain the profits, i.e., when r= 12%, ke= I 0%; r is 8%, i.e., r < k, the pay-out should be high; and

r is 10%; i.e. r = k; the dividend pay-out does not affect the price of the share.

Criticism of Walter's Model

The basic assumption that investments are financed through retained earnings only is seldom true in real world. Firms do raise funds by external financing. The internal rate of return, i.e. r, also does not, remain constant. As a matter of fact, with increased investment the rate of return also changes. The assumption that cost of capital (k) will remain constant also does not hold good. As a firm's risk pattern does not remain constant, it is not proper to assume that k will always remain constant.

Gordon's Approach: 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:

a) The firm is an all equity firm.

b) No external financing is available or used. Retained earnings are the only. Source of finance.

c) The rate of return on the firm's investment r, is constant.

d) The retention ratio, b, is constant. Thus, the growth rate of the firm g = br, is also constant.

e) The cost of capital for the firm remains constant and it is greater than the growth rate, i.e. k > br.

f) The firm has perpetual life.

g) 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,

$$P = \frac{D1}{(1+k)} + \frac{D2}{(1+K)2} + \text{------}$$

Gordon's basic valuation formula can be simplified as under: $P = \frac{E(1-b)}{Ke - br}$

Or,

Where, P = Price of shares

E = Earnings per share b = Retention ratio Ke = Cost of equity capital

br = g = Growth rate in r,i.e. rate of return on investment Do = Dividend per share

D1 = Expected dividend at the end of year 1.

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

1. 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 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 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 payout would be 100%.

Illustration 19: The following information is available in respect of the rate of return on investment (r), the cost of capital (k) and earning per share (E) of ABC Ltd.

Rate of return on investment (r) = (i) 15% (ii) 12% and (iii) 10% Cost of capital (K) = 12%

Earning per share (E). = Rs. 10

Determine the value of its shares using Gordon's Model assuming the following:

	D/P ratio (1- b)	Retention ratio (b)
(a)	100	0
(b)	80	20
(c)	40	60

Solution:

$$P = \frac{E(1-b)}{Ke - br}$$

Dividend policy and value of shares

(i) r = 15% (ii) r = 12% (iii) r = 10%

a) when D/P ratio is 100%

P =

$$= \frac{10(1-0)}{0.12 - (0)(.15)} \quad \text{Rs.83.33}$$

P =

$$= \frac{10(1-0)}{0.12 - (0)(.12)} \quad \text{Rs.83.33}$$

P =

= 10(1 – 0)

0.12 – (0)(.10) Rs.83.33

b) when D/P ratio is 80%

P = 10(1 – 0.20) P = 10(1 – 0.20) P = 10(1 – 0.20)

0.12 – (0.20)(.15) 0.12 – (0.20)(.12) 0.12– 0.20)(.12)

= Rs.88.89 = Rs.83.33 = Rs.80

c) when D/P ratio is 40%

P = 10(1 – 0.60) P = 10(1 – 0.60) P = 10(1 – 0.60)

0.12 – (0.60)(.15) 0.12 – (0.60)(.12) 0.12 – (0.60)(.10)

= Rs.133.33 = Rs.83.33 = Rs.66.67

Gordon's Revised Model: The basic assumption in Gordon's Basic Valuation Model that cost of capital (k) remains constant for a firm is not true in practice. Thus, Gordon revised his basic model to consider risk and uncertainty. In the revised model, he suggested that even when r = k, dividend policy affects the value of shares on account of uncertainty of future, shareholders discount future dividends at a higher rate than they discount near dividends. That is there is a two fold assumption, viz. (i) investors are risk averse, and (ii) they put a premium on a certain, return and discount/penalize uncertain returns. Because the investors are rational and they want to avoid risk, they prefer near dividends than future dividends. Stockholders often act on the principle that a bird in hand is worth than two in the bushes and for this reason are willing to pay a premium for the stock with the higher dividend rate, just as they discount the one with the lower rate. Thus, if dividend policy is considered in the context of uncertainty, the cost of capital cannot be assumed to be constant and so firm should set a high dividend payout ratio and offer a high dividend yield in order to minimize its cost of capital.

Determinants of Dividend Policy

The payment of dividend involves some legal as well as financial considerations. The following are the important factors which determine the dividend policy of a firm:

1. Legal Restrictions: Legal provisions relating to dividends in the Companies Act, 1956 lay down a framework within which dividend policy is formulated. These provisions require that:

- Dividend can be paid only out of current profits or past profits after providing for depreciation or out of the moneys provided by Government for the payment of dividends in pursuance of a guarantee given by the Government.
- A company providing more than ten per cent dividend is required to transfer certain percentage of the current year's profits to reserves.
- The dividends cannot be paid out of capital, because it will amount to reduction of capital adversely affecting the security of its creditors.

2. Magnitude and Trend of Earnings: As dividends can be paid only out of present or past year's profits, earnings of a company fix the upper limits on dividends. The dividends should, generally, be paid out of current year's earnings only as the retained earnings of the previous years become more or less a part of permanent investment in the business to earn current profits. The past trend of the company's earnings should also be kept in consideration while making the dividend decision.

3. Desire and Type of Shareholders: Desires of shareholders for dividends depend upon their economic status. Investors, such as retired persons, widows and other economically weaker persons view dividends as a source of funds to meet their day-to-day living expenses. To benefit such investors, the companies should pay regular dividends. On the other hand, a wealthy investor in a high income tax bracket may not benefit by high current dividend incomes. Such an investor may be interested in lower current dividends and high capital gains.

4. Nature of Industry: Certain industries have a comparatively steady and stable demand irrespective of the prevailing economic conditions. For instance, people used to drink liquor both in boom as well as in recession. Such firms expect regular earnings and hence can follow a consistent dividend policy. On the other hand. If the earnings are uncertain, as in the case of luxury goods, conservative policy should be followed.

5. Age of the Company: The age of the company also influences the dividend decision of a company. A newly established concern has to limit payment of dividend and retain substantial part

of earnings for financing its future growth and development, while older companies which have established sufficient reserves can afford to pay liberal dividends.

6. Future Financial Requirements: The management of a concern has to reconcile the conflicting interests of shareholders and those of the company's financial needs. If a company has highly profitable investment opportunities it can convince the shareholders of the need for limitation of dividend to increase the future earnings.

7. Economic Policy: The dividend policy of a firm has also to be adjusted to the economic policy of the Government as was the case when the Temporary Restriction on Payment of Dividend Ordinance was in force. In 1974 and 1975, companies were allowed to pay dividends not more than 33 per cent of their profits or 12 per cent on the paid-up value of the shares, whichever was lower.

8. Taxation Policy: The taxation policy of the Government also affects the dividend decision of a firm. A high or low rate of business taxation affects the net earnings of company (after tax) and thereby its dividend policy. Similarly, a firm's dividend policy may be dictated by the income-tax status of its shareholders. If the dividend income of shareholders is heavily taxed being in high income bracket, the shareholders may forego cash dividend and prefer bonus shares and capital gains.

9. Inflation: Inflation acts as a constraint in the payment of dividends. when prices .rise, funds generated by depreciation would not be adequate to replace fixed assets, and hence to maintain the same assets and capital intact, substantial part of the current earnings would be retained. Otherwise, imaginary and inflated book profits in the days of rising prices would amount to payment of dividends much more than warranted by the real profits, out of the equity capital resulting in erosion of capital.

10. Control Objectives: As in case of a high dividend pay-out ratio, the retained earnings are insignificant and the company will have to issue new shares to raise funds to finance its future requirements. The control of the existing shareholders will be diluted if they cannot buy the additional shares issued by the company.

11. Requirements of Institutional Investors: Dividend policy of a company can be affected by the requirements of institutional investors such as financial institutions, banks insurance corporations, etc. These investors usually favor a policy of regular payment of cash dividends and stipulate their own terms with regard to payment of dividend on equity shares.

12. Stability of Dividends: Stability of dividend simply refers to the payment of dividend regularly and shareholders, generally, prefer payment of such regular dividends. Some companies follow a policy of constant dividend per share while others follow a policy of constant payout ratio and while there are some other who follows a policy of constant low dividend per share plus an extra dividend in the years of high profits.

13. Liquid Resources: The dividend policy of a firm is also influenced by the availability of liquid resources. Although, a firm may have sufficient available profits to declare dividends, yet it may not be desirable to pay dividends if it does not have sufficient liquid resources. If a company does not have liquid resources, it is better to declare stock- dividend i.e. issue of bonus shares to the existing shareholders. The issue of bonus shares also amounts to distribution of firm's earnings among the existing shareholders without affecting its cash position.

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. Advantages of regular dividend policy: (i) It establishes a profitable record of the company. (ii) It creates confidence amongst the shareholders. (iii) It aids in long-term financing and renders financing easier. (iv) It stabilizes the market value of shares. (v) The ordinary shareholders view dividends as a source of funds to meet their day-to-day living expenses. (vi) 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.

2. Stable Dividend Policy: The term 'stability of dividends' means consistency 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: (i) Constant dividend per share. Policy of paying fixed dividend per share irrespective of the level of earnings year after year. Such firms, usually, create a 'Reserve for Dividend Equalization' to enable them pay the fixed dividend even in the year when the earnings are not sufficient. (ii) Constant

payout ratio. Constant pay-out ratio means payment of a fixed percentage of net earnings as dividends every year. The amount of dividend in such a policy fluctuates in direct proportion to the earnings of the company. (iii) Stable rupee dividend plus extra dividend. Some' companies follow a policy of paying constant low dividend per share plus an extra dividend in the years of high profits. Such a policy is most suitable to the firm having fluctuating earnings from year to year. Advantages of Stable Dividend Policy: (i) It is sign of continued normal operations of the company. (ii) It stabilizes the market value of shares (iii) It creates confidence among the investors, improves credit standing and makes financing easier (iv) It provides a source of livelihood to those investors who view dividends as a source of fund to meet day-to-day expenses (v) It meets the requirements of institutional investors who prefer companies with stable divide.

3. Irregular Dividend Policy: Some companies follow irregular dividend payments on account of the following: (i) Uncertainty of earnings(ii) Unsuccessful business operations(iii) Lack of liquid resources

4. No Dividend Policy: A company can follow a policy of paying no dividends presently because of its unfavorable working capital position or on account of requirements of funds for future expansion and growth.

