



B.M.S COLLEGE OF ENGINEERING, BANGALORE
DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH CENTRE

Course	FINANCIAL MANAGEMENT	Course Code	20MBA2PCFM	SEE Duration	3 Hours	Total no. of Hours
Credits	04	L-T- P	3-1-0	CIE + SEE	50+ 50	65

UNIT I (12 hours)

The world of finance: Introduction to Finance, Definition, Modern Approach to Financial Management, Basic Financial objectives , Important functions of financial managers.

Indian Financial System –Introduction to Markets, Institutions, Instruments and Products Concepts of Return and Risk (Theory only)

Time value of money: Introduction, timelines, Future value, future value annuity, Present value, Present value of annuity, compounding periods and Equated Annual interest, calculating rate of interest, sinking fund , Loan Amortization, Perpetuity, growing Perpetuity.

(Theory & problems)

UNIT II (10 hours)

Working capital Management:

Introduction, objectives, Factors, operating Cycle concept, factors Determining working capital requirement, Zero working capital, Estimation of working capital requirements of a firm (Does not include Cash, Inventory & Receivables Management).

(Theory & problems)

UNIT III (16 hours)

Investment decisions: Introduction, Need, Capital budgeting process, Investment evaluation techniques –Payback period, accounting rate of return, Net present value, Internal rate of return, Profitability index & discounted payback period. Estimation of cash flow for new project & replacement projects.

(Theory & problems)

UNIT IV (12 hours)

Cost of Capital: Long term sources of financing, Elements of cost of capital - Cost of equity capital (Dividend discounting and CAPM model), Cost of retained earnings Cost of debenture capital, cost of preferential capital, Cost of term loans. Determination of Weighted average cost of capital (WACC) and Marginal cost of capital.

(Theory & problems)

UNIT V (15 hours)

Capital structure and Dividend decisions – Designing the capital structure. (No capital structure theories to be covered) Leverages – Determination of operating leverage, financial leverage and total leverage.

Dividend policy – Factors affecting the dividend policy - dividend policies- stable dividend, stable payout (No dividend theories to be covered).

Financial Planning: Sales Forecast, Pro Forma Statement of Profit and Loss, Pro Forma Balance Sheet

(Theory & problems)

QUESTION PAPER - 60% Problems, 40% Theory

Cases could be given from:

UNIT II - Working capital Management

OR

UNIT III - Investment decisions Problems

Course outcomes: Upon completion of the course, students will have the ability to

CO1	Apply the knowledge of financial management theories and practices to solve business problems.
CO2	Develop analytical thinking skills for bettering financial decisions by using various tools and techniques.
CO3	Communicate the various aspects of financial management.
CO4	Cultivate research skills aimed at financial applications

RECOMMENDED BOOKS:

1. Financial Management by Prasanna Chandra, 10/e, McGraw-Hill publications, 2019.
2. Financial Management by Pandey I M, Vikas publication house Pvt Limited, New Delhi, 14th edition, 2016
3. Financial Management by Khan M Y & Jain P K , 8/e, McGraw -Hill publication, 2018

REFERENCE BOOKS:

1. Fundamentals of Financial Management, Brigham & Houston, 15/e, Cengage Learning, 2009.
2. Financial Management A Step-by-Step Approach – N.R.Parasuraman, 2/e, Cengage, 2013.
3. Financial Management - Theory, Problem, cases , Ravi M Kishore, Taxmann Publications, 8/e, 2020

MOOCs : Introduction to Time Value of Money – <https://www.coursera.org/learn/time-value-money>

Indicative Course Assignments:

1. Analyzing Time value concepts using Excel.
2. Capital budgeting, Capital structure, dividend decision, working capital practices in India

FINANCIAL MANAGEMENT

Business concern needs finance to meet their requirements in the economic world. Any kind of business activity depends on the finance. Hence, it is called as lifeblood of business organization. Whether the business concerns are big or small, they need finance to fulfil their business activities.

In the modern world, all the activities are concerned with the economic activities and very particular to earning profit through any venture or activities. The entire business activities are directly related with making profit. (According to the economics concept of factors of production, rent given to landlord, wage given to labour, interest given to capital and profit given to shareholders or proprietors), a business concern needs finance to meet all the requirements. Hence finance may be called as capital, investment, fund etc., but each term is having different meanings and unique characters. Increasing the profit is the main aim of any kind of economic activity.

MEANING OF FINANCE

Finance may be defined as the art and science of managing money. It includes financial service and financial instruments. Finance also is referred as the provision of money at the time when it is needed. Finance function is the procurement of funds and their effective utilization in business concerns.

The concept of finance includes capital, funds, money, and amount. But each word is having unique meaning. Studying and understanding the concept of finance become an important part of the business concern.

DEFINITION OF FINANCE

According to Khan and Jain, “Finance is the art and science of managing money”.

According to Oxford dictionary, the word ‘finance’ connotes ‘management of money’.

DEFINITION OF BUSINESS FINANCE

According to the Wheeler, “Business finance is that business activity which concerns with the acquisition and conversation of capital funds in meeting financial needs and overall objectives of a business enterprise”.

DEFINITION OF FINANCIAL MANAGEMENT

Financial management is an integral part of overall management. It is concerned with the duties of the financial managers in the business firm. The term financial management has been defined by Solomon, “It is concerned with the efficient use of an important economic resource namely, capital funds”.

The most popular and acceptable definition of financial management as given by S.C.

Kuchal is that “Financial Management deals with procurement of funds and their effective utilization in the business”.

Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by business firms can be called as Corporation Finance or Business Finance.

SCOPE OF FINANCIAL MANAGEMENT

Financial management is one of the important parts of overall management, which is directly related with various functional departments like personnel, marketing and production.

Financial management covers wide area with multidimensional approaches. The following are the important scope of financial management.

1. Financial Management and Economics

Economic concepts like micro and macroeconomics are directly applied with the financial management approaches. Investment decisions, micro and macro environmental factors are closely associated with the functions of financial manager. Financial management also uses the economic equations like money value discount factor, economic order quantity etc. Financial economics is one of the emerging area, which provides immense opportunities to finance, and economical areas.

2. Financial Management and Accounting

Accounting records includes the financial information of the business concern. Hence, we can easily understand the relationship between the financial management and accounting. In the olden

periods, both financial management and accounting are treated as a same discipline and then it has been merged as Management

Accounting because this part is very much helpful to finance manager to take decisions. But nowadays financial management and accounting discipline are separate and interrelated.

3. Financial Management or Mathematics

Modern approaches of the financial management applied large number of mathematical and statistical tools and techniques. They are also called as econometrics. Economic order quantity, discount factor, time value of money, present value of money, cost of capital, capital structure theories, dividend theories, ratio analysis and working capital analysis are used as mathematical and statistical tools and techniques in the field of financial management.

4. Financial Management and Production Management

Production management is the operational part of the business concern, which helps to multiple the money into profit. Profit of the concern depends upon the production performance. Production performance needs finance, because production department requires raw material, machinery, wages, operating expenses etc. These expenditures are decided and estimated by the financial department and the finance manager allocates the appropriate finance to production department.

The financial manager must be aware of the operational process and finance required for each process of production activities.

5. Financial Management and Marketing

Produced goods are sold in the market with innovative and modern approaches. For this, the marketing department needs finance to meet their requirements. The financial manager or finance department is responsible to allocate the adequate finance to the marketing department. Hence, marketing and financial management are interrelated and depends on each other.

6. Financial Management and Human Resource

Financial management is also related with human resource department, which provides manpower to all the functional areas of the management. Financial manager should carefully evaluate the requirement of manpower to each department and allocate the finance to the human resource

department as wages, salary, remuneration, commission, bonus, pension and other monetary benefits to the human resource department. Hence, financial management is directly related with human resource management.

OBJECTIVES OF FINANCIAL MANAGEMENT

Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of the financial manager. Hence, the financial manager must determine the basic objectives of the financial management. Objectives of

Financial Management may be broadly divided into two parts such as:

1. Profit maximization
2. Wealth maximization.

Main aim of any kind of economic activity is earning profit. A business concern is also functioning mainly for the purpose of earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at, maximizes the profit of the concern. Profit maximization consists of the following important features.

1. Profit maximization is also called as cashing per share maximization. It leads to maximize the business operation for profit maximization.
2. Ultimate aim of the business concern is earning profit. Hence, it considers all the possible ways to increase the profitability of the concern.
3. Profit is the parameter of measuring the efficiency of the business concern. So it shows the entire position of the business concern.
4. Profit maximization objectives help to reduce the risk of the business.

Favorable Arguments for Profit Maximization

The following important points are in support of the profit maximization objectives of the

business concern:

- (i) Main aim is earning profit.
- (ii) Profit is the parameter of the business operation.
- (iii) Profit reduces risk of the business concern.
- (iv) Profit is the main source of finance.
- (v) Profitability meets the social needs also.

Unfavorable Arguments for Profit Maximization

The following important points are against the objectives of profit maximization:

- (i) Profit maximization leads to exploiting workers and consumers.
- (ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.
- (iii) Profit maximization objectives leads to inequalities among the stake holders such as customers, suppliers, public shareholders, etc.

Drawbacks of Profit Maximization

Profit maximization objective consists of certain drawback also:

- (i) It is vague: In this objective, profit is not defined precisely or correctly. It creates some unnecessary opinion regarding earning habits of the business concern.
- (ii) It ignores the time value of money: Profit maximization does not consider the time value of money or the net present value of the cash inflow. It leads certain differences between the actual cash inflow and net present cash flow during a particular period.
- (iii) It ignores risk: Profit maximization does not consider risk of the business concern. Risks may be internal or external which will affect the overall operation of the business concern.

Wealth Maximization

Wealth maximization is one of the modern approaches, which involves latest innovations and improvements in the field of the business concern. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. Wealth maximization is also known as value maximization or net present worth maximization. This objective is a universally accepted concept in the field of business.

Favorable Arguments for Wealth Maximization

- (i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.
- (ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides extract value of the business concern.
- (iii) Wealth maximization considers both time and risk of the business concern.
- (iv) Wealth maximization provides efficient allocation of resources.
- (v) It ensures the economic interest of the society.