Forms of Dividend

Dividends can be classified in various forms. Dividends paid in the ordinary course of bus in known as Profit dividends, while dividends paid out of capital are known as Liquidation dividends. A dividend which is declared between two annual general meetings is called interim dividend, while the dividend recommended to the shareholders at the annual general meeting is known as final dividend.

Classification on the basis of medium in which they are paid:

a) Cash Dividend: A cash dividend is a usual method of paying dividends. Payment of cash results in outflow of funds and reduces the company's net worth, though the shareholders get a opportunity to invest the cash in any manner they desire. This is why the ordinary shareholders prefer to dividends in cash.

b) Scrip or Bond Dividend: A scrip dividend promises to pay the shareholders at a future specific date. In case a company does not have sufficient funds to pay dividends in cash, it may issue notes or bonds for amount due to the shareholders. The objective of scrip dividend is to postpone the immediate Payment. A scrip dividend bears interest and is accepted as a collateral security.

c) Property Dividend: Property dividends are paid in the form of some assets other than cash are distributed under exceptional circumstances and are not popular in India.

d) Stock Dividend: Stock dividend means the issue of bonus shares to the existing shareholders. If a company does not have liquid resources it is better to declare stock dividend. Stock dividend amounts to capitalization of earnings and distribution of profits among the existing shareholders without affecting the cash position of the firm. This has been discussed in detail under "Bonus Issue".

Bonus Issue

A company can pay bonus to its shareholders either in cash or in the form of shares. Many a times, a company is not in a position to pay bonus in cash in spite of sufficient profits because of unsatisfactory cash position or because of its adverse effects on the working capital of the company. In such cases, if the articles of association of the company provide, it can pay bonus to its shareholder in the form of shares by making partly paid shares as fully paid or by the issue of

fully paid bonus shares. Issue of bonus shares in lieu of dividend is not allowed as according to Section 205 of the Companies Act, 1956, no dividend can be paid except in cash. It cannot be termed as a gift because it only represents the past sacrifice of the shareholders.

When a company accumulates huge profits and reserves, its balance sheet does not reveal a true picture about the capital structure of the company and the shareholders do not get fair return on their capital. Thus, if the Articles of Association of the company so permit, the excess amount can be distributed among the existing shareholders of the company by way of issue of bonus shares. The effect of bonus issue is two-fold:

(i) It amounts to reduction in the amount of accumulated profits and reserves. -

(ii) There is a corresponding increase in the paid up share capital of the company.

Objectives of Bonus Issue:

a) To bring the amount of issued and paid up capital in line with the capital employed so as to depict more realistic earning capacity of the company. .

b) To bring down the abnormally high rate of dividend on its capital so as to avoid labour problems such as demand for higher wages and to restrict the entry of new entrepreneurs due to the attraction of abnormal profits.

c) To Pay bonus to the shareholders of the company without affecting its liquidity and the earning capacity of the company.

d) To make the nominal value and the market value of the shares of the company comparable.

e) To correct the balance sheet so as to give a realistic view of the capital structure of the company.

Advantages of Issue of Bonus Shares Advantages from the viewpoint of the company

1. It makes available capital to carry an a larger and more profitable business.
2. It is felt that financing helps the company to get rid of market influences.
3. When a company pays bonus to its shareholders in the value of shares and not in cash, its liquid resources are maintained and the working capital of the company is not affected.
4. It enables a company to make use of its profits on a permanent basis and increases credit worthiness of the company.
5. It is the cheapest method of raising additional capital for the expansion of the business.
6. Abnormally high rate of dividend can be reduced by issuing bonus shares which enables a company to restrict entry of new entrepreneurs into the business and thereby reduces competition.
7. The balance sheet of the company will reveal a more realistic picture of the capital structure and the capacity of the company.

Advantages from the viewpoint of investors or shareholders.

The bonus shares are a permanent source of income to the investors.

1. Even if the rate of dividend falls, the total amount of dividend may increase as the investor gets dividend on a larger number of shares.
2. The investors can easily sell these shares and get immediate cash, if they so desire.

Disadvantages of Bonus Shares

1. The issue of bonus shares leads to a drastic fall in the future rate of dividend as it is only the capital that increases and not the actual resources of the company. The earnings do not usually increase with the issue of bonus shares.
2. The fail in the future rate of dividend results in the fall of the market price of shares considerably, this may cause unhappiness• among the shareholders.
3. The reserves of the company after the bonus issue decline and leave lesser security to investors.

	UNIT IV				
S. No.	QUESTION	OPTION A	OPTION B	OPTION C	OPTION D
1	The irrelevance concept of dividend includes ----------	Short term approach	MM approach	Traditional approach	Modern approach
2	According to residual approach, ---------- has no effect on the wealth of the shareholders.	Dividend decision	Finance decision	Investment decision	Management decision
3	According to residential approach, dividend decision is merely a part of ---------	Dividend decision	Finance decision	Investment decision	Management decision
4	According to MM theory, the assumptions are ----------	no risk	high risk	low risk	medium risk
5	The relevance concept of dividend include ----------	Walter approach	Gardens approach	MM approach	Traditional approach
6	The relevance concept of dividend include ----------	MM approach	Residual approach	Gorden approach	Modern approach
7	Walter model based on the relationship between the firms ----------	Return on investment	Capital	Risk	Income
8	Walter model based on the relationship between the firms ----------	Profit	Capital	Risk	Cost of capital
9	Assumption of Walters model include ----------	r and k are constant	long life	Short life	Medium
10	Determinants of dividend policy include ----------	Legal restrictions	Nature of the industry	Age of the company	All of these
11	Legal provisions of dividend policy is laid down in ----------	Company's act	Partnership act	Societies act	Registration act
12	Desire and type of shareholder are the factors determining ---------- policy	Finance	Interest	Dividend	Profit
13	Taxation policy of govt economic policies are the factors which are influencing ----------policy.	Finance	Interest	Dividend	Profit
14	---------- policy can be maintained by companies by long standing and stable earning.	Regular dividend	Stable dividend	Irregular dividend	Unstable dividend
15	EPS Expand ----------	Earnings Per Share	Earnings per Shareholder	Expectation per share	Expectation Per security.
16	DPS = ----------'	Determinants Per Share	Dividend per share	Dividend per security	Determinants per security
17	Consistency or lack of variability in the stream of dividend payments are called --------- policy.	Regular dividend	Stable dividend	Irregular dividend	Unstable dividend
18	---------- policy is most suitable to concerns whose earnings are expected to remain stable over a number of years.	Constant dividend per share	Constant pay out ratio	profit dividend	liquidation dividend
19	---------- is the reward of the shareholders for investments made by them.	Interest	profit	dividend	income.
20	Irregular dividend policy is suitable if the company has ----------	uncertainty of earnings	unsuccessful business operations	Successful business operations	Certainty of earnings
21	Dividend paid in the ordinary course of business are known as ----------	profit dividend	liquidation dividend	Stable dividend	Irregular dividend
22	Dividends paid out of capital are known as ----------	profit dividend	liquidation dividend	Regular dividend	Unstable dividend
23	Payment of dividend in the form of cash is known as ----------	cash dividend	scrip dividend	property dividend	stock dividend
24	bond dividend is otherwise known as ----------	cash dividend	scrip dividend	property dividend	stock dividend
25	---------- dividend are paid on the form of some assets other than cash.	cash dividend	scrip dividend	property dividend	stock dividend
26	The issue of bonus shares ot the existing shareholders is known as ----------	cash dividend	scrip dividend	property dividend	stock dividend
27	A ---------- promises to pay the shareholder at a future specific date .	cash dividend	property dividend	bond dividend	stock dividend
28	---------- dividend policy is most suitable to the firm having fluctuating earnings from year to year.	Stable rupee divided plus extra dividend	constant payout ratio	constant dividend per share	all of these.
29	The forms of stable dividend policy are ----------	Constant payout ratio	constant payout ratio	constant dividend per share	all of these
30	The ----------position of the company is an important consideration in paying dividend.	Liquidity	solvency	Profitability	turnover

31	---------- refers to the payment of dividend regularly to the shareholders.	stability of dividend	no dividend	excess dividend	additional dividend other than prescribed
32	Dividend policy of a firm affers both the long term financing and _____	owners wealth	creditors wealth	shareholders wealth	Employees wealth
33	_____ dividend is a visual method of paying dividend.	payment	cash	other than cash	stock
34	Accounts to _____- model the dividend decision is relevant	traditional	net income	modern	MM
35	_____ aftects the liquidity position of the company	cash dividend	Stock dividend	interest	dividend
36	Property dividends are paid in the form of some assets other than _____	stock	shares	Cash	Bank
37	_____ means the issue of bonus shares to the existing shareholders of the company	Stock dividend	shares	debentures	none
38	_____ means reducing the par value of the shares by increasing the number of shares proportionately.	preference shares	equity shares	promoters shares	Stock spilit
39	Which of the following are the consumptions of MM approach of dividend theory.	Perfect capital market	Floation cost	Market price	Constant price
40	_____ of dividend refers to the payment of dividend regularly to shareholders	irregular	Stability	constant	Regular
41	EPS =_____	Total earnings/ no. of shares	net income / total shares	income after taxes/ no of debentures	shares / income
42	Established companies which have sufficient reserves can afford to pay _____ dividend.	stable	irregular	.Liberal	less
43	The industries with steady demand of their products can follow a _____ dividend pay out ratio.	Higher	lower	constant	no dividend
44	The industries with cyclical demand of their production can follow a _____ dividend pay out ratio.	higher	constant	Lower	no dividend
45	Companies were allowed to pay dividend upto _____ of theire profits.	33%	12%	15%	17%
46	The companies were allowed to pay dividend upto _____ on the paid up share capital.	15%	20%	25%	12%
47	Walter's Model suggests for 100% DP Ratio when	$k_e = r$	$k_e < r$	$k_e > r$	$k_e = 0$
48	If a firm has $k_e > r$ the Walter's Model suggests for	0% payout	25% payout	100% payout	50% payout
49	Which of the following is not relevant for dividend pay-ment for a year	Cash flow position	Profit Position	Retained Earnings	Paid up capital
50	Stock split is a form of	Dividend Payment	bonus issue	Financial Restructuring	Dividend in Kind
51	If the following is an element of dividend policy?	Production capacity	Change in Management	Informational Content	Debt service capacity
52	Which of the following is not a type of dividend payment?	Property	Share split	Bonus issue	cash
53	'Constant Dividend Per Share' Policy is considered as:	Increasing Dividend Policy	Decreasing Dividend policy	Increase or Decrease Dividend policy	Stable dividend policy
54	Every company should follow	High dividend payment	Low dividend payment	Fixed dividend policy	Stable dividend policy
55	Dividend is the share of profit of company divided amongst its	shareholders	brokers	debenture holders'	bond holders
56	Stock dividend---------- the number of equity shares	Increases	Decreases	Neutralise	Increase or decrease
57	The policy concerning quantum of profits to be distributed as dividend	Dividend policy	distribution policy	share policy	sale policy
58	Under rigid dividend policy, the rate of dividend is	0	1	-1	-2
59	If the earnings of company are stable then it can easily follow	Stable dividend policy	Flexible dividend policy	lower rate dividend plicy	High dividend plicy
60	Dividends are earnings for shareholders and they expect reasonable ea	profit	capital	investments	property
61	Which one is not irregular dividend policy----------	More profit	uncertainty of earnings	heavy fixed burden of interest	shortage of liquid resources
62	The ----------position of the company is an important consideration in paying dividend.	Liquidity	solvency	Profitability	turnover

ANSWER
MM approach
Dividend decision
Finance decision
no risk
MM approach
Gorden approach
Return on investment
Cost of capital
Short life
All of these
Company’s act
Dividend
Dividend
Regular dividend
Earnings Per Share
Dividend per share
Stable dividend
Constant dividend per share
dividend
unsuccessful business operations
profit dividend
liquidation dividend
cash dividend
scrip dividend
property dividend
stock dividend
bond dividend
Stable rupee divided plus extra dividend
all of these
Liquidity

stability of dividend
shareholders wealth
other than cash
MM
Stock dividend
Cash
Stock dividend
Stock spilit
Perfect capital market
Stability
Total earnings/ no. of shares
.Liberal
Higher
Lower
33%
12%
$k_{e>}$ r
0% payout
Retained Earnings
Financial Restructuring
Informational Content
Share split
Stable dividend policy
Stable dividend policy
shareholders
Increases
Dividend policy
0
Stable dividend policy
investments
More profit
Liquidity

UNIT – V

WORKING CAPITAL DECISION

SYLLABUS

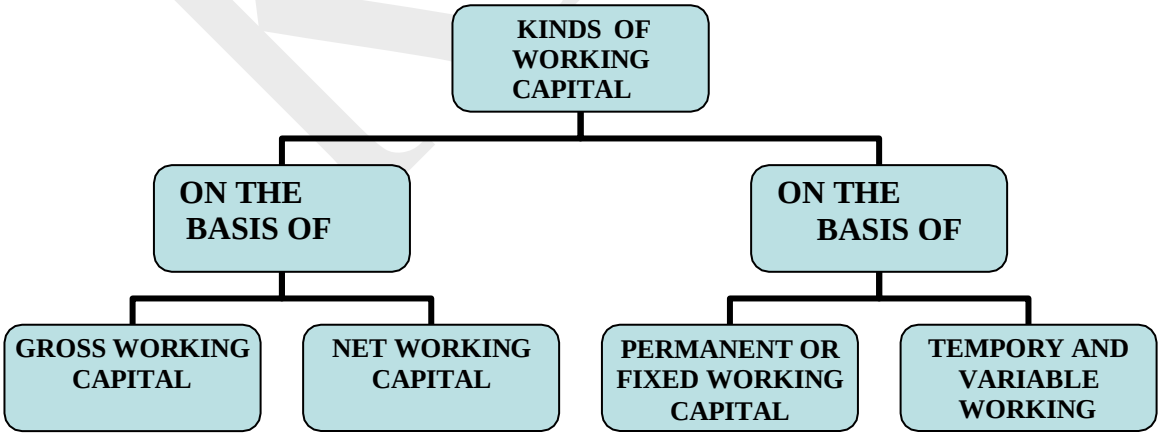
Working Capital Decisions - Concepts of Working Capital - The risk-return trade off - Sources of Short-Term Finance - Working Capital Estimation - Cash Management - Receivables Management - Inventory Management and Payables Management.

Meaning of Working Capital: Capital required for the business can be of two types:

1. Fixed Capital
2. Working Capital

Fixed capital is required to create the production facilities through purchase of fixed assets like Land, Machinery, and Building etc. Investment in these assets represents that part of firm's capital, which is blocked on permanent or fixed basis and is called fixed capital. Funds are also needed for short-term purpose for the purchase of Raw material, Payment of Wages etc. these funds are known as Working Capital. In simple words, working capital refers to that part of firm's capital, which is required for financing short-term assets.

Definitions of Working Capital: According to Shubin: "Working Capital is the amount of funds necessary to cover the cost of operating the enterprises." According to Genestenberg: " Working Capital means current assets of a comp-any that are changed in the ordinary course of business from one form to another as for e.g. Cash to inventories, inventories to receivables and receivables to cash".



(A) On the basis of concept

(i) Gross working capital concept: According to this concept, working capital means total of all current assets of business..

Gross working capital = Total current assets.

(ii) Net working capital concept: According to this concept, working capital means excess of current assets over current liabilities.

Net Working capital = Current Assets – current Liabilities

As per the general practice net working capital is referred to simply as working capital.

(B) On the basis of time

(i) Fixed or permanent working capital: There is always a minimum level of current assets which is continuously required by the enterprise to carry out normal business operation. For ex. Every firm has to maintain a minimum level of stock and cash balance. This minimum level of current assets is called fixed working capital as this amount is permanently blocked in currant assets

(ii) Temporary or variable working capital. It is that amount of working capital which is required to meet the seasonal demand and some special needs. Any amount over and above the permanent level of working capital is called as Temporary or variable working capital.

Operating Cycle / Need for Working Capial

Every business needs some amount of working capital. The need for working capital arises due to the time gap between the production and realization of cash from sales. Thus working capital is needed for the following purposes:

1. For the purchase of raw material, components and spares parts.
2. To pay wages and salaries
3. To incur day-to-day expenses.
4. To meet the selling costs s packing, advertising.
5. To provide the credit facilities to the customers.
6. To maintain the inventories of Raw material, work in progress, finished stock

There is an operating cycle involved in the sales and realization of cash. The cycle starts with the purchase of raw material and ends with the realization of cash from sales of finished foods. It involves purchase of raw material and stores, it conversion in to stock of finished goods through

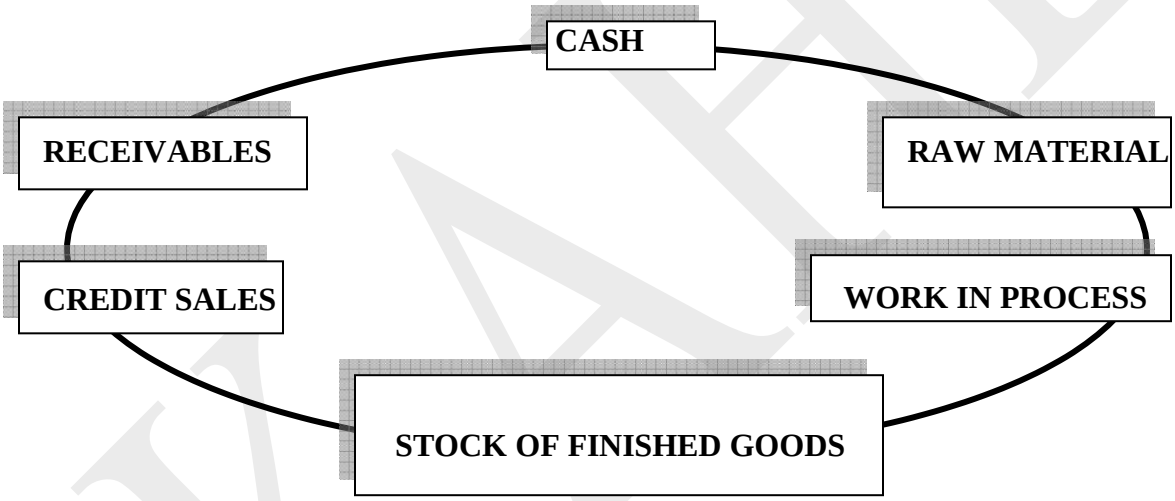
work-in- progress, conversion of finished stock in to sales, debtors and receivables and ultimately in cash and this cycle continues again from cash to purchase of raw material and so on.

The gross operating cycle of the firm = RMCP +WIPCP + FGCP+RCP Where, RMCP = Raw material conversion period

WIPCP = Work in progress conversion period FGCP = Finished goods conversion period RCP = Receivables conversion period

However a firm may acquire some resources of credit and thus defer payments fro certain period. In this case

Net operating cycle period = Gross operating cycle period - Payable deferral period.



Factors Determining Working Capital Requirements

The working capital requirement of a concern depends upon a large number of factors, which are as follow:

1. Nature or Character of Business: Public utility undertakings like Electricity, Water supply and Railways need very limited working capital because they offer cash sales only and supply services not products. On the other hand, Trading and Financial firms require less investment in fixed assets but have to investment large amount in current assets like inventories, receivables etc.

2. Size of Business: Greater the size of business unit, generally larger will be the requirement of working capital. In some case even a smaller concern need more working capital due to high overhead charges, inefficient use of resources etc.

3. Production Policy: The production could be kept either steady by accumulating inventories during slack periods with a view to meet high demand during the peak season or the production could be curtailed during the slack season and increased during peak season. If the policy is to keep the production steady by accumulating inventories it will require higher working capital.

4. Seasonal Variations: In certain industries, raw material; is not available throughout year. They have to buy raw material in bulk during the season to ensure an uninterrupted flow and process them during the entire year. A huge amount is blocked in the form of material inventories during such season, which give rise to more working capital.

5. Working Capital Cycle: In manufacturing concern, the working capital cycle starts with the purchase of raw material and ends with the realization of cash from the sales of finished products. This cycle involves purchase of raw material and starts, its conversion into stock of finished goods through work in progress with progressive increment of labor and service costs, conversion of finished stock into sales, Debtor and receivables and ultimately realization of cash and this cycle continues again from cash to purchase of raw material so on.