Unfavorable Arguments for Wealth Maximization

- (i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.
- (ii) Wealth maximization is nothing, it is also profit maximization, it is the indirect name of the profit maximization.
- (iii) Wealth maximization creates ownership-management controversy.
- (iv) Management alone enjoy certain benefits.
- (v) The ultimate aim of the wealth maximization objectives is to maximize the profit.
- (vi) Wealth maximization can be activated only with the help of the profitable position of the business concern.

APPROACHES TO FINANCIAL MANAGEMENT

Financial management approach measures the scope of the financial management in various fields, which include the essential part of the finance. Financial management is not a revolutionary concept but an evolutionary. The definition and scope of financial management has been changed from one period to another period and applied various innovations. Theoretical points of view, financial management approach may be broadly divided into two major parts.

Approach

Traditional Approach

Modern Approach

Traditional Approach

Traditional approach is the initial stage of financial management, which was followed, in the early part of during the year 1920 to 1950. This approach is based on the past experience and the traditionally accepted methods. Main part of the traditional approach is rising of funds for the business concern. Traditional approach consists of the following important area.

Arrangement of funds from lending body.

Arrangement of funds through various financial instruments.

Finding out the various sources of funds.

FUNCTIONS OF FINANCIAL MANAGEMENT OR ROLE OF FINANCE MANAGER

Finance function has three broad categories:

1. Financial planning followed by implementation of financial decisions viz.

Financing decision

Investment decision

Dividend decision

2. Financial Analysis

3. Financial Control

1. Financial Planning

Planning means deciding in advance. Thus financial planning is the act of deciding in advance the activities related to financial decisions necessary to achieve the objectives of financial management.

In other words, financial planning is the process of determining the financial objectives, procedures and strategies, programs and policies and budgets to deal with the activities related to financial decisions of an organization.

Thus financial planning provides framework within which financial decisions take place.

Financial decisions refer to financing decision (procurement of fund), investment decision (utilization of fund) and dividend decision (distribution of fund).

Financial planning i.e. planning for financing, investment and dividend decision must confront with

(i.e. take into account) external environment (industry level and country level factors) and internal environment (organizational level factors). Factors like risk or uncertainty, inflation, liquidity, taxation etc. are some examples in this regard.

Capitalization, financial forecasting and budgeting are important tools for financial planning which helps in planning financing and investment decisions.

Capitalization refers to planning of financing decision, which means estimation of total fund requirement to run the concerned organization. Financial forecasting includes preparation of projected income statement, projected balance sheet,

projected fund flow statement etc. Budgeting includes preparation of budgets and installation of proper budgetary control system. Financial planning leads to implementation of financial decisions viz. financing decision, investment decision and dividend decision.

Financial Decisions

Business decisions are of two types viz. short-term decision, also known as working capital decision

and long-term decision, also known as capital budgeting decision/project decision capital expenditure decision and therefore financing decision and investment must be viewed in the light of these decisions.

Following is a brief description of financial decisions viz. Financing decision, Investment decision and

Dividend decision:

Financing decision: (procurement of fund)

Financing decision is categorized into two parts:

1. Working Capital (WC) financing
2. Project financing i.e. financing for long i.e. financing of CA components term investment decision/capital structure decision.

Both category of financing decision requires following three key points to take into consideration:

- (i) Sources
- (ii) Sources mix
- (iii) Cost and other consequences

Sources: A finance manager has to identify the various sources available to him through which he can raise the fund. It is the financial system which facilitates financing decision in identifying/procuring short-term as well as long-term sources of finance (for details refer to Financial Market/Financial System).

Sources mix: He has to decide the composition of each source in total capital. Cost and other consequences: A finance manager while raising fund must take into consideration the cost and other consequences associated with each source.

Investment decision: (Application of fund)

Investment decision is also categorized into two parts:

1. Working capital investment i.e. investment in current asset components

2. Long-term investment i.e. investment in project decision

Both categories of investment decision require following three key points to take into consideration:

(i) Assets

(ii) Assets mix

(iii) Profitability

Assets: Assets means resources to the organization. A finance manager has to identify what are the

various assets required to maintain for smooth functioning of concerned organization.

Assets mix: He has to decide the composition of each asset in total assets.

Profitability: A finance manager while investing fund must take into consideration the profitability associated with each asset. Profitability means ability to earn profit.

Thus project decision is always financed through only long-term sources whereas working capital decision is financed through long-term as well as short-term sources.

Dividend decision: (Distribution of fund) A finance manager has to decide what percentage of profit he has to distribute as dividend among shareholder and how much to retain for further requirement. This aspect of financial management is dealt under dividend policy.

2. Financial Analysis

Financial analysis refers to study of financial health from different interested groups' (management,

employee, government, suppliers, lenders, investors etc.) point of view. Financial health means ability to serve above-mentioned groups.

Ratio Analysis, Cost-Volume-Profit (CVP), Fund Flow/Cash Flow Analysis are popular tools for financial analysis which in turn further helps in financial planning for subsequent periods.

3. Financial Control

1 Financial control refers to comparison of actual activities related to financial decisions with planned

activities. In other words, it is reviewing financial performances as per planning schedule in order to meet the set financial objective.

Budgetary control system, variance analysis are some popular tools, which help in controlling activities related to financial decisions.

Apart from above-mentioned categories of finance function, finance department is also responsible for support services. They are,

Finance department has to make available the fund to other functional departments whenever they need money in time. Finance department under financing activity has to negotiate with the lenders to acquire the fund at optimum cost. Finance department keeps an eye on stock market as stock market prices reflects performance of the concerned organization.

IMPORTANCE OF FINANCIAL MANAGEMENT

Finance is the lifeblood of business organization. It needs to meet the requirement of the business concern. Each and every business concern must maintain adequate amount of finance for their smooth running of the business concern and also maintain the business carefully to achieve the goal of the business concern. The business goal can be achieved only with the help of effective

management of finance. We can't neglect the importance of finance at any time and at any situation. Some of the importance of the financial management is as follows:

Financial Planning

Financial management helps to determine the financial requirement of the business concern and leads to take financial planning of the concern. Financial planning is an important part of the business concern, which helps to promotion of an enterprise.

Acquisition of Funds

Financial management involves the acquisition of required finance to the business concern. Acquiring needed funds play a major part of the financial management, which involve possible source of finance at minimum cost.

Proper Use of Funds

Proper use and allocation of funds leads to improve the operational efficiency of the business concern. When the finance manager uses the funds properly, they can reduce the cost of capital and increase the value of the firm.

Financial Decision

Financial management helps to take sound financial decision in the business concern. Financial decision will affect the entire business operation of the concern. Because there is a direct relationship with various department functions such as marketing, production personnel, etc.

Improve Profitability

Profitability of the concern purely depends on the effectiveness and proper utilization of funds by the business concern. Financial management helps to improve the profitability position of the concern with the help of strong financial control devices such as budgetary control, ratio analysis and cost volume profit analysis.

Increase the Value of the Firm

Financial management is very important in the field of increasing the wealth of the investors and the business concern. Ultimate aim of any business concern will achieve the maximum profit and higher profitability leads to maximize the wealth of the investors as well as the nation.

Promoting Savings

Savings are possible only when the business concern earns higher profitability and maximizing wealth. Effective financial management helps to promoting and mobilizing individual and corporate savings. Nowadays financial management is also popularly known as business finance or corporate finances. The business concern or corporate sectors cannot function without the importance of the financial management.

INDIAN FINANCIAL SYSTEM

In finance, the financial system is the system that allows the transfer of money between savers and borrowers. It comprises a set of complex and closely interconnected financial institutions, markets, instruments, services, practices, and transactions.

Financial systems are crucial to the allocation of resources in a modern economy.

They channel household savings to the corporate sector and allocate investment funds among firms;

They allow inter-temporal smoothing of consumption by households and expenditures by firms;

They enable households and firms to share risks.

According to Robinson, financial system provides a link between savings and investment for the creation of new wealth and to permit portfolio adjustment in the composition of the existing wealth.

According to Van Horne, financial system is defined as the purpose of financial markets to allocate savings efficiently in an economy to ultimate users – either for investment in real assets or for consumption.

Organization structure of financial system

Financial intermediaries

Financial markets

Financial asset/instruments

Services provided by financial intermediaries

Convenience

Lower risk

Expert management

Economies of scale

FINANCIAL MARKETS

Financial market deals in financial securities or instruments and financial services. It may be variously classified as primary and secondary, money markets and capital markets, organized and unorganized markets official and parallel markets, and foreign and domestic markets. Financial market provides money and capital supply to the industrial concern as well as promote the savings and investments habits of the public. In simple censes financial market is a market which deals with various financial instruments (share, debenture, bonds, treasury bills, commercial bills etc.) and financial services (merchant banking, underwriting etc.)

Financial markets may be divided into two major classifications:

A. Capital market

B. Money market

Capital Market

Capital market may be defined as on organized mechanism for effective and efficient transfer of money-capital or financial recourses from the individuals or institutional savers to industrialist. The development of a effective capital market depends upon the availability of savings, well organized financial system and the entrepreneurship quantities of its people.

Capital market is a market for long-term funds, just as the money market is the market for short-term funds. It refers to all the facilities and the institutional arrangements for borrowing and lending term funds (medium-term and long-term funds). It does not deal in capital for purpose of investment.

The demand for long-term money capital comes predominantly from private sector manufacturing industries and agriculture and from the government largely for the purpose

of economic development. As the central and state governments investment are not only on economic overheads as transport, irrigation and power development but also on basic industries and sometimes, even consumer goods industries, they require substantial sums from the capital market. The supply of funds for the capital market comes largely from individual savers, corporate savings, banks, insurance companies, specialized financing agencies and government.

Among institutions, we may refer to the following:

1. Commercial banks are important investors, but are largely interested in government securities and, to a small extent, debentures of companies.
2. LIC and GIC are growing importance in the Indian capital market, though their major interest is still in government securities.
3. Provident funds constitute a major medium of savings but their investments are mostly in government securities.
4. Special institutions set up since Independence, viz. the IFCI, ICICI, IDBI, UTI etc., all these aim at providing long-term capital to the private sector.