6. Rate of Stock Turnover: There is high degree of inverse co relationship between the quantum of working capital and the velocity or speed with which the sales are affected. A firm with having a high rate of stock turnover will need lower amount of working capital as compared to the firm having a low rate of turnover.

7. Credit Policy: A concern that purchases its requirement on credits and sells its products / services on cash require lesser amount of working capital. On the other hand, concern buying its requirement for cash and allow credit to its customers, will need larger amount of working capital as very huge amount of funds are bound to be tied up in debtors or bills receivables.

8. Business Cycle: Business Cycle refers to alternate expansion and contraction in general business activity. In period of boom i.e. when the business is prosperous, there is need for larger amount of working capital due to increase in sales, rise in prices, and expansion of business. On the contrary in the times of depression i.e., when there is down swing of cycle, the business contracts,

sales decline, difficulties are faced in collection from debtors and firms may have a large amount of working capital lying idle.

9. Rate of Growth of Business: For the fast growing concern, larger amount of working capital is required.

Importance or Advantages of Adequate Working Capital

Working capital is the lifeblood and nerve center of a business. No business can run successfully without and adequate amount of working capital. The main advantage of maintaining adequate amount of working capital is as follow:

1. Solvency of the business: Adequate amount of working capital helps in marinating solvency of business by providing uninterrupted flow of production.

2. Goodwill: sufficient amount of working capital enables business concern to make the prompt payment and helps in creating and marinating goodwill.

3. Easy Loans: a concern having adequate amount of working capital, high solvency and credit standing can arranges loans from banks.

4. Cash Discounts: Adequate amount of working capital also enables a concern to avail cash discounts on the purchases and hence it reduces the costs.

5. Exploitation of favorable market condition: Adequate amount of working capital enables a concern to exploit favorable market conditions such as purchasing its requirement in bulk when the prices are lower and by holding its inventories for higher prices.

6. Ability to face the crises: Adequate amount of working capital enables a concern to face the business crises in emergencies such as depression because during such periods, generally there is much pressure on working capital.

7. Quick and regular return on investments: Adequate amount of working capital enables a concern pay quick and regular dividends to its investors as there may not be much pressure to plough back profits.

8. Regular supply of raw material: Adequate amount of working capital ensures regular supply of raw material and continuous production.

Financing of Working Capital

A) Financing of permanent/fixed/or Long term working capital

B) Financing of Temporary, variable or short term working capital

A) Financing of permanent/fixed/or Long term working capital: Permanent working capital should be financed in such a manner that the enterprise may have its uninterrupted use for a sufficient long period. There are five important sources of long term or permanent capital .

1. Shares
2. Debentures / bonds
3. Public deposits
4. Plugging back of profits
5. Loans from financial institutions

These long term sources of finance have already been discussed in detail in the first unit of the book.

B) Financing of Temporary, variable or short term working capital: The main sources of short term working capital are as follows

1) Indigenous Bankers: Private money lenders used to be the only source of finance prior to the establishment of commercial banks. They used to charge very high rates of interest.

2) Trade credit: Trade credit refers to the credit extended by suppliers of goods in the normal course of business. The credit worthiness of a firm and the confidence of its suppliers are the main basis of securing trade credit. The main advantages of trade credit are:

- It is easy and convenient method of finance.
- It is flexible as the credit increases with the growth of firm
- It is informal and spontaneous source of finance.

3) Installment credit: In this assets are purchased and possession of goods is taken immediately but payment is made in installment over a predetermined period. Generally, interest is charged on the unpaid price or it may be adjusted in the price.

4) Advances: Some business houses get advances from their customers and agents against orders. Usually the manufacturing concerns having long production cycle prefer to take advances from their customers.

5) Factoring or Accounts Receivable Credit: A commercial bank may provide finance by discounting bills or invoices of its customers. Thus, a firm gets immediate payment for sale made on

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

6) Accrued expenses: Accrued expenses are the expenses which have been incurred but not yet due and hence not yet paid also. For ex. Wages, salaries, rent, interest, taxes etc.

7) Deferred Incomes: Deferred incomes are incomes received in advance before supplying goods or services. However, firms having great demand for its products and services, and those having good reputation in the market can demand deferred incomes.

8) Commercial Paper: Commercial paper represents unsecured promissory notes issued by firms to raise short-term funds. But only large companies enjoying high credit rating and sound financial health can issue commercial paper to raise short-term funds. The Reserve Bank of India has laid down a number of conditions to determine eligibility of a company for the issue of commercial paper. Only a company which is listed on the. Stock exchange has a net worth of at least Rs. 10 corers and a maximum permissible bank finance of Rs. 25 crores can issue commercial paper not exceeding 30 per cent of its working capital limit. The maturity period of commercial paper mostly ranges from 91 to 180 days. It is sold at a discount from its face value and redeemed at face value on its maturity.

Determining the Working Capital Financing Mix

There are two sources of financing working capital requirements: (i) Long-term sources (ii) short-term sources. Therefore, a question arises as to what portion of working capital (current assets) should be financed by long-term sources and how much by short-term sources? There are three basic approaches for determining an appropriate working capital financing mix.

The Hedging or Matching Approach: The term 'hedging' usually refers to two off-selling transactions of a simultaneous but opposite nature which counterbalance the effect of each other. With reference to financing mix, the term hedging refers to a process of matching maturities of debt with the maturities of financial needs. According to this approach, the maturity of sources of funds should match the nature of assets to be financed. This approach is, therefore, also known as 'matching approach'. This approach classifies the requirements of total working capital into two categories:

(i) Permanent or fixed working capital which is the minimum amount required to carry out the normal business operations. It does not vary over time.

(ii) Temporary or seasonal working capital which is required to meet special exigencies. It fluctuates over time.

The hedging approach suggests that the permanent working capital requirements should be financed with funds from long-term sources while the temporary or seasonal working capital requirements should be financed with short-term funds. The following example explains this approach.

Estimated total investments in Current Assets of Company X for the year 2008

Month	***Investments in Current assets*** *(Rs.)*	***Permanent or Fixed Investment*** *(Rs.)*	***Temporary or Seasonal investment*** *(Rs.)*
January	50,400	45,000	5,400
February	50,000	45,000	5.000
March	48,700	45,000	3,700
April	48,000	45.000	3,000
May	46,000	45,000	1,000
June	45,000	45.000	-
July	47,500	45,000	2,500
August	48,000	45,000	3,000
September	49,500	45,000	4,500
October	50,700	45,000	5,700
November	52,000	45.000	7,000
December	48,500	45.000	3,500
		Total	**44,300**

According to hedging approach the permanent portion of current assets required (Rs. 45,000) should be financed with long-term sources and temporary or seasonal requirements in different months (Rs. 5,400 Rs. 5,000 and so on) should be financed from short-term sources.

The Conservative Approach: This approach suggests that the entire estimated investments in current assets should be financed from long-term sources and the short-term sources should be used only for emergency requirements. According to this approach, the entire estimated requirements of Rs. 52,000 in the month of November (in the above given example) will be financed from long-term sources. The short-term funds will be used only to meet emergencies.

The distinct features of this approach are: (i) Liquidity is severally greater (ii) Risk is minimized

(iii) The cost of financing is relatively more as interest has to be paid even on seasonal requirements for the entire period

Trade off Between the Hedging and Conservative Approaches : The hedging approach implies low cost, high profit and high risk while the conservative approach leads to high cost, low profits and low risk. Both the approaches are the two extremes and neither of them serves' the purpose of efficient working capital management. A trade off between the two will then be an acceptable approach. The level of trade off may differ from case to case depending upon the perception of risk by the persons involved in financial decision-making. However, one way of determining the trade off is by finding the 'average of maximum and the minimum requirements of current assets or working capital. The average requirements so calculated may be financed out of long-term funds and the excess over the average from the short-term funds. Thus, in the above given example the average requirements of Rs. 48.500.

45,000+52,000

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may be financed from long-term while the excess capital required during various months from short-term sources.

The Aggressive Approach: The aggressive approach suggests that the entire estimated requirements of currents asset should be financed from .short-term sources and even a part of fixed' assets investments be financed from short-term sources. This approach makes the finance- mix more risky, less costly and more profitable.

Working Capital Analysis

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 concept of working capital has its own importance in a going concern. A going concern, usually, has a positive balance of working capital, i.e., the excess of current assets over current liabilities, but sometimes the uses of working capital may be more than the sources resulting into a negative value of working capital. This negative balance is generally offset soon by gains in the following periods. A study of changes in the uses and sources of working capital is necessary to evaluate the efficiency with which the working capital is employed in a business. This involves the need of working capital analysis. The analysis of working capital can be conducted through a number of devices, such as:

1. Ratio Analysis
2. Funds Flow Analysis
3. Budgeting

Ratio Analysis: A ratio is a simple arithmetical expression of the relationship of one number to another. The technique of ratio analysis can be employed for measuring short-term 'liquidity or working capital position of a firm. The following ratios may be calculated for this purpose:

i. Current Ratio
ii. Acid Test Ratio
iii. Absolute Liquid Ratio
iv. Receivables Turnover Ratio
v. Payables Turnover Ratio
vi. Working Capital Turnover ratio
vii. Ratio of Current Liabilities to Tangible Net Worth

Funds Flow Analysis: Funds flow analysis is a technical device designated to study the sources from which additional funds were derived and the use to which these sources were put. It is an effective management tool to study changes in the financial position (working capital) of a business enterprise between beginning and ending financial statements dates. The funds flow analysis consists of: (i) preparing schedule of changes in working capital, and (ii) statement of sources and application of funds.

Working Capital Budget: A budget is a financial and/or quantitative expression of business plans and policies to be pursued in the future period of time. Working capital budget, as a part of total budgeting process of a business, is prepared estimating future long-term and short-term working capital needs and the sources to finance them, and then comparing the budgeted figures with the actual performance for calculating variances, if any, so that corrective actions may be taken in the future. The objective of a working capital budget is to ensure availability of funds as and when needed, and to ensure effective utilization of these resources. The successful implementation of working capital budget involves the preparing of separate budgets for various elements of working capital, such as, cash, inventories and receivables, etc.