The capital market in India can be classified into

- Gilt-edged Market on Government and Semi-government Securities;
- Industrial Securities Market;
- Development Financial Institutions (DFI) and

Non-banking Financial Companies (NBFC)

Capital Market

A capital market is a market for securities (debt or equity), where business enterprises (companies) and governments can raise long-term funds. It is defined as a market in which money is provided for periods longer than a year, as the raising of short-term funds takes place on other markets (e.g., the money market). The capital market includes the stock market (equity securities) and the bond market (debt).

Financial regulators, such as the UK's Financial Services Authority (FSA) or the U.S. Securities and Exchange Commission (SEC), oversee the capital markets in their designated jurisdictions to ensure that investors are protected against fraud, among other duties. In India SEBI does the similar role. Capital markets may be classified as primary markets and secondary markets

Primary Market

The primary market refers to the set up by which the industry raises funds by issuing different types of securities. These securities are issued directly to the investors, both individual and institutions. The primary market discharges the important function of transfer of savings, especially of the individual, Government and public sector undertakings. In the primary market, the new issues of securities are presented in the form of Public issues, Right issues and Private Placements. Its efficient operation is made possible by the financial intermediaries and financial institutions, who arrange long-term financial transactions for the clients. Issues of the securities in the primary market may be made through (i) Prospectus, (ii) Offer for sale, and (iii) Private placement. The securities offered to the public through prospectus are directly subscribed by the investor. The issuing companies widely publicize the offer through various media. The Securities Exchange Board of India (SEBI) has classified various issues in three groups i.e., New issues, Right issues and Preferential issues.

The SEBI has issued various guidelines regarding proper disclosure for investor's protection. These guidelines are required to be duly observed by the companies making issue of capital. The guidelines issued by the SEBI broadly cover the requirements regarding issue of capital by the companies. The guidelines are applicable to all the companies after the repeal of Controller of Capital Issues (CCI) Act 1947.

The boom in the primary capital market, that started in the mid-eighties and accelerated thereafter, started slowing down by 1995. There are several reasons for this slowing down of resource

mobilization in the primary market. In particular, the low return on new issues, some resulting in stock market fiasco, seems to have shattered the confidence of the investors.

Secondary Market

The secondary market refers to the network system for the subsequent sale and purchase of securities. An investor can apply and get allotted, a specified number of securities by the issuing company in the primary market. However, once allotted, the securities can thereafter be sold and purchased in the secondary market only.

A security emerges in the primary market, but its subsequent movement takes place in the secondary market. Secondary market is represented by stock exchanges in the capital market. Stock exchanges provide an organized market place for investors to trade in securities. A stock exchange permits the prices of the securities to be determined by the market forces. The bidding process flows from demand and supply, underlying each security. This means that the specific price of a security is determined, more or less, in the manner of an auction.

Money Markets The money market is a component of the financial markets for assets involved in short-term borrowing and lending with original maturities of one year or shorter time frames. Trading in the money markets involves Treasury bills, commercial paper, bankers' acceptances, certificates of deposit, federal funds, and short-lived mortgage- and asset-backed securities. It provides liquidity funding for the global financial system. **Types of Money Market Instruments in India** Money market instruments provide for borrowers' short-term needs and give needed liquidity to lenders. The types of money market instruments are treasury bills, repurchase agreements, commercial papers, certificate of deposit, and bankers' acceptance.

a) **Treasury Bills (T-Bills):** Treasury bills began being issued by the Indian government in 1917. They are short-term instruments issued by the Reserve Bank of India. They are one of the safest money market instruments because they are risk free, but the returns from this instrument are not very large. The primary as well as the secondary markets circulate this instrument. They have 3-month, 6-month and 1-year maturity periods. T-bills are issued with a separate price from their

face value. The face value is achieved upon maturity, as is the interest earned on the buy value. The buy value is set by a bidding process in auctions.

b) Repurchase Agreements: Repurchase agreements are also known as repos. They are short-term loans that buyers and sellers agree to sell and repurchase. As of 1992, repo transactions are allowed only between RBI-approved securities such as state and central government securities, T-bills, PSU bonds, FI bonds and corporate bonds. Repurchase agreements are sold by sellers with a promise of purchasing them back at a given price and on a given date in the future. The buyer will also purchase the securities and other instruments in the repurchase agreement with a promise of selling them back to the seller.

c) Commercial Papers: Commercial papers are promissory notes that are unsecured and issued by companies and financial institutions. They are issued at a discounted rate of their face value. They have a fixed maturity of 1 to 270 days. They are issued for financing of inventories, accounts receivables, and settling short-term liabilities or loans. Commercial papers yield higher returns than T-bills. They are usually issued by companies with strong credit ratings, as these instruments are not backed by collateral. They are usually issued by corporations to raise working capital and are actively traded in the secondary market. Commercial papers were first issued in the Indian money market in 1990.

Certificate of Deposit: A certificate of deposit is a short-term borrowing note, like a promissory note, in the form of a certificate. It enables the bearer to receive interest. It has a maturity date, a fixed rate.

Financial instruments

Claims on a stream of income and/or asset of another economic unit and held a store of value and for the return that is expected

Three type of financial instrument

Direct

Indirect

Derivatives

Derivatives markets are markets that are based upon another market, which is known as the underlying market. Derivatives markets can be based upon almost any underlying market, including individual stock markets (e.g. the stock of company XYZ), stock indices (e.g. the Nasdaq 100 stock index), and currency markets (i.e. the forex markets).

Types of Derivatives Markets

Derivatives markets take many different forms, some of which are traded in the usual manner (i.e. the same as their underlying market), but some of which are traded quite differently (i.e. not the same as their underlying market). The following are the most often traded types of derivatives markets:

Futures Markets

Options Markets

CASE STUDY:

1. Estella garment co limited is a famous manufacture of garments to the European countries. The finance manager of the company is preparing working capital forecast for the next year. After carefully screening all the documents and collected the following information:

Production during the previous year was 15 Lac units. The same level of activity is intended to be maintained during the current year.

Expected ratio of cost to selling price are

Raw material 40%

Direct wages 20%

Overheads 20%

The raw material ordinary remains in stores for 3 months before production. Every unit of production remains in the process for 2 months and is assumed to be consisting of 100% raw material wages and Overheads. Finished goods remains in warehouse for 3 months. Credit allowed

by the creditor's it's 4 months from the date of the delivery of raw material and credit given to debtors is 3 months from the date of dispatch.

The estimated balance of cash to be held rupees 2 Lac

Lag payment of wages half month

Lag payment of expenses half month

Selling price is rupees 10 per unit. Both production and sales are in regular cycle. You are required to make a provision off 10% for contingency (except cash). Relevant assumption may be made.

You have recently joined the company as an assistant finance manager. The job of preparing the forecast some statement has been given to you. You are required to prepare the forecast statement. The finance manager is particularly interested in applying quantitative technique for forecast forecasting the working capital need of the company.

2. The data of ABC limited is below

- Production for the year 69,000 units
- Finished goods inventory 3 months
- Raw material inventory 2 months consumption
- Production process 1 month
- Credit allowed by creditors 2 months
- Credit given to debtors 3 months
- Selling price per unit Rs 50 each
- Raw material 40% of selling price
- Direct Wages 10% of selling price
- Overheads 20% of selling price.

There is a regular production and sales cycle and wages and overheads accrue evenly. Wages are paid in the next month of accrual. Material is introduced in the beginning of the production cycle.

Work in progress involve use of full unit of raw material in the beginning of the manufacturing process and other conversion cost equivalent to 50%.

You being the financial manager required to estimate working capital management .

CAPITAL BUDGETING

Pay Back Period:

1. Calculate payback period for a project which requires a cash outlays of Rs 10,000 and generates cash inflows of Rs 2,000, Rs.4000, Rs 3,000 Rs 2,000 in the first, second, third and fourth year respectively.

Solution:

year	Cash inflows	cumulative CF
1	2,000	2,000
2	4,000	6,000
3	3,000	9,000
4	2,000	11,000

Cash flows for 3 years = 9,000

Time required for recovery of remaining Rs 1000:

$$= 12/2000 \times 1000 = 6 \text{ months}$$

Payback period = 3 years & 6 Months

2. A project requires Rs 5,00,000 and yields annually a profit of Rs 80,000 (after depreciation at 12% p.a.) but before tax of 50%. Calculate payback period

- Payback period = Initial Investment / Annual Cash inflow

= Initial investment = Rs 5,00,000

Annual cash inflows = Profit after tax plus depreciation

Solution:	Rs
Profit before tax	80,000
Less Tax @50%	<u>40,000</u>
Profit after tax	40,000
Add Depreciation (Rs 5,00,000 X 12%)	<u>60,000</u>
Annual cash inflows	<u>1,00,000</u>

Payback period = Initial investment / Annual cash Flow

= 5,00,000 / 1,00,000 = 5 years

3. There are two projects A & B. The cost of the project is Rs 30,000 in each case.

The cash inflows are as under:

Year	Cash inflows (Rs)	
	Project A	Project B
1	10,000	2,000
2	10,000	4,000
3	10,000	24,000

Calculate payback period.

Solution:

Year	Project A		Project B	
Cash inflows	Cum. CF	Cash inflows	Cum.CF	
1	10,000	10,000	2,000	2,000
2	10,000	20,000	4,000	6,000
3	10,000	30,000	24,000	30,000

The payback period is 3 years in both cases.

However, Project A is better compared to project B because cash inflows are greater in the initial years.

4. Calculate Payback period of ABC is considering three alternatives items of a plant. Estimated cash inflows are:

Year	Plant A	Plant B	Plant C
0 (Initial Investment)	20,000	20,000	40,000
1	6,000	12,000	-
2	6,000	14,000	15,000
3	6,000	14,000	15,000
4 to 10	6,000(p.a.)	-	12,000(p.a)

Solution:

Project A(plant-A): Cash flows are uniform:

Payback period = Initial investment/Annual cash inflow

$=20,000/6,000= 3 \text{ years \& } 4 \text{ months}$

Project B&C (Plant B&C): Cash inflows are not uniform. Hence cumulative. Cashflows are to be considered for finding out the payback period.

Year	Project B		Project C	
	Cash inflows	Cum.CF	Cash Inflows	Cum.CF
1	12,000	12,000	-	-
2	14,000	26,000	15,000	15,000
3	14,000	40,000	15,000	30,000
4	-	40,000	12,000	42,000

For project B: Investment is Rs 20,000

Rs 12,000 is recovered in the first year.

The remaining Rs 8000 is to be recovered in the second year.

For recovery of Rs 14,000 time is required =12 months, for recovery of Rs 8,000 time required
 $=12/14,000 \times 8000= 6.85 \text{ months i.e. } 7 \text{ months}$

Payback period of Project B=1 year 7 months.

For Project C: Investment is Rs 40,000.

For recovery of Rs 30,000 is recovered in 3 years. The remaining Rs 10,000 is to be recovered in the fourth year.

for recovery of Rs 12,000=12-month, Remaining Rs 10,000 time is required:

$12/12,000 \times 10000=10 \text{ months}$

Payback period of Project C =3 years and 10 months.

Plant B is shorter payback period which is preferable than others.

5. A company proposed to expand its production can go in either for an automatic machine costing Rs 2,24,000 with an estimated life of 5 and half years or an ordinary machine costing Rs 60,000 having an estimated life of 8 years. The annual sales and costs are estimated as follows:

Automatic machine (Rs)	Ordinary machine(Rs)	
Sales	1,50,000	1,50,000
Costs:		
Material	50,000	50,000
Labor	12,000	60,000
Variable OH	24,000	20,000

Compute the comparative profitability of the proposals under pay- back period Method. Ignore Taxation.

Solution:

Annual cash inflows i.e. Profit= Sale - Cost

Profitability statement

Automatic Machine (Rs)	Ordinary Machine (Rs)	
Cost of the Machine	<u>2,24,000</u>	<u>60,000</u>
Sales	1,50,000	1,50,000
Less Costs: (material, Labour, OH)	<u>86,000</u>	<u>1,30,000</u>
Annual Cash inflows	<u>64,000</u>	<u>20,000</u>
Payback period = 2,24,000/64,000=3&Half yr		60,000/20,000= 3 years

Profitability beyond pay back:

Automatic machine = $64,000 \times 2 (5y \& 6M - 3y \& 6m) = \text{Rs } 1,28,000$

Ordinary machine = $20,000 \times 5 (8y - 3y) = \text{Rs. } 1,00,000$

Comments: From the view point of payback period alone, ordinary machine having a shorter PBP should be recommended. But if we consider the full serviceable life of the asset, automatic machine is preferable because it gives a surplus of Rs 1,28,000 in 5&Half years while the ordinary machine gives a surplus of only Rs. 1,00,000 in 8 years.

Bailout

6. Project A Costs Rs 200000 and project B cost Rs 300000 both have a ten-year life. Uniform cash receipt expected are A Rs 40,000 per annum and B Rs 80000 per annum. Salvage value expected are A Rs 140000 declining at an annual rate of Rs 20000 and B Rs 160000 declining at an annual rate of Rs 40000.

ALL:

7. A company is considering an investment proposal to install a new machine. The project will cost Rs.50000 and no salvage value. Tax rate is 50%, the company follows straight-line method of depreciation. The net earnings before depreciation and tax is as follows:

Year	1	2	3	4	5
EBDT (Rs.)	10000	11000	14000	15000	25000

Evaluate the project using:

- i. PBP
- ii. ARR
- iii. NPV at 10% and
- iv. PI at 10% discount factor

Solution:

Calculation of Cash flows after Tax (CFAT)

Year	EBDT	Depreciation	Earning after Depreciation	Tax at 50%	EAT	CFAT
1	10000	10000	0	0	0	10000
2	11000	10000	1000	500	500	10500
3	14000	10000	4000	2000	2000	12000
4	15000	10000	5000	2500	2500	12500
5	25000	10000	15000	7500	7500	17500

Calculation of depreciation:

Depreciation = $\frac{\text{Cost Price} - \text{Scrap Value}}{\text{No. of years}}$

No. of years

= $50000/5$

=10000

1. Calculation of Pay Back Period

Year	CFAT	Cumulative CFAT	PVIF at 10%	PV of CFAT
------	------	-----------------	-------------	------------

1	10000	10000	0.909	9090
2	10500	20500	0.826	8673
3	12000	32500	0.751	9012
4	12500	45000	0.683	8538
5	17500	62500	0.621	10868
			Total PV	46181

$$\text{PBP} = 4 + (5000/17500)$$

$$= 4.29 \text{ years}$$

2. Calculation of ARR

$$\text{ARR} = \frac{\text{Average EAT}}{\text{Average Investment}} * 100$$

Average Investment

$$= (2500 * 100) / 25000$$

$$= 10\%$$

$$\text{Average EAT} = (500 + 2000 + 2500 + 7500) / 5$$

$$= 2500$$

$$\text{Average Investment} = 50000 / 2$$

$$= 25000$$

3. Calculation of NPV at 10%

$$\begin{aligned} \text{NPV} &= \text{TPV} - \text{Initial Investment} \\ &= 46181 - 50000 \\ &= (3819) \end{aligned}$$

4. Calculation of PI at 10% discount factor

$$\begin{aligned} \text{PI} &= \frac{\text{PV of Cash flows}}{\text{Initial Cash outflows}} \\ &= 46181 / 50000 \\ &= 0.92 \end{aligned}$$

8. A company plans to undertake a project for placing the new product in the market. The company cut off rate is 12%. It was estimated that project would cost Rs 40, 00,000 in plant and machinery in addition to working capital rs 10, 00,000 at the end of the life of the project. Scrap value is 10%. After tax profits were estimated as follows.

Year	1	2	3	4	5
PAT(RS)	3,00,000	8,00,000	13,00,000	5,00,000	4,00,000
DF -12%	0.893	0.797	0.712	0.636	0.567

Evaluate the project under 1) PBP 2) ARR 3) NPV

Solution:

PBP

$$\text{Depreciation} = \frac{\text{cost of the machine} (-) \text{scrap value}}{\text{Life of the machine}} = \frac{40,00,000 (-) 400000}{5}$$

Life of the machine

5

= 720000

Year	PAT	(+) depreciation	Cash flows	Cumulative
1	300000	720000	1020000	1020000
2	800000	720000	1520000	2540000
3	1300000	720000	2020000	4560000
4	500000	720000	1220000	5780000
5	400000	720000	1120000	6900000

PBP = year completed + $\frac{\text{amount remaining}}{\text{Cash flow of next year}}$ = 2 + $\frac{1460000}{2020000}$ = 2.72 years

Cash flow of next year 2020000

NPV

Year	Cash flows	Pv (12%)	pvcf
1	1020000	0.893	910860
2	1520000	0.797	1488080
3	2020000	0.712	1438240
4	1220000	0.636	775920
5	1120000	0.567	635040

= 5248140

(1000000 × 0.567) (+) working capital = 567000

(400000 × 0.567) (+) scrap value = 226800

(-) initial investment = 4000000

NPV = 2041940

ARR

Depreciation = 720000

Average annual profit = $\frac{\text{total profits}}{5} = \frac{3300000}{5} = 660000$

No of years = 5

Average investment = $\frac{\text{initial investment} + \text{scrap value}}{2} = \frac{4000000 + 400000}{2} = 2200000$

2

2

ARR = $\frac{\text{average annual profit} - \text{dep}}{\text{Average investment}} \times 100 = \frac{660000 - 0}{2200000} \times 100 = 30\%$

Original investment = 2200000

9. A company is considering an investment proposal to install a new milling controls at a cost of Rs 50000 the facility of a life expectancy of 5 years without any salvage value the firm use SLM of depreciation & it's used for tax purpose the tax rate is assumed to be 35% of the estimated cash flows before depreciation & tax (EBIT) from the investment proposal are as follows.

Year	1	2	3	4	5
Cashflow	10000	10692	12769	13462	20385

Compute

1 payback period

2 avg rate of return

3 NPV @10% dis rate

4 profitability index @10% dis rate.

Solution:

Year	Cashflow	Depreciation	PBT	Tax	PAT	CFAT
1	10000	10000	-	-	-	10000
2	10692	10000	692	242	450	10450
3	12769	10000	2769	969	1800	11800
4	13462	10000	3462	1212	2250	12250
5	20385	10000	10385	3635	6750	16750
					11250	61250

ARR:

=avg income/avg annual profit after tax

Original investment

=2250/25000*100

= 9%

PBP:

Year	CFAT	Cumulative
1	10000	10000
2	10450	20450

3	11800	32250
4	12250	44500
5	16750	61250

4+5500/16750

4+0.328

PBP=4.328 years.

3. NPV @ 10% dis rate

YEAR	CFAT	PV@10%	TPV
1	10000	0.909	9090
2	10450	0.826	8632
3	11800	0.751	8862
4	12250	0.683	8367
5	16750	0.621	10401
		TPV	45352
		OI	50000
		NPV	4648

4. Profitable Index

PV= PRESENT VALUE OF CASH INFLOW

PRESENT VALUE OF CASH OUTFLOW

$$=45352/50000$$

$$=0.907$$

10. National electronics goods manufacturing company is producing a large range of electronics goods. It has under consideration two projects X and Y each costing Rs120 Lakhs.

The projects are mutually exclusive and the company is considering the question of selecting one of the two, cash flow have been worked out for both the projects details are below X has a life of 8 years and Y has a life of 6 years both will have zero salvage value at the end of their operational lives the company is already making profit and its tax rate is 50% the cost of capital of the company is 15%.

At the end of the year	Project X	Project Y
1	25	40
2	35	60
3	45	80
4	65	50
6	55	20
7	35	-
8	15	-

The company follow straight line of depreciation. Advice the company regarding selection of project.

DIVIDEND POLICY

The term dividend refers to that part of profit of a company which is distributed 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, but the company 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 for further expansion it will have to depend upon outside sources of finance. So a company should, therefore, distribute a reasonable amount as dividends to its members and retain the rest for its growth and survival.