Estimation of Working Capital Requirements

Factors requiring consideration while estimating working capital

1 Total costs incurred on material, wages and overheads.

2 The length of the time for which materials are to remain in stores before they are issued for production.

3 The length of the production cycle or work in progress.

4 The length of the sales cycle during which finished goods are to be kept waiting for sales.

5 The average period of credit allowed to customers.

6 The amount of cash required to pay day to day expenses of the business.

7 The average amount of cash required to make the payments.

8 The average credit period expected to be allowed by suppliers.

9 Time lag in the payment of wages and other expenses.

Illustration 1: You are required to prepare a statement showing the working capital required to finance the level of activity of 18,000 units per year from the following information:-

Particulars	Rs.
Raw material Per Unit	12
Direct labor Per Unit	3
Overheads per Unit	9
Total cost Per Unit	24
Profit per Unit	6

Selling price Per Unit 30

Additional Information:

1. Raw material is in stock on an average for 2 months.
2. Materials are in process on an average for half-a- month.
3. Finished goods are in stock on an average for two months.
4. Credit allowed by creditors is two months in respect of raw materials supplied.
5. Credit allowed to debtors is three months.
6. Lag in payment of wages is half month. Cash on hand and at bank is expected to be Rs. 7,000.
7. You are informed that all activities are evenly spread out during the year.

Solution:

Estimation of Working Capital:

Current Assets:			Rs.
1. Stock-in-Trade			
a. Raw materials	18,000 x 12 x 2/12	=	36,000
b. Work in progress	18000 x 18 x ½/12	=	13,500
c. Finished goods	18,000 x 24 x 2/12	=	72,000
			1, 21,500
2. Sundry debtors	18,000 x 30 x 3/12	=	1, 35,000
3. Cash on hand and at bank	18,000 x 30 x 3/12	=	7,000
			2, 63,500
Less: Current liabilities:			
4. Sundry creditors	18,000 x 12 x 3/12	=	36,000

5. Wages	18,000 x 3 x ½ / 12	=	2250
Estimated Working Capital Requirement			2, 25,250

Working Notes:

(1) Cost of each unit of Work in process	Rs.
Raw materials	12
Labour(50% of Rs. 3)	1.50
Overhead(50% of Rs. 9)	4.50
Total	18

Illustration 2: Runwall Ltd. had annual sales of 50,000 units at Rs.100per unit. The company works for 50 weeks in the year. Cost details of the Company are as given below:

Particulars	Rs.
Raw material Per Unit	30
Labour Per Unit	10
Overheads per Unit	20
Total cost Per Unit	60
Profit per Unit	40
Selling price Per Unit	100

Additional Information:

1. The Company has the practice of storing raw materials for 4weeks requirements.
2. The wages and other expenses are paid after a lag of 2 weeks.
3. Further the debtors enjoy a credit of 10 weeks and Company gets a credit of 4 weeks from suppliers.
4. The processing time is 2 weeks and finished goods inventory is maintained for 4 weeks. From the above information prepare a working capital estimate, allowing for a 15% Contingency.

Solution:

Estimation working Capital:

RECEIVABLES MANAGEMENT

Receivables constitute a significant portion of the current assets of a firm. But, for investments in the receivables, a firm has to incur certain costs. There is also a risk of bad debts also. It is therefore very necessary to have a proper control and management of receivables.

Meaning of Receivables: Receivables represents amount owed to the firm as a result of sale of goods or services in the ordinary course of business these are the claims of firm against its customers and form a part of the current assets. Receivables are also known as accounts Receivables; trade Receivables, customer Receivables, etc. the Receivables are carried for the customers. The period of credit and extent of Receivables depend upon the credit policy followed by the firm. The purpose of maintaining or investing in Receivables is to meet competition, and to increase the sale and profits of the business.

Costs of maintaining Receivables

1. Cost of Financing Receivables. When a firm maintains receivables, some of the firm's resources remain blocked in them because there is a time lag between the credit sale to customer and receipt of cash from them as payment. Whether this additional finances is met from its own resources or from outside, it involves a cost to the firm in terms of interest (if financed from outside) or opportunity costs (if internal resources are used).
2. Administrative costs. When a company maintains receivables, it has to incur additional administrative expenses in the form of salaries to clerks who maintain records of debtors, expenses on investigating the creditworthiness of debtors etc.

3. Collection costs. These are costs, which the firm has to incur for collection of the amount at the appropriate time from he customers.
4. Defaulting cost: When customers make default in payment not only is the collection effort to be increased but the firm may also have to incur losses from bad debts.

Meaning and Objectives of Receivables Management

Receivables management is the process of making decision relating to investment in trade debtors. Certain investment in Receivables is necessary to increase the sales and profits of a firm. But at the same time investment in this asset involves cost consideration also. Further there is always risk of bad debts too. Thus the objective of Receivables management is to take a sound decision as regards investment in debtors. In the word of Bolton, S.E. "The objective of Receivables Management is to promote the sales and profits until that point is reached where the return on investment in further funding of Receivables is less than the cost of funds raised to finance that additional credit".

Dimensions of Receivables Management

Receivables management involves the careful consideration of the following steps:

1. Forming of Credit Policy
2. Executing the Credit Policy
3. Formulating and Executing Collection policy

Forming of Credit Policy: A credit policy is related to decision such as Credit standards, length of credit periods, cash discount and discount period.

1. Credit standards: The volume of sales will be influence by the credit policy of the concern. By liberalizing the credit policy the volume of sales can be increased resulting into increased profits. The increased volume of sales is associated with the certain risks also. It will result in enhanced costs and risk of bad debts and delayed receipts. The increase in number of customers will increase the clerical work of maintaining the additional accounts and collecting of information about the credit worthiness of the customers. On the other hand, extending the credit only to credit worthy customers will save the cists like bad debts losses, collection costs, investigation costs etc. the restriction of credit to such customers only will certainly reduce sales volume, thus resulting n

reduced profits. The credit should be liberalized only to the level where incremental revenue matches the additional costs. This the optimum level of investment in receivables is achieved at a point where there is a trade off between the cists, profitability and liquidity

2. Length of Credit period: Length of Credit period means the period allowed to the customers for making the payment. The customers paying well in time may also be allowed certain cash discounts. There are no bindings on fixing the terms. The length of credit period and quantum of discount allowed determine the magnitude of investment in receivables. A firm may allow liberal credit terms to increase the volume of sales. The

lengthening of this period will mean blocking of more money in receivables, which could have been, invested somewhere else to earn income. There may be an increase in debt collection costs and bad debts losses too. If the earnings from additional sales by Length of Credit period are more than the additional costs then the credit terms should le liberalized. A finance manager should determine the period where additional revenues equates the additional costs and should not extend credit beyond this period as the increases in the cost will be more than the increase in revenue.

3. Cash discount: cash discount is allowed to expedite the collection of receivables. The funds tied up in receivables are released. The concern will be able to use the additional funds received from expedited collection due to cash discount. The discount allowed involves cost. The finance manager should compare the earnings resulting from released funds and the cist of the discount. The discount should be allowed only if its cost is less than the earnings from additional funds. If the funds cannot be profitably employed then discount should not be allowed.

4. Discount period: The collection of receivables is influenced by the period allowed for availing the discount. The additional period allowed for this facility may prompt some more customers to avail discount and make payments. For example, if the firm allowing cash discount for payments within 7 days now extends it to payments within 15 days. There may be more customers availing discount and paying early but there will be those also who were paying earlier within 7 days will now pay in 15 days. It will increase the collection period of the concern.

Executing the Credit Policy. The evaluation of credit applications and finding out the credit worthiness of customers should be undertaken.

1. Collecting the Credit information: The first step in implementing the credit policy will be to gather the information about the customers. The information should be adequate enough so that the proper analysis about the financial position of the customers is possible. The type of the information can be undertaken only up to a certain limit because it will involve cost. The cost incurred on collecting this information and the benefit from reduced bad debts losses will be compared. The credit information will certainly help in improving the quality of receivables but the cost of collecting information should not increase the reduction of bad debt losses. The information may be available from the financial statements of the applicant, credit rating agencies; reports from the banks, firm's records etc. a proper analysis of financial statements will be helpful in determining the creditworthiness of customers. Credit rating agencies supply information about various concerns. These agencies regularly collect the information about the business units from various sources and keeps the information up to date. Credit information may be available with the banks also. The banks have their credit departments to analyze the financial position of customers. In case of old customer, businesses own records may help to know their credit worthiness. The frequency of payments, cash discount availed may help to form an opinion about the quality of the credit.

2. Credit analysis: After gathering the required information, the finance manager should analyze it to find out the credit worthiness of potential customers and also to see whether they satisfy the standard of the concern or not. The credit analysis will determine the

degree if risk associated with the account, the capacity of the customers to borrow and his ability and willingness to pay.

3. Credit Decision: The finance manager has to take the decision whether the credit is to be extended and if yes up to which level. He will match the creditworthiness of the customers with the credit standard of the company. If the customer's creditworthiness is above the credit standards then there is no problem in taking a decision. In case the customer's are below the company's standards then they should not be out rightly refused. Therefore they should be offered some alternatives facilities. A customer may be offered to pay on delivery on goods; invoices may be sent through bank and released after collecting dues.

4. Financing Investments in receivables and Factoring: Receivables block a part of working capital. Efforts should be made so that the funds are nit tied up in receivables for longer periods. The finance manager should make the efforts to get the receivable financed so that working capital needs are met in time. The banks allow the raising of loans against security of receivables. Banks supply between 60-80% of the amount of receivables of dependable parties only. Then quality will determine the amount of loan. Beside banks, there may be other agencies, which can buy receivables and pay cash for them known as factoring. The factor will purchase only the accounts acceptable to him. The factoring may be with or without recourse. If it is without recourse then any bad debts loss taken up by the factor but if it is with recourse then bad debts loss will be recovered from the seller. The factor may suggest the customer for whom he will extend this facility.