FORMS OF DIVIDEND

Dividends can be classified in various forms. Dividends paid in the ordinary course of business are known as *Profit dividends*, while dividends paid out of capital are known as *Liquidation dividends*. Dividends may also be classified 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 dividend in cash results in outflow of funds and reduces the company's net worth, though the shareholders get an opportunity to invest the cash in any manner they desire. This is why the ordinary shareholders prefer to receive dividends in cash. But the firm must have adequate liquid resources at its disposal or provide for such resources so that its liquidity position is not adversely affected on account of cash dividends.

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 amounts due to the shareholders. The objective of scrip dividend is to postpone the immediate Payment of cash. 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. They 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 Shares.

BONUS SHARES

A company can pay bonus to its shareholders either in cash or in the form of shares. Many 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 company so desires and 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.

ADVANTAGES OF ISSUE OF BONUS SHARES

A. Advantages to the company

1. It makes available capital to carry 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, 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 the company to make use of its profit on a permanent basis and increases the 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 TO INVESTORS OR SHAREHOLDERS

It is generally said that an investor gains nothing from the issue of bonus shares. It is so because the shareholder receives nothing except something additional share certificates. But his proportionate ownership in the company remains unchanged.

DISADVANTAGES OF ISSUE 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. Thus, if a company earns a profit of Rs. 2,00,000 against a share capital of Rs. 5,00,000 and the issue of bonus shares to Rs. 8,00,000 raises the capital of the company, the rate of dividend falls from 40% to 25%.

2. The fall 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.

BONUS ISSUE (STOCK DIVIDEND) VS STOCK SPLIT

Stock dividend means the issue of bonus shares to the existing shareholders of the company. It amounts to capitalization of earnings and distribution of profits among the existing shareholders without affecting the cash position of the firm. Stock split, on the other hand, means reducing the par value of the shares by increasing the number of shares proportionately, viz; a share of Rs. 100 may be split in to 10 shares of Rs. 10 each. Thus, the two terms are quite different from each other.

DETERMINANTS OF DIVIDEND POLICY

Introduction: -

Dividend is that part of profit given to the shareholders of the company. The management decides the portion of profit that is given to the members. Every company has its own dividend policy. The policy relating to the dividend pay out and earnings retention varies not only from industry to industry but among companies within a given industry and within a company from time to time. When the company wants rapid growth, the demand for additional funds will be more. So there are a number of factors that affect the dividend policy of the concern.

Factors affecting the Dividend Policy/Determinants of Dividend Policy

The payment of Dividend involves some legal as well as financial considerations. It is difficult to determine a general dividend policy, which can be followed by different concerns, because in the last analysis the dividend decision has to be taken considering the special circumstances of an individual case. We can examine some of the general determinants of dividend policy, which are considered of major importance in a typical business concern.

The following are some of these important factors, which determine the dividend policy.

1. Legal Restrictions: -

Legal restrictions are significant as they provide a frame work within which dividend policy is formulated. These provisions require that dividend can be paid only out of current profits or past profits. The companies' rules 1975 require a company providing more than 10% dividend to transfer certain percentage of current year's profit to Reserves. In general terms dividend can be paid only when the firms' balance sheet shows positive retained earnings.

Companies Act further provides that dividends cannot be paid out of capital, because it will amount to reduction in capital adversely, affecting the security of creditors. Firms that are undergoing bank repay proceeds are also legally prevented from paying dividends. Normal dividends cannot exceed accumulated retained earnings.

2. Nature of Earnings: -

The amount and trend of earnings is an important aspect of dividend policy. As dividends can be paid only out of present and past years profit; earnings of the company fix the upper limits on dividend. The past trends of the company's earnings should also be kept in consideration while making the dividend decision. The pattern of change in earnings may vary widely among industries and individual companies are influenced by their operating and financial leverages.

3. Desire and Type of Shareholders: -

Board of director's desires the policy of dividend deduction; the directors also give importance to desires of shareholders in the declaration dividends, as they are representatives of shareholders. Stockholders in higher age brackets would have a greater preference on current income and stability in dividends over long-term capital gain. On the other hand a wealthy investor in high income tax bracket may not benefit in high current income.

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 depression; such firm expects regular earnings and hence can follow a consistent dividend policy. On the other hand, if the earnings are uncertain conservative dividend policy, such firms should return a substantial part of their current earnings during boom period.

5. Age of the Company: -

A newly established concern has to limit payment of dividend and retain a 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: -

Dividend policy is also determined by fixed capital requirement of the concern. The company should project the Fixed Capital Requirement and the available source for such capital should be considered. If companies have highly profitable investment opportunities it can convince the shareholders of the need for the limitation dividend to increase the future earnings and stabilize the Finance Position.

7. Dividend and Working Capital Position: -

A projection of cash inflows and out flows for a longer period will be helpful in formulating dividend policy. If a company has higher cash requirements and pay dividend from cash affect adversely. If the company pay dividend and it has to borrow after some time to replenish working capital, for all practical purpose it borrows to pay dividend.

8. Government's Economic Policy: -

The dividend policy of a firm has also to be adjusted to the economic policy of the govt. The temporary restriction on payment of dividend ordinance was in force in 1974 and 1975, companies were allowed to pay dividend not more than 33% of their profits or 12% on the paid-up value of shares which ever was lower.

9. Taxation Policy: -

The taxation policy of the govt. also affects the dividend decision of a firm. A high or low rate of tax affects the net earnings of company and there by its dividend policy. The tax position of the shareholders also affects the dividend policy. If the shareholders are in higher tax bracket; they are interested in taking their income in the form of capital gains and bonus shares rather than dividends.

10. Inflation: -

Inflation acts as constraint in the payments of dividend. Profits are arrived from the profit & loss a/c on the basis of historical cost have a tendency to the over stated in times of rise in prices due to over valuation of stock in trade and write off depreciation on fixed assets at lower rates. As a result when prices rise, funds generated by depreciation would not be adequate to replace fixed asset and substantial part of the current earnings retained.

11. Control Objectives: -

When a company pays high dividend out of its earnings, it may result in the dilution existing shareholders control and earnings. As in the case of high payout ratio, the retained earnings are insignificant and the company will have to issue new shares to raise funds. New issue of shares

increases in the no. of shares and ultimately causes lower earnings per share and reduce their price in market.

12. Requirement of Institutional Investors: -

The institutional investor like financial institutions, banks, insurance corporations etc. usually favors a regular payment of cash dividends and stipulates their own terms with regard to payment of dividend on equity shares.

13. Stability of Dividends: -

Stability of dividends is another important guiding principle in the formulation of dividend policy. Stability of dividend refers to the payment of dividend regularly and shareholders prefer payment of such regular dividends.

14. Liquidity Resources: -

The dividend policy of a firm is also influenced by the availabilities of liquid resources. If a company does not have liquid resources, it is better to declare stock dividends i.e. issue of bonus shares to the existing shareholders. The issue of bonus shares does not affect the cash position of the concern.

In view of the variety of considerations affecting dividend policy, it is very difficult to have one dividend policy, which can be considered completely satisfactory in all respects. The corporate management has to assess the relative importance of these factors and choose a line of action, which are maximum advantages

Dividend Policy: Essentially, a dividend policy is a cash distribution policy by a company to its shareholders. Companies usually pay a dividend when they have "excess" profits, with which they choose not to invest in their growth but instead choose to reward shareholders.

Dividends can be increased or decreased, depending on the company's performance.

In addition to being a reward to shareholders, as company officers are often among a company's largest shareholders, executives often stand to gain the most from a generous dividend policy

Types of Dividend Policy:

Essentially three distinct kinds of dividend policies: a dividend stability policy, a constant dividend policy, and a residual dividend policy

Dividend Stability Policy

This is the easiest and most commonly used dividend policy. Its goal is steady and predictable dividend payouts annually, which is also what most investors want. Investors want a dividend whether earnings are up or down. The board has to try to align its dividend policy with the long-term growth of the company, instead of quarterly earnings, which are more volatile. This sort of policy gives shareholders more certainty in the amount and timing of the dividend.

In this type of policy, dividends are set as a percentage of a company's annual earnings. As a company's earnings per share fluctuates, so will the dividend. As the goal of most companies is to increase earnings annually, the dividend should increase annually as well.

A Constant Dividend Policy

A problem with a stable dividend policy is that investors may not see a dividend increase when the company's business is booming. Instead of a dividend stability, in a constant dividend policy a company pays a percentage of its earnings as dividends annually, so investors can gain from the full volatility of the company's earnings. A problem with a constant dividend policy is that, when earnings rise, so does the dividend, but when earnings fall, investors may not receive any dividend.

A Residual Dividend Policy

This type of dividend policy is also extremely volatile. But some investors prefer it. In this type of dividend policy, the company pays out what dividends remain after the company has used earnings to pay for capital expenditures and working capital. Some investors prefer this over the other two

policies because, while volatile, they do not want to invest in a company that justifies increasing its debt load with a need to pay dividends.

Shareholders are considered residual claimants on the company's earnings. They own a piece of the company, and are therefore as owners entitled to leftover profits after all expenses are paid and bondholders and preferred equity holders are compensated.

The following steps determine the payout ratio to be implemented:

1. The optimal capital budget is identified.
2. The equity required to finance the identified capital budget under a given capital structure is determined.
3. Retained earnings are used to the maximum extent possible to meet the requirements of equity.
4. Dividends are paid from the residual earnings available after the requirements of the optimal capital budget are met.

LEVERAGES

INTRODUCTION

Financial decision is one of the integral and important parts of financial management in any kind of business concern. A sound financial decision must consider the board coverage of the financial mix (Capital Structure), total amount of capital (capitalization) and cost of capital (Ko). Capital structure is one of the significant things for the management, since it influences the debt equity

mix of the business concern, which affects the shareholder's return and risk. Hence, deciding the debt-equity mix plays a major role in the part of the value of the company and market value of the shares. The debt equity mix of the company can be examined with the help of leverage.

The concept of leverage is discussed in this part. Types and effects of leverage is discussed in the part of EBIT and EPS.