Formulating and executing Collection Policy. The collection of amount due to the customers is very important. The concern should devise the procedures to be followed when accounts become due after the expiry of credit period. The collection policy termed as strict and lenient. A strict policy of collection will involve more efforts on collection. This policy will enable the early collection of dues and will reduce bad debts losses. The money collects will be used for other purpose and the profits of the concern will go up. A lenient policy increases the debt collection period and more bad debts losses. The collection policy should weigh the various aspects associated with it, the gains and looses of such policy and its effects on the finances of the concerns. The collection policy should also devise the steps to be followed in collecting over due amounts. The steps should be like

a) Personal request through telephone
b) Personal visit to customers
c) Taking help of collecting agencies
d) Taking legal action etc.

INVENTORY MANAGEMENT

Introduction: Every enterprise needs inventory for smooth running of its activities. It serves as a link between production and distribution processes. There is generally a time lag between the recognition

of needed and its fulfillment. The greater the time, higher the requirement of inventory. Thus it is very essential to have proper control and management of inventories.

Meaning of Inventory

The inventory means stock of goods, or a list of goods in manufacturing concern, it may include raw material, work in progress and stores etc. it includes the following things:

1. Raw materials are those basic inputs that are converted into finished product through the manufacturing process. Thus, raw materials inventories are those units, which have been purchased and stored for future production.

2. Work-in-process inventories are semi-manufactured products. They represent products that need more work before they become finished products for sale.

3. Finished goods inventories are those completely manufactured products, which are ready for sale. Stocks of raw materials and work-in-process facilitate production, while stock of finished goods is required for smooth marketing operations.

Thus, inventories serve as a link between the production and consumption of goods. The levels of three kinds of inventories for a firm depend on the nature of its business. A manufacturing firm will have substantially high levels of all three kinds of inventories, while a retail or wholesale firm will have a very high level of finished goods inventories and no raw material and work-in-process inventories. Within manufacturing firms, there will be differences. Large heavy engineering companies produce long production cycle products. therefore, they carry large inventories. On the other hand, inventories of a consumer product company will not be large because of short production cycle and fast turnover. Supplies (or stores and spares) is a fourth type of inventory is also maintained by firms. Supplies include office and plant cleaning

materials like soap, brooms, oil, fuel, light bulbs etc. These materials do not directly enter production, but are necessary for production process. Usually, these supplies are small part of the total inventory and do not involve significant investment. Therefore, a sophisticated system of inventory control may not be maintained for them.

Purpose of Holding Inventories

There are three main purposes for holding the inventories:

1. The Transaction Motive: This facilitates the continuous production and timely execution of sales orders.
2. The Precautionary Motive: This necessitates the holding of inventories for meeting the unpredictable changes in demand and supply of material.
3. The Speculative Motive: This includes keeping inventories for taking the advantage of price fluctuations, saving in reordering costs and quantity discounts.

Inventory Management

The investment in inventory is very high in most of the undertakings engaged in manufacturing, wholesale and retail trade. The amount of investment is sometimes more in inventory than on other assets. In India, a study of 29 major industries has revealed that the average cost of the material is 64 paise and the cost of labor and overhead is 36 paise in a rupee. It is necessary for every management to give proper attention inventory management.

A proper planning of purchasing, handling, storing, and accounting should form a proper inventory management. An efficient system of inventory management will determine:-

1. What to purchase
2. How much to purchase
3. From where to purchase
4. Where to store

The purpose of inventory management is to keep the stocks in such a way that neither there is over stocking nor under stocking. The over stocking will mean a reduction of liquidity and starving for other production processes. On the other hand, under stockings, will result in stoppage of work. The investment in inventory should be left in reasonable limits.

Objectives of Inventory Management

The main objectives of inventory management are operational and financial. The operational objectives mean that the materials and spares should be available in sufficient quantity so that work is not disrupted for want of inventory. The financial objective mean that investment in inventories should not remain idle and minimum working capital should be locked in it. The followi8ng are the objectives of inventory management:

1. To ensure the continuous supply of raw material, spare and finished goods so that the production should not suffer at any time.

2. To avoid both over stocking and under stocking of inventory.

3. To maintain the investment in inventories at the optimum level as required the operational and sales activities.

4. To keep material cost under control so that they contribute in reducing the cist of production and overall costs.

5. To eliminate duplication in ordering stocks. This is possible with the help of centralized purchase.

6. To minimize the losses through pilferages, wastages and damages.

7. To design the proper organization for inventory management.

8. To ensure the perpetual inventory control so that the material shown in the stock ledgers should be actually lying in the stores.

9. To facilitate the furnishing of data for short term and long term planning and control of inventory.

TOOLS AND TECHNIQUES OF INVENTORY MANAGEMNT

Effective inventory management requires an effective control, system for inventories. A proper inventory control not only helps in solving the acute problem of liquidity but also increases the profits and causes substantial reduction in the working capital of the concern. The following are the important tools and techniques in inventory management and control:

1. Determination of stock level
2. Determination of safety stock
3. Determination of economic order quantity
4. A.B.C. analysis
5. V E D analysis
6. Inventory turnover ratio
7. JIT Control system

Determination of stock level: Carrying too much and too little inventories is detrimental to the firm. If the inventory level is too little, the firm will face frequent stock outs involving heavy ordering costs and if the inventory if too high it will be unnecessary tie up of capital. Therefore an efficient inventory management requires that a firm should maintain an optimum level of inventory where inventory costs are minimum. Various stock levels are as follow:

a) Minimum level: This represents the quantity, which must be maintained in hand at all, times. If stocks are less than the minimum level than the work will stop due to shortage of material. Following factors are undertaken while fixing minimum stock level.

b) Lead time: The time taken in processing the order and then executing is known as lead time

c) Rate of consumption: It is the average consumption of material in the factory. Minimum stock Level = Re order level – (Normal consumption x Normal reorder period)

d) Reorder level: Re order level is fixed between minimum and maximum level. Reorder level = Maximum Consumption x Maximum reorder period

e) Maximum Level: It is the quantity of the material beyond which a firm should not exceeds its stocks. If the quantity exceed maximum level limit then it will be overstocking. Maximum Level = Reorder level + reorder quantity – (Minimum Consumption x Minimum reorder period)

f) Average stock level: Average Stock level = Minimum stock level + ½ of reorder quantity

Determination of the safety stock: Safety stock is a buffer to meet some unanticipated increase in usage. The usage of inventory cannot be perfectly forecasted. It fluctuates over a period of time. Two costs are involved in the determination of this stock.

- Opportunity cost of stock out
- Carrying costs

The stock out of Raw Material would cause production disruption. The stock out of finished goods result into the failure of the firm in competition as the form cannot provide proper customer service.

Economic order of quantity: A decision about how much to order has a great gignifi8cance in inventory management. The quantity to be purchased should be neither small nor big. EOQ is the

size of lot to be purchased which is economically viable. This is the quantity of the material, which can be purchased at minimum cost. Cost of managing the inventory is made up of two parts:-

Ordering Costs: This cost includes:

a) Cost of staff posted for ordering of goods
b) Expenses incurred on transportation of goods purchased.
c) Inspection costs of incoming material
d) Cost of stationery, postage, telephone charges.

Carrying costs: These are the costs for holding the inventories. It includes:

a) The cost of capital invested in inventories.
b) Cost of storage
c) Insurance cost

d) Cost of spoilage on handling of materials
e) The loss of material due to deterioration.

The ordering and carrying costs of material being high, an effort should be made to minimize these costs. The quantity to be ordered should be large so that economy may be made in transport cost and discounts may also be earned.

Assumptions of EOQ

a) The supply of goods is satisfactory.
b) The quantity to be purchased by the concern is certain
c) The prices of the goods are stable.

EOQ = Root of 2AS/I

Where , A = Annual consumption in rupees

S = Cost of placing an order

I= Inventory carrying cost of one unit

A-B-C Analysis: The materials divided into a number of categories for adopting a selective approach for material control. Under ABC analysis, the materials are divided into 3 categories viz, a B and C. Past experience has shown that almost 10% of the items contribute to 70% of the value of the consumption and this category is called 'a' category. About 20% of the items contribute 20% of the value of the consumption and is known as category 'B' materials. Category 'C' covers about 70% of the items of the material, which contribute only 10% of the value of the consumption.

Class	No. of items %	Value of the Items %
A	10	
B	20	
C	70	70
	20	
	10	

A B C ANALYSIS helps to concentrate more efforts on category A. since greatest monetary advantage will come by controlling these items. An attention should be paid in estimating the requirements, purchasing, maintaining the safety stocks and properly storing of 'A' Category, material. These items are kept under a constant review so that a substantial material cost may be controlled. The control of 'C' items may be relaxed and these stocks may be purchased for the

year. A little more attention should be given toward 'B' category items and their purchase should be undertaken at quarterly or half yearly intervals.

V E D Analysis: The VED analysis is generally used for spare parts. The requirement and urgency of spares parts is different from that of the material. Spare parts are classified as Vital (V), essential (E),

and Desirable (D). The vital spares are must for running the concern smoothly and these must be stored adequately. The non-availability of spare parts will cause havoc on the concern. The E type of spares is also necessary but their stock may be kept at low figures. The stocking of D type of spares may be avoided at times. If the lead time of these spares is less, then stocking of these spares can be avoided. The classification of spares under these three categories is an important decision. A wrong classification of any spare will create difficulties for production department. The classification should be left to the technical staff because they know the need urgency and use of these spares.

Inventory Turnover Ratio: This ratio is calculated to indicate whether the inventories have been used efficiently or not. The purpose is to ensure the blocking of only required minimum funds in inventory. This ratio is also known as Stock velocity.

Inventory Turnover Ratio = Cost of goods sold
Average inventory at cost

Inventory Conversion period = Days in Year
Inventory Turnover Ratio

Just In Time (JIT) Inventory Control System : Just in time philosophy, which aims at eliminating waste from every aspect of manufacturing and its related activities, was first developed in Japan. Toyota introduced this technique in 1950's in Japan, how U.S. companies started using this technique in 1980's. The term JIT refers to a management tool that helps produce only the needed quantities at the needed time.

Just in time inventory control system involves the purchase of materials in such a way that delivery of purchased material is assured just before their use or demand. The philosophy of JlT control system implies that the firm should maintain a minimum (zero level) of inventory and rely on suppliers to provide materials just in time to meet the requirements.