Meaning of Leverage

The term leverage refers to an increased means of accomplishing some purpose. Leverage is used to lifting heavy objects, which may not be otherwise possible. In the financial point of view, leverage refers to furnish the ability to use fixed cost assets or funds to increase the return to its shareholders.

Definition of Leverage

James Horne has defined leverage as, "the employment of an asset or fund for which the firm pays a fixed cost or fixed return.

Types of Leverage

Leverage can be classified into three major headings according to the nature of the finance mix of the company.

- 1) Activity leverage and 2) Structural leverage

Activity leverage: Operating, financial and combined leverage

Structural leverage: Debt equity ratio

Total debt to equity ratio debt to net worth

OPERATING LEVERAGE

The leverage associated with investment activities is called as operating leverage. It is cause due to fixed operating expenses in the company. Operating leverage may be defined as the company's ability to use fixed operating costs to magnify the effects of changes in sales units earnings before interest and taxes. Operating leverage consists of two important costs viz., fixed cost and variable cost. When the company is said to have a high degree of operating leverage if it employs a great amount of fixed cost and smaller amount of variable cost. Thus, the degree of operating leverage

depends upon the amount of various cost structure. Operating leverage can be determined with the help of a break-even analysis.

Operating leverage can be calculated with the help of the following formula:

$$OL = C / OP$$

Where,

OL = Operating Leverage

C = Contribution

OP = Operating Profits

Degree of Operating Leverage

The degree of operating leverage may be defined as percentage change in the profits resulting from a percentage change in the sales. It can be calculated with the help of the following

Formula:

$$DOL = \text{Percentage change in profits} / \text{Percentage change in sales}$$

Uses of Operating Leverage

Operating leverage is one of the techniques to measure the impact of changes in sales which lead for change in the profits of the company. If any change in the sales, it will lead to corresponding changes in profit. Operating leverage helps to identify the position of fixed cost and variable cost. Operating leverage measures the relationship between the sales and revenue of the company during a particular period.

Operating leverage helps to understand the level of fixed cost which is invested in the operating expenses of business activities. Operating leverage describes the overall position of the fixed operating cost.

Note: Contribution is the amount of earnings remaining after all direct costs have been subtracted from revenue. This remainder is the amount available to pay for any fixed costs that a business incurs during a reporting period. Any excess of contribution over fixed costs equals the profit earned

Operating Profit: a profit from business operations (gross profit minus operating expenses) before deduction of interest and taxes

FINANCIAL LEVERAGE

Leverage activities with financing activities is called financial leverage. Financial leverage represents the relationship between the company's earnings before interest and taxes (EBIT) or operating profit and the earning available to equity shareholders. Financial leverage is defined as "the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share". It involves the use of funds obtained at a fixed cost in the hope of increasing the return to the shareholders.

"The use of long-term fixed interest-bearing debt and preference share capital along with share capital is called financial leverage or trading on equity". Financial leverage may be favourable or unfavourable depends upon the use of fixed cost funds.

Favourable financial leverage occurs when the company earns more on the assets purchased with the funds, then the fixed cost of their use. Hence, it is also called as positive financial leverage.

Unfavourable financial leverage occurs when the company does not earn as much as the funds cost. Hence, it is also called as negative financial leverage.

Financial leverage can be calculated with the help of the following formula:

$$FL = OP/PBT$$

Where,

FL = Financial leverage

OP = Operating profit (EBIT)

PBT = Profit before tax.

Note:

Profit before tax: It is determined by the total expenses (both operating expense and non-operating) excluded from Total revenue (operating revenue and non-operating revenue).

Degree of Financial Leverage

Degree of financial leverage may be defined as the percentage change in taxable profit as a result of percentage change in earnings before interest and tax (EBIT). This can be calculated by the following formula

$DFL = \text{Percentage change in taxable Income} / \text{Percentage change in EBIT}$

Alternative Definition of Financial Leverage

According to Gitmar, “financial leverage is the ability of a firm to use fixed financial changes to magnify the effects of change in EBIT and EPS”.

$FL = EBIT/OPS$

Where,

FL = Financial Leverage

EBIT = Earnings before Interest and Tax

EPS = Earnings Per share.

Uses of Financial Leverage

- Financial leverage helps to examine the relationship between EBIT and EPS.
- Financial leverage measures the percentage of change in taxable income to the percentage change in EBIT.
- Financial leverage locates the correct profitable financial decision regarding capital structure of the company.
- Financial leverage is one of the important devices which is used to measure the fixed cost proportion with the total capital of the company.

- If the firm acquires fixed cost funds at a higher cost, then the earnings from those assets, the earning per share and return on equity capital will decrease.

Note:

EBIT: EBIT or the operating income is the profitability measurement which determines the company's operating profit and is calculated by deducting the cost of the goods sold and the operating expenses incurred by the company from the total revenue.

EPS: The Full Form of EPS stands for Earnings Per Share. EPS is defined as the ratio of net income to the total number of ordinary shares issued by the company. This is the ratio that generally indicates the profitability of the business.

DISTINGUISH BETWEEN OPERATING LEVERAGE AND FINANCIAL LEVERAGE

Operating Leverage	Financial Leverage
<ol style="list-style-type: none"> 1. Operating leverage is associated with investment activities of the company 2. Operating leverage consists of fixed Operating expenses of the company. 3. It represents the ability to use fixed Operating cost. 4. Operating leverage can be calculated by $OL = C/OP.$ 5. A percentage change in the profits resulting from a percentage change in the sales is result of called as degree of operating leverage. 	<ol style="list-style-type: none"> 1. Financial leverage is associated with financing. activities of the company. 2. Financial leverage consists of operating profit of the company. 3. It represents the relationship between EBIT and EPS. 4. Financial leverage can be calculated by $FL = OP/ PBT$ 5. A percentage change in taxable profit is the percentage change in EBIT.

6. Trading on equity is not possible while the company is operating leverage.	6. Trading on equity is possible only when the company uses financial leverage.
7. Operating leverage depends upon fixed Cost and variable cost.	7. Financial leverage depends upon the operating profits.
8. Tax rate and interest rate will not affect the operating leverage..	8. Financial leverage will change due to tax rate and interest rate

Financial BEP

It is the level of EBIT which covers all fixed financing costs of the company. It is the level Of EBIT at which EPS is zero.

Indifference Point

It is the point at which different sets of debt ratios (percentage of debt to total capital employed in the company) gives the same EPS.

COMBINED LEVERAGE

When the company uses both financial and operating leverage to magnification of any change in sales into a larger relative changes in earning per share. Combined leverage is also called as composite leverage or total leverage.

Combined leverage express the relationship between the revenue in the account of sales and the taxable income.

Combined leverage can be calculated with the help of the following formulas:

$$CL = OL \times FL$$

$$CL = C/OP \times OP/PBT = C/PBT$$

Where,

CL = Combined Leverage

OL = Operating Leverage

FL =Financial Leverage

C = Contribution

OP = Operating Profit (EBIT)

PBT= Profit before Tax

Degree of Combined Leverage

The percentage change in a firm's earning per share (EPS) results from one percent change in sales. This is also equal to the firm's degree of operating leverage (DOL) times its degree of financial leverage (DFL) at a particular level of sales.

Degree of contributed coverage =Percentage change in EPS/Percentage change in sales

Combined leverage:

Operating leverage * financial leverage to assess the impact of all type of fixed cost on the firm

Combined leverage =contribution/EBIT*EBIT/PBT

=Contribution /PBT

Combined effects on different leverages on the firm

Operating Leverage	Financial leverage	Effect/ Conclusion
High	High	Very risky high interest outflow , not commensurate with earnings.
High	Low	Long term borrowings not strain on earnings
Low	High	idle situation for profit Maximization
Low	Low	Management over cautious.

Financial leverage: Relationship with cost of capital

Financial leverage	WACC	Market price of equity share
Increase	Decline	Increase
Decrease	Increases	Decline

PROBLEMS ON LEVERAGES AND CAPITAL STRUCTURE:

Problems: EBIT EPS Analysis

1. America express Ltd is setting up a project with capital outlay of Rs 6000000. It has the following two alternatives in financing the project cost :

Alternative 1: 100% equity finance

Alternative 2: debt-equity ratio 2:1

The rate of interest payable on the debt is 18% p a. The corporate rate of tax is 40%. Calculate the indifference point between two alternatives method of financing.

Solution:

1) By issue of 600000 equity shares of Rs 10 each amounting Rs 60lakhs. No financial charges involved

Or

2) By Raising funds in the following ways

Debt=Rs 40lakhs

Equity =Rs 20 Lakhs (200000 equity share OF Rs 10 Each)

Interest payable on debt=4000000*(18/100) =Rs 720000

We can calculate the break –even or indifference point as follows

$$\frac{(EBIT - 0)(1-0.40)}{600000} = \frac{(EBIT-720000)(1-0.40)}{200000}$$

$$\frac{(EBIT-0)(0.60)}{600000} = \frac{(EBIT-720000)(0.60)}{200000}$$

IN LAKHS

$$(0.60 \text{ EBIT}) * 2 = (0.60 \text{ EBIT} * 6) [(432000 * 6)]$$

$$25.92 = 3.6 \text{ EBIT} - 1.2 \text{ EBIT}$$

$$\text{EBIT} = 25.92 / 2.4$$

$$\text{EBIT} = 10.80 \text{ LAKHS}$$

2. AB Ltd. estimates the cost of equity and debt components of its capital for levels of debt; equity mix as follows.

Debt as % of total capital	Cost of equity%	Cost of debt%(before tax)
0	16	12
20	16	12
40	20	16
60	24	20

Suggest the best Debt mix for the company. Tax rate applicable to the company is 50% show working

Solution:

Debt as % of total capital	Cost of equity%	Cost of debt%(AFTER tax)	WACC
0	16	6	$(16 * 1.00) + (6 * 0) = 16$
20	16	6	$(16 * 0.80) + (6 * 0.20) = 14$
40	20	8	$(20 * 0.60) + (8 * 0.40) = 15.2$
60	24	10	$(24 * 0.40) + (10 * 0.60) = 15.6$

Optimum Debt Equity Mix=20:80 with Minimum WACC

3. The existing capital structure of ABC Ltd is as follows:

(Rs in lakhs)

Equity share of Rs 100 each	20
Retained earnings	10
9% preference share	12
7% Debentures	8
	50

Its capital employed which is likely to remain unchanged after expansion. The expansion involves additional finance of Rs 25 lakhs for which following alternatives are available to it:

- 1) Issue of 20000 Equity shares at a premium of Rs 25 per share**
- 2) Issue of 10% preference shares**
- 3) Issue of 8% Debentures**

Which of the alternative you would recommend and why? The income tax rate is 50%

4. Calculate the level of earnings before interest and tax (EBIT) at which the EPS indifference point between the following financial alternatives will occur.