Objectives of JIT

1. Minimum (zero) inventory and its associated costs.
2. Elimination of non-value added activities and all wastes.
3. Minimum batch/lot size.
4. Zero breakdowns and continuous flow of production.
5. Ensure timely delivery schedules both inside and outside the firm.
6. Manufacturing the right product at right time. -

Features of JIT

1. It emphasises that firms following traditional inventory control system overestimate ordering cost and underestimate carrying costs associated with holding of inventories.
2. It advocates maintaining good relations with suppliers so as to enable purchases of right quantity of materials at right time.
3. It involves frequent production/order runs because of smaller batch/lot sizes.
4. It requires reduction in set up time as well as processing time.
5. The major focus of JlT approach is to purchase or produce in response to need rather than as per the plans and forecasts.

Advantages of JIT Inventory Control System

1. The right quantities of materials are purchased or produced at the right time.
2. Investment in inventory is reduced.
3. Wastes are eliminated.
4. Carrying or holding cost of inventory is also reduced because of reduced inventory.

Reduction in costs of quality such as inspection, costs of delayed delivery, early delivery, processing documents etc. resulting into overall reduction in cost.

CASH MANAGMENT

Introduction: Cash is the most liquid asset that a business owns. Cash in the business enterprises may be compare s to the blood in the human body, which gives life and strength to the human body and the cash imparts life and strength, profits and solvency to the business organization.

What do you understand by Management of Cash? The modern day business comprises of numerous units spread over vast geographical areas. It is the duty of the finance manager to provide adequate cash to each of the units. For the survival of the business it is absolutely necessary that there should be adequate cash. It is the duty of the finance manager to maintain liquidity at all parts of the organization while managing cash. On the other hand, he has also to ensure there are no funds blocked in idle cash. Idle cash resources entail a great deal of cost in term of interest charges and in terms of opportunities costs. Hence the questions of cost of idle cash must also be kept in mind by the finance manager. A cash management scheme therefore, is a delicate balance between the twin objectives of liquidity and costs.

Why we need for cash: The following are the three basic considerations in determining the amount of cash or liquidity as have been outlined by Lord Keynes:

1. Transaction needs: Cash facilitates the meeting of the day to day expenses and other payments on the debts. Normally, inflows of cash from operation should be sufficient for this purpose. But sometimes this inflow may be temporarily blocked. In such cases, it is only the reserve cash balance that can enable the firm to make its payments in time
2. Speculative needs: Cash may be held in order to take advantage of profitable opportunities that may present themselves and which may be lost for want of ready cash settlement.
3. Precautionary needs: Cash may be held to act as for providing safety against unexpected events. Safety as is typified by the saying that a man

Motives for Holding Cash

The firm with the following motives holds cash:

Transaction Motive

Motives of holding cash Precautionary Motive

Speculative Motive

1. Transaction Motive: Transaction Motive requires a firm to hold cash to conduct its business in the ordinary course. The firm needs cash to make payments for purchases, wages, operating expenses and other payments. The need to hold cash arises because cash receipts and cash payments are not perfectly synchronized. So firm should maintain cash balance to make the required payment. If more cash is need for payments than receipts, it may be raised through bank overdraft. On the other hand if there are more cash receipts than payments, it may be spent on marketable securities.

2. Precautionary Motive: cash is also maintained by the firm to meet the unforeseen expenses at a future date. Their are uncontrollable factors like government policies, competition, natural calamities, labor unrest which have heavy impact on the business operations. In such situations, the firm may require cash to meet additional obligations. hence the firm should hold cash reserves to meet such contingencies. Such cash may be invested in the short term marketable securities which may provide the cash s and when necessary.

3. Speculative Motive: To take the advantage of unexpected opportunities, a firm holds cash for investment in profit making opportunities. Such a motive is purely speculative in nature.For e.g. holding cash to rake advantage of an opportunity to purchase raw material at the reduced price on the payment of immediate cash or delay that purchase of material in anticipation of declining prices. It may like to keep some cash balance to make profits by buying securities at the time when their prices fall on account of tight money conditions.

Cash Management: Cash management deals with the following:

1. Cash Planning
2. Managing Cash flows

3. Determining optimum cash balance

Following are some facets of cash management:

Cash planning: cash planning is a technique to plan and control the use of cash. A projected cash flow statement may be prepared, based on the present business operations and anticipated future activities.

Cash Budget / Cash Forecasts: cash budget is a summary statement of the firm's expected cash flows and cash balances over the projected period. This information helps the finance manager to determine the future cash needs of the firm, plan for the financing of these needs and exercise control over the cash and to reach liquidity of the firm. It is a forecast of expected cash intake and outlays.

The short-term forecast can be made with the help of cash floe projections. The finance, manager will make the estimate of likely receipts in the near future and the expected disbursement in that period. The long-term cash forecast are also essential for proper cash planning. Long-term forecast indicates company's future financial needs for working capital, capital projects etc. Both short term and long-term forecasts may be made with the help of the following methods:

1. Receipts and disbursement methods
2. Adjusted net income methods

Receipts and Disbursement Methods: In this method the receipts made payments of cash are estimated. The cash receipt may be from cash sales, collection from debtors, and sale of fixed assets. Payment may be made for cash purchases, to creditors for goods, purchases of fixed assets etc. the receipts and disbursement are to be equaled over a short as well as long periods. Any shortfall in receipts will have to be met from banks or other sources. Similarly surpluses cash may be invested in the risk free marketable securities.

Adjusted Net Income Method: This method also known as Sources and Uses approach. This method helps in projecting the company's need for cash at some future date and to see whether the company will be able to generate sufficient cash. If not, then it will have to decide about borrowing.

In preparing the adjusted net income forecast, items such as net income. Depreciation, tax, dividends can be easily determined from the company's annual operating budget. Difficulty is faced in estimating the working capital changes because they are influenced by factors such as fluctuation in raw material costs, changing demand for the company's products, for projecting working capital ratios relating to receivables and inventories may be used.

Safety as is typified by the saying that a man has only three friends an old wife, an old dog and money at bank.

Managing Cash Flows

After estimating the cash flows, efforts should be made to adhere to the estimates of receipts and payment of cash. Cash management will be successful only if cash collections are accelerated and ash disbursement is delayed. The following method of cash management will help:

Prompt payment by customers: In order to accelerate cash inflows, the collections from the customers should be prompt. The customers should be promptly informed about the amount payable and the time by which it should be paid. One method is to avail cash discounts.

Quick conversion of payment into cash: improving the cash collection process can accelerate Cash flows. Once the customer writes a cheque in favor of the concern the collection can be quickened by its earlier collection. There is the time gap between the cheque sent by the customers and the amount collected against it. This is due to may factors:

a) Mailing time

b) Postal float i.e. time taken by the post office for transferring the Cheque from customers to the firm.

c) Bank floats i.e. collection time within the bank. All these are known as Deposit float

An efficient cash management will be possible only if time taken in deposit float vis reduced which can be done only by decentralizing collections.

Decentralized Collections: A big firm operating over wide geographical area can accelerate collections by using the system of decentralized collections. A number of collection centers are opened in different area. To reduce the mailing time.

CASH MANAGEMENT MODELS

Determining Optimum Cash Balance: There are basically two approaches to determine an optimum cash balance

1. Minimizing Cost models
2. Preparing cash Budget

Cash Budget: cash budget is a summary statement of the firm's expected cash flows and cash balances over the projected period. This information helps the finance, manager to determine the future cash needs of the firm, plan for the financing of these needs and exercise control over the cash and to reach liquidity of the firm. It is a forecast of expected cash intake and outlays.

The cash budget should be coordinated with the other activities of the business. The functional budgets may be adjusted according to the cash budgets. The available funds should be fruitfully used and the concern should not suffer for the wants of funds,

Cash Management Models: There are two models:

a. William J. Baumol's Model

b. Miller and Orr model

William J. Baumol's Model: Acc to this model the optimum cash balance is the trade off between the opportunity cost and the transaction cost. The optimum cash balance is reached at a point where the total cost is minimum. The Baumol's Model is based on the following assumptions:

a) The cash needs of the firm are known with certainty.

b) The opportunity cast of holding cash is known and it remains constants.

c) The transaction cist of converting securities into cash is known and remains constant.

The Baumol's Model can be represented algebraically.

$$C = \sqrt{\frac{2A \times F}{O}}$$

Where, C = optimum balance

A = Annual cash Disbursements F = Fixed cost per transaction

O = opportunity cost of holding cash

Miller and Orr Model: The Miller and Orr Model provides two control limits

a) The upper control limit

b) Lower control limit

When the cash balance touches the upper control limit, marketable securities are purchased to the extent of hz to return back to normal cash balance of z. in the same manner when the cash balance touches the lower control point the firm will sell the marketable securities to the extent of oz to again

to return to the normal cash balance. The spread between the upper and lower cash balance limits can be computed using miller and orr Model as follow:

$$Z = 3\left(\frac{3}{4} \times \frac{\text{Transaction Cost} \times \text{Variance of Cash Flows}}{\text{Interest Rate}}\right)^{\frac{1}{3}}$$

$$\text{Return Point} = \text{Lower Limit} + \frac{Z\ (\text{Spread})}{3}$$

$$\text{Variance of Cash flows} = (\text{Standard deviation})^{2}$$

PAYABLE MANAGEMENT

Account Payables Management refers to the set of policies, procedures, and practices employed by a company with respect to managing its trade credit purchases.

In summary, they consist of seeking trade credit lines, acquiring favorable terms of purchase, and managing the flow and timing of purchases so as to efficiently control the company's working capital.

The account payables of a company can be found in the short-term liabilities section of its balance sheet, and they mostly consist of the short-term financings of inventory purchases, accrued expenses, and other critical short-term operations.

WHY COMPANIES FINANCE THEIR PURCHASES

Purchasing inventory, raw materials, and other goods on trade credit allows a company to defer its cash outlays, while accessing resources immediately.

When managed appropriately financing purchases can contribute to effective working capital management.

A company that employs best practices with regards to payables management can reap the benefits of stable operating cycles that provide a stable source of operating cash flows and place it in a good liquidity position with respect to its competitors.

OBTAINING TRADE CREDIT

Companies seeking trade credit must demonstrate that they meet certain criteria with respect to their creditworthiness and financial condition.

This typically entails credit analysis by the supplier.

The financial statements of the company are analyzed, paying particular attention to its working capital, short-term liquidity and short and long-term debt to gauge its ability to meet obligations.