Equity share capital of Rs 6,00,000 and 12% Debenture of Rs 4,00,000

Or

Equity share capital of Rs 4,00,000 14% preference share capital of Rs 2,00,000 and 12% Debentures of Rs 4, 00,000.

Assume the corporate tax rate is 35% and par value of equity share is Rs 10 in each case

5. Sunil Ltd established company which requires more fund of Rs.3000000 for its expansion scheme, apart from the original equity capital of Rs.3000000 @ Rs.100 per share. The director has the following option to raise the additional funds.

1. All in equity shares
 2. Rs.1000000 in equity share and balance in 8% debentures.
 3. All in from of debentures carrying an interest rate @ 8%.
 4. 1000000 in 12% preference share and balance in equity share.
- The expected EBIT is rs.800000 and tax rate applicable is 50 %.
- Advice the company by analyzing the option.

Solution:

Particulars	1	2	3	4
Original equity shares	30	30	30	30
New equity	30	10	-	20
8% debentures	-	20	30	-
12% preference share	-	-	-	10
Total investment	60	60	60	60
No. Of equity share (i)	60000	60000	60000	60000

Particulars	1	2	3	4
EBIT	800000	800000	800000	800000
(-) INTEREST	-	160000	240000	-
EBT	800000	640000	560000	800000

(-) TAX	400000	320000	280000	400000
EAT	400000	320000	280000	400000
(-) Preference share	-	-	-	120000
Earnings available to				
Equity shareholders (ii)	400000	320000	280000	280000
EPS	6.67	8	9.3	5.6
Company should consider third option				

6. The selected financial data for X, Y and Z Companies for the year ended March31 are as follow:

Particulars	X	Y	Z
Variable expenses as a percentage of sales	66.67	75	50
Interest expenses (₹)	200	300	1,000
DOL	5	6	2
DFL	3	4	2
Income tax rate	0.35	0.35	0.35

Prepare income statement for X, Y and Z companies

Solution: Income statement of companies A, B and C (For the current year ended March 31)

Particulars	X	Y	Z
-------------	---	---	---

Sales	4,500	9,600	24,000
Less: Variable Costs	3,000	7,200	12,000
=Contribution	1500	2400	12000
Less: Fixed	1,200	2,000	10,000
=EBIT	300	400	2,000
Less: Interest	200	300	1,000
=Earnings before Taxes	100	100	1,000
Less: Taxes	35	35	350
=EAT (Net Income)	65	65	650

Working Notes

Company X	Company Y	Company Z
-----------	-----------	-----------

<p>Computation of EBIT</p> <p>$DFL = EBIT / (EBIT - I)$</p> <p>Where,</p> <p>EBIT = Earnings before interest and taxes;</p> <p>I = Interest,</p> <p>$3 = EBIT / (EBIT - ₹200)$</p> <p>$3EBIT - 600 = EBIT$</p> <p>$2EBIT = 600$</p> <p>$EBIT = ₹300$</p>	<p>Computation of EBIT</p> <p>$4 = EBIT / (EBIT - ₹300)$</p> <p>$4EBIT - 1,200 = EBIT$</p> <p>$3EBIT = 1,200$</p> <p>$EBIT = ₹400$</p>	<p>Computation of EBIT</p> <p>$2 = EBIT / (EBIT - 1,000)$</p> <p>$2EBIT - 2,000 = EBIT$</p> <p>$EBIT = ₹2,000$</p>
<p>Computation of Sales (S)</p> <p>$DOL = \frac{\text{Sales} - \text{Variable Costs}}{EBIT}$</p> <p>$5 = (S - 0.667S) / 300$</p> <p>$1,500 = 0.333 S$</p> <p>$\text{Sales} = ₹4,500$</p>	<p>Computation of Sales (S)</p> <p>$6 = (S - 0.75S) / 400$</p> <p>$2,400 = 0.25S$</p> <p>$\text{Sales} = ₹9,600$</p>	<p>Computation of Sales (S)</p> <p>$6 = (S - 0.50S) / 2,000$</p> <p>$1,200 = 0.50 S$</p> <p>$\text{Sales} = ₹24,000$</p>
<p>Computation of Variable Cost</p> <p>Variable Cost = 66.67% of 4,500 = ₹3,000</p>	<p>Computation of Variable Cost</p> <p>Variable Cost = 75% of 9,600 = ₹7,200</p>	<p>Computation of Variable Cost</p>

		Variable Cost= 50% of 24,000 = ₹12,000
--	--	---

7. A firm's sales variable cost and fixed cost amount to Rs 7500000, RS 4200000, and 600000 respectively. It has barrowed Rs 4500000 @9% and its equity capita Rs 5500000.

- 1 what is the firm's ROI**
- 2 Does it have favorable financial leverage?**
- 3 what are the OL, FL, and CL.**
- 4 if the sales drop to Rs 5000000 what will be the new EBIT be?**
- 5 At what level will the EBT of the firm equal to zero?**
- 6 If the firm belongs to an industry whose asset turnover is 3, does it have a high or low asset leverage?**

Solution:

1 Calculation of firm's ROI: $ROI = \frac{EBIT}{Investment} = \frac{Rs\ 22\ lac}{RS\ 100\ lac} = 22\ %$

$EBIT = Sales - VC - FC = 75\ lac - 42\ lac - 6\ lac = Rs\ 22\ lac$

2 Yes firm has favourable FL as its ROI is higher than the interest on debt

3.

Leverage	Formula	Calculation
Operating leverage	$\frac{\text{Contribution}}{\text{EBIT}}$ $\frac{\text{Sales} - \text{variable cost}}{\text{EBIT}}$	$OL = \frac{75\text{lac} - 42\text{lac}}{27\text{lac}}$ $OL = 1.22$
Financial leverage	$\frac{\text{EBIT}}{\text{EBT}}$ $FL = \frac{\text{EBIT}}{\text{EBIT} - \text{Interest}}$	$FL = \frac{27\text{lac}}{27 - 4.05\text{lac}}$ $FL = 1.18$
Combined leverage	= operating leverage * financial leverage	CL=1.44

4. Calculation of EBIT if the sales drop to Rs 5000000 EBIT at sales level of Rs 50lac

Particular	Amt
Sales	5000000
Less: VC	2800000
Less: FC	600000
Earning before int and tax	1600000

5. Zero EBT implies break-even sales ratio (BESR)=fixed cost or profit volume ratio

Profit volume ratio = Rs 33lac = 44 percent

Break-Even Sales Ratio BESR=(6 lac+4.05lac)/0.4 =RS 2284091

Confirmation table

Particular	Amount
Sales	2284091
Less : VC(0.56)	1279091
Less : FC(Operating)	600000
Less : interest (additional fixed cost)	405000
EBT	Zero

6 Asset turnover=sales/total asset or total investment= 75lac/100lac
 =0.75 it is lower than the industry average.

8. The following balance sheet of 'v' ltd as on 31/03/14

Liabilities	Amount	Assets	Amount
Equity capital(10rs per share)	180000	Fixed assets	450000
10% debentures	240000	Current assets	150000
Retained earnings	60000		
Current liability	120000		
	600000		600000

The company's total assets turnover is 2.5 times. The fixed operating cost- 200000rs, variable operating cost ratio is 40%, income tax rate- 50%.calculate three leverages

Solution:

Particulars	Amount

Sales	1500000
Less: variable cost (1500000×0.40)	600000
Contribution	900000
Less: fixed cost	200000
EBIT	750000
Less: interest	24000
EBT	676000
Less: tax @ 50%	338000
EAT	338000

Computation of sales

Asset turnover ratio = sales ÷ total assets = 2.5

Total sales × 2.5 = 600000 × 2.5 = 1500000

1) Operating leverage = Contribution ÷ EBIT

= 900000 ÷ 700000

= 1.285 times

2) Financial leverage = EBIT ÷ EBT

= 700000 ÷ 676000

= 1.035 times

3) Combined leverage = contribution ÷ EBT

= 900000 ÷ 676000

= 1.33 times

9) The following figures related to 2 companies

	P Ltd	Q Ltd
Sales	500	1000

Variable cost	200	300
Contribution	300	700
Fixed Assets	150	400
EBIT	150	300
Interest	50	100
Profit before tax	100	200

You are required to.

- 1. Calculate the operating ,financial risk and combined risk for the two companies**
- 2. Comment on the relative risk position of them**

Solution :

Leverage	Formula	P. Ltd	Q.Ltd
Operating leverage	Contribution /EBIT	300/150 = 2 times	700/300 = 2.33 times
Financial leverage	EBIT/EBT	=150/100 1.5 times	= 300/200 1.5 times
Combined leverage	= operating leverage * financial leverage	2×1.5 = 3	2.33×1.5 = 3.495

- 1.) The operating leverage is higher Q.ltd therefore is subjected to greater business risk.
- 2.) Financial leverage of both companies stands at 1.5 times ,it conveys the interest burden proportional the same and also financial risk is similar both companies
- 3.) Combined leverage is l.td is higher and its overall risk is more as compare to P ltd.