The final product of such analysis is usually some form of a credit risk rating.

PURCHASE AND PAYMENT TERMS

The purchase and credit terms obtained will depend on the company's risk assessment above.

Companies that are financial stable can benefit from favorable terms (e.g. lengthy repayment periods).

For example, a company might be offered a sales on credit term of 5/10 net 30 implies a 5% discount on the purchase amount if payment is made within 10 days of billing date.

If the discount is not taken, the full invoiced amount is due in 30 day.

MANAGING PAYMENTS

After entering into purchase agreements with a supplier, the company has the responsibility of fulfilling its payment obligations.

The Accounts Payable department is accountable for this function, and performs tasks such as communicating with suppliers, sending payments and reconciling bank records, as well as updating and performing related accounting entries

Managing payables also include the expense administration with respect to the company's own employees.

Expenses such as employee travelling, meals, entertainment, and other costs related to doing business for the company are administered by the payables department and must be managed appropriately.

EVALUATING THE PERFORMANCE OF PAYABLES MANAGEMENT

Accounts payable are one of 3 main components of working capital, along with receivables and inventory.

Understanding how these 3 accounts interact among each other and the resulting effects on working capital levels, cash flow, and the operating cycle can help in managing and evaluating payables management.

An appropriate balance must be struck, whereby the advantage of deferring cash outlays using trade credit is weighted against the risk of excessive short-term credit.

It is therefore important to maintain optimal utilization of credit lines and timing of payments, and create a balance between the need for cash, working capital, and liquidity.

A number of metrics and short-term financial ratios can be used to evaluate the performance payables management.

Payables Turnover Ratio

Management can use this ratio to measure the average number of times a company pays its suppliers in a particular period.

A higher number than the industry average indicates the company pays its suppliers at a faster rate than its competitors, and is generally conducive to short-term liquidity.

Days in Payables Outstanding (DPO)

Measuring the average length of time it takes a company to pay for its short-term purchases in a period, the DPO can be used by management to determine an optimal timing of payments for its payables.

	UNIT V					
S. NO.	QUESTION	OPTION A	OPTION B	OPTION C	OPTION D	ANSWER
1	What do you mean by working capital management?	management of current assets	Land	Reserve	Loan	management of current assets
2	Which of the following is not an element of credit policy?	Credit Terms	collection policy	cash discount policy	Sales price	Sales price
3	Which of the following is related to Receivables	cash budget	EOQ	Stock Level	Ageing Schedule	Ageing Schedule
4	EOQ stands for	Economic Order Quantity	Economic order Quandum	Equal Order Quantity	Economic One Quantity	Economic Order Quantity
5	In which current asset is vital to the daily operations of manufacturing companies	Inventory	cash	Bills receivables	Debtors	Inventory
6	Which is the principal tool of cash management?	Bank deposit	Cash budget	Lock box system	Flexible budget	Cash budget
7	Current assets are also known as	Inventory	cash	Gross working capital	fixed asset	Gross working capital
8	Which is the principal method of short term cash forecasting?	Funds flow method	Cash flow method	Receipts and payments method	Financial statement	Cash flow method
9	ABC Analysis is used in	Inventory Management	Receivable Management	Accounts payable management	Corporate Goverances	Inventory Management
10	Advantages of adequate working capital funds include	Cash Discount	Liquidity and Solvency	High morale	All of the above	All of the above
11	Working capital management encompass ---------- problem	Availability of ample funds	To decide upon optimal mix of funds	To find internal source of funds	To find external source of funds	Availability of ample funds
12	What is circulating capital?	Working capital	Share capital	deposits in the bank	Current assets	Working capital
13	Which is not considered as current asset ?	prepaid expenses	Debtors	Furniture	Work in Progress	Furniture
14	Net working means	Current Assets- Current Liabilities	Current Assets+Current Liabilities	Current Assets* Current Liabilities	Current Assets/Current Liabilities	Current Assets- Current Liabilities
15	Net working capital can be	Positive	Gross	Medium	Average	Positive
16	Positive working capital arises when	Current Assets exceeds Current Liabilities	Current Liabilities exceeds Current Assets	Current Assets equal Current Liabilities	Current assets average current liabilities	Current Assets exceeds Current Liabilities
17	Which equation is correct ?	WC =CA- CL	WC= current liability	Both a & b	WC= CA	WC =CA- CL
18	Net working capital indicates ----------concept	Liquidity position	current assets position	Current liabilities positions	Prpfitability position	Liquidity position
19	The changes in the level of working capital occur due to	Policy changes	Economic changes	Environment changes	Political changes	Policy changes
20	Current asset policy is the relationship between current	Current liability	sales volume	Inventory	working capital	Current liability
21	ABC Analaysis stands for	Always Better Control	Always Best Control	All Better Control	All better Cost	Always Better Control
22	Growth industries require ----------	Less working capital	Less fixed assets	More working capital	Increase fixed assets	More working capital
23	VED stands for	Vital End Desirable	Vital Essential Desirable	Very Essential Desirable	Vital Essential Dot	Vital Essential Desirable
24	Trade creditor is	Source of finance	A current liability	Fixed asset	Current assets	A current liability
25	opeation cycle starts with raw material and end with	Finished goods	Work in progress	cash	Receivables	Cash
26	What is Economic Order Quantity?	Cost of an order	Cost of Stock	Reorder level	Optitum order size	Optitum order size
27	Which of the following is not included in cost of	purchase cost	transport cost	import duty	Selling costs	Selling costs
28	--------sources of working capital	Credit papers	Public deposits	Debtors	Creditors	Debtors
29	If A = Annual Requirement, O = Order Cost and C = Carrying Cost per unit per annum, then EOQ	$(2AO/C)^2$	$\sqrt{2AO/C}$	2A÷OC	2A+OC	$\sqrt{2AO/C}$
30	which of the following is not an application of working capital	Day to day expenditure of busine	current obligations for payment	expenditure in the usu	Expenditure to acquire capit	Expenditure to acquire capital
31	Cash ratio shows the availability of --------balances to meet the current assets	cash	Bank	Overdraft	Loan	cash
32	Ageing schedule incorporates the relationship between	Creditors and Days Outstanding	Debtors and Days outstanding	Average Age of Directo	Average age of all employees	Debtors and Days outstanding
33	Which of the following is not a technique of receivables Management?	Collection matrix	fund flow analysis	aging schedule	Days sales outstanding	fund flow analysis
34	Receivables Management deals with	Receipts of raw materials	creditors management	Debtors collection	Inventory Management	Debtors collection
35	EOQ is the quantity that minimizes	Total ordering cost	Total inventory cost	Total interest cost	Safety stock level	Total ordering cost
36	In ABC inventory management system, class A items may require	Higher Safety Stock	Frequent Deliveries	Periodic Inventory syst	updating of inventory records	Higher Safety Stock
37	Equity shares also known as ----------	Ordinary shares	preference shares	equity shares	Share premium	Ordinary shares
38	_____ refers to the amount invested in various components of current assets.	Temporary working capital	Net working capital	Gross working capita	Permanent working capital	Gross working capital
39	_____ is the length of time between the firm's actual cash expenditure and its own cash receipt.	Net operating cycle	Cash conversion cycle	Working capital cycle	Gross operating cycle	Net operating cycle
40	have adequate working capital. It fails to meet its current obligation, which leads to bankruptcy. Identify the type of decision involved to prevent risk of bankruptcy.	Investment decision	Dividend decision	Liquidity decision	Finance decision	Liquidity decision
41	The addition of all current assets investment is known	Net Working Capital	Gross Working capital	Temporary Working (	All of these	Gross Working capital
42	When total current assets exceeds total current	Gross Working Capital	Temporary Working C	Both a and b	Net Working Capital	Net Working Capital
43	Which of the following would not be financed from working capital?	Cash float.	Accounts receivable.	Credit sales.	A new personal computer for	A new personal computer for the office.
44	Current ratio of a concern is 1,its net working capital	Positive	Negative	Nil	Infinitive	Nil
45	Good inventory management is good _____	financial.	marketing.	packaging	purchasing.	purchasing.
46	Ageing schedule incorporates the relationship between	Creditors and Days Outstanding,	Debtors and DaysOutst	Average Age of Direc	Average Age of Average all	Debtors and DaysOutstanding,
47	When using the 'ABC' approach to stock categorisation. Which of the following describes class	High value, high risk	High value, low risk	Low value, high risk	Low value, low risk.	Low value, low risk.
48	Total of all current assets is called	Gross Working Capital	Net working capital	Fixed working capita	Seasonal working capital	Gross Working Capital
49	Which are not types of working capital	Gross Working Capital	Net working capital	Seasonal working cap	Working capital Turnover	Working capital Turnover
50	WC stands for	Working capital	Worth Capital	Working cost	Working change	Working capital
51	which of the following is not current liabilitiy	Bank overdraft	Sundry creditor	Outstanding expenses	debenture	debenture
52	Net working capital=---------- (-) current liability	current assets	fixed assets	Stock	bills receivable	current assets
53	ABC Analaysis stands for	Always Better Control	Always Best Control	All Better Control	All better Cost	Always Better Control
54	Gross working capital is equal to investment in ----------	current liability	current asset	fixed liability	fixed asset	current asset
55	An example of current asset is ----------	plant	Machinery	furniture	debtors	debtors
56	An example for current liability is ----------	Bills payable	bills receivable	prepaid expenses	loan	Bills payable
57	Bank overdraft is an example for ----------	current liability	current asset	fixed liability	fixed asset	current liability
58	Which of the following is considered for cash coverstion cycle	inventory conversion period	Purchase of fixed assets	Issue of shares	Settlement of Discount	inventory conversion period
59	Current ratio is the relationship between current asset and ----------	current liability	current asset	fixed liability	fixed asset	current liability
60	---------- is the most important tool in cash	cash budget.	flexible budget	master budget	production budget	cash budget.
61	Cash management models include ----------	operating cycle model	inventory model	both	none	both
62	In finance, working capital means the same thing as _____.	total assets	fixed assets.	current liabilties	current assets minus current	current assets minus current liabilities
63	Net working capital refers to _____.	total assets minus fixed assets.	current assets minus cu	current assets minus l	current assets.	current assets minus current liabilities.