10) Calculate the combined leverage and operating leverage from the following data

Sales 5,00,000 units Rs 10 / per Unit : variable cost units at 3.50 per unit

Fixed cost charges Rs, 5,00,000 : Interest charges Rs 20000

Sales = 5,00,000×10	50,00,000
Less variable cost = 5,00,000×3.50	17,50,000
Contribution	32,50,000
Less Fixed Cost	5,00,000
EBIT	27,50,000
Less interest	20,000
EBT	27,30,000

Solution:

Operating leverage = Contribution / EBIT = 32,50,000/27,50,000	1.18 time
Financial leverage = EBIT/EBT=27,50,000/27,30,000=	1.0times

11. The capital structure of a company consists of an ordinary share capital of Rs 10,00,000 (shares of Rs 100 per value) and Rs 10,00,000 of 10% debentures. Sales increased by 20% from 1,00,000 units to 1,20,000 units. The selling price is Rs 10 per unit. variable cost amount to Rs 6 per unit and fixed expenses amount to Rs 2,00,00. Income tax is assumed to be @ 35%.

a. You are required to calculate:

-the percentage increase in earnings per share.

-the degree of financial leverage at 1, 00,000 units and 1, 20,000units.

-the degree of operating leverage at 1, 00,000 units and 1, 20,000units.

b. comment on the behaviour of operating and financial leverage in relation to increase of production from 1,00,000 to 1,20,000 units.

Solution: -

Particulars	Sales at 1,00,00 units	Sales at 1,20,00 units
Sales	10,00,000	12,00,000
(-)variable cost	6,00,000	7,20,000
Contribution	4,00,000	4,80,000
(-) fixed cost	2,00,000	2,00,000
EBIT	2,00,000	2,80,000
(-) interest	1,00,000	1,00,000
EBT	1,00,000	1,80,000
(-)tax	35,000	63,000
EAT/EAESH	65,000	1,17,000
EPS	6.5	11.7

A₂

FINANCIAL LEVERAGE: EBIT/EBT	$2,00,000/1,00,000 = 2$	$2,80,000/1,80,000 = 1.55$
OPERATING LEVERAGE =CONTRIBUTION/EBIT	$4,00,000/2,00,000 = 2$	$4,80,000/2,80,000 = 1.714$
PERCENTAGE OF INCREASE EARNING PER SHARE	$11.7-6.5/6.5*100 = 80\%$	

B: The OL of the original sales is high when compared to revised sales, this shows that there is high risk in operating for 1,00,000 units. The FL of the original sales is high when compared to revised sales, this shows that financial risk is high while operating in the 1,00,000 units it's better to operate in the revised sales ie.. 1,20,000 units

12.B Corporation is considering a new project which will require the purchase of a new machine at a cost of 250,000. The project will also require use of a machine which has been fully depreciated but which could be sold today for 30,000. In addition, the firm expects an increase in net working capital investment of 60,000 in the first year of the project. What is the incremental net investment at the outset of this project? How much of this incremental net investment will the firm be able to depreciate?

Solution

The incremental investment includes both the cash required to purchase the new machine and the after-tax disposal value of the old machine, which is calculated as follows:

$$\text{Gain on sale} = \text{Market value} - \text{Book value} = 30,000 - 0 = 30,000.$$

$$\text{Taxes on gain} = \text{Gain} \times \text{Tax rate} = (30,000) (0.40) = 12,000$$

Thus the firm's incremental investment flows are:

Cost of new machine:	250,000
Increase in net working capital	60,000
Market value of old machine	-30,000
Tax on gain of sale of old machine:	12,000
Incremental investment outlay	292,000

The firm's depreciable value for tax purposes will be only the 250,000 cost of the new machine. (If the old machine had remaining book value, the incremental tax basis would be reduced by the loss of this book value.)

13. (i) Find the operating leverage from the following data:

Sales Rs. 50,000

Variable Costs 60%

Fixed costs Rs. 12,000

ii) Find the financial leverage from the following data:

Net Worth Rs. 25,00,000

Debt/Equity 3/1

interest rate 12%

Solution:

(i) Calculation of operating level rage:

Particulars	(Rs.)
Sales	50,000
Less: Variable Costs (60% of Sales)	30,000
Contribution	20,000
less: Fixed Costs	12,000
Operating Profit	8,000

Operating leverage = Contribution/Operating profit

= Rs. 20,000/Rs. 8,000 = 2.5

(ii) Calculation of Financial Leverage

Working Notes:

Calculation of debt and interest thereon:

(a) Debt =Rs. 25,00,000 × 3 = Rs. 75,00,000

(b) Interest on debt = Rs. 75,00,000 × 12/100 = Rs. 9,00,000

	Rs.
Operating Profit	20,00,000
Less: Interest on debt	9,00,000
Profit before tax	11,00,000

Financial Leverage = Operating profit/Profit before tax

= Rs. 20,00,000/Rs. 11,00,000 = 1.82

14. Calculate the operating leverage, financial leverage and combined leverage from the following data under Situations I and II and Financial Plans A and B:

Installed capacity 4,00 unit

Actual Production and sales 75% of the Capacity

Selling Price Rs. 30 per Unit

Variable Cost Rs. 15 per Unit

Fixed cost:

Under Situation I Rs. 15, 000

Under Situation II Rs. 20,000

Capital structure:		Rs.
Financial Plan	A	B
Equity	10,000	15,000
Debt (rate of Interest at 20%)	10,000	5,000 d
	20,000	20,000

Solution: (i) Calculation of Operating Leverage

Operating Leverage = (Contribution/operating profit)

Rs.		
	Situation I	Situation II
Sales	90,000	90,000
Less: variable cost (3,00 unit@ Rs. 30 per unit)	45,000	45,000
Contribution	45,000	45,000
Less: Fixed Costs	15,000	20,000
Operating profit (EBIT)	30,000	25,000

Operating Leverage		Rs. 45,000	Rs. 45,000
Rs. 30,000	Rs. 25,000		
= 1.5	=1.8		

Calculation of financial leverage

Financial leverage = Operating profit/Profit before tax

Financial plan	A	B
Situation I Operation profit	30,000	30,000
Less: Interest on debt	2,000	1,000
profit before tax PBT	28,000	29,000
Financial leverage		=
Rs. . =30 000/28 000	Rs. . =30 000/29 000	
= 1.07	= 1.04	

Financial plan	A	B
Situation II Operation profit	25,000	25,000
Less: Interest on debt	2,000	1,000
PBT	23,000	24,000

$$\text{Financial leverage} = \text{Rs. } 25,000 / \text{Rs. } 23,000 = 1.04$$

$$\text{Rs. } 25,000 / \text{Rs. } 24,000 = 1.09$$

(iii) Calculation of combined leverages

$$\text{Combined leverage} = \text{Operating Leverage} \times \text{Financial Leverage}$$

Financial plan	A	B
Situation I	(1.5×1.07)	(1.5×1.04)
Situation II	(1.8×1.09)	(1.8×1.04)
	$= 1.96$	$= 1.87$

15. Shahji Steels Limited requires Rs 25,00,000 for a new plant. This plant is expected to yield earnings before interest and taxes of Rs 5,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per share. It has three alternatives to finance the project - by raising debt of Rs 2,50,000 or Rs 10,00,000 or Rs 15,00,000 and the balance, in each case, by issuing equity shares. The company's share is currently selling at Rs 150, but is expected to decline to Rs 125 in case the funds are borrowed in excess of Rs 10,00,000. The funds can be borrowed at the rate of 10 percent up to Rs 2,50,000, at 15 percent over Rs 2,50,000 and up to Rs 10,00,000 and at 20 percent over Rs 10,00,000. The tax rate applicable to the company is 50 percent. ANALYSE which form of financing should the company choose?

Solution:

Plan I = Raising Debt of ` 2.5 lakh + Equity of ` 22.5 lakh.

Plan II = Raising Debt of ` 10 lakh + Equity of ` 15 lakh. Plan III = Raising Debt of ` 15 lakh + Equity of ` 10 lakh.

Calculation of Earnings per share (EPS):

	Financial plan		

	Plan 1	Plan 2	Plan 3
Expected EBIT	500000	500000	500000
Less interest (a)	(25000)	(137500)	(237500)
Earning before tax	475000	362500	262500
Less tax 2505	237500	181250	131250
EAT	237500	181250	131250
No of shares	15000	10000	8000
EPS	15.83	18.13	16.41

a) Calculation of interest on Debt

Plan 1	250000*10%		25000
Plan 2	250000*10%	25000	137500
	750000*15%	112500	
Plan 3	250000*10%	25000	237500
	750000*15%	112500	
	500000*20	100000	

b) Number of equity share issued .

Plan 1	2250000/150	15000 shares
Plan 2	1500000/150	10000 shares
Plan 3	1000000/125	8000 shares

16. Yadu company has a capital of Rs 1,00,000 divided into shares of Rs 10 each. It has expansion plans requiring an investment of another Rs 50,000. The management is considering the following alternatives for raising the amount

1. Issue of Rs 5,000 shares of Rs each
2. Issue of Rs 5,000, 12% preference share of Rs 100 each
3. Issue of 10% debentures of Rs 50,000.

The company's present earnings before interest and tax EBIT are Rs 40,000 p.a., subject to tax @50%. You are required to calculate the effect of each of the above modes of financing on the EPS presuming

1. EBIT continues to be the same after expansion
2. EBIT increases by Rs 10,000 after the expansion

Solution:

1. When the EBIT is Rs 40,000

Computation of EPS present and proposed plans

Particulars	Present Capital Structure All equity share 10,000 Rs	Rs 50,00 proposed capital structure		
		10,000 equity share +5,000 equity share Rs	10,000 equity +5,000 preference Shares Rs	10,000 equity +50,000 debenture Rs
Earning before interest and tax EBIT	40,000	40,000	40,000	50,000
Less interest	--	--	--	5,000
Earning before tax EBT	40,000	40,000	40,000	45,000

Less tax 50%	20,000	20,000	20,000	22,500
Earning after tax EAT	20,000	20,000	20,000	22,500
Less dividend to preference shareholders at 12@	--	--	--	--
Earnings available to equity shareholders	20,000	20,000	14,000	22,500
No of equity shares	10,000	20,000	14,000	10,000
Earning per share EPS = earnings available to equity shareholders/no of equity shares	Rs 2	Rs 1.33	Rs 1.40	Rs 2.25
Dilution against present EPS Rs 2		-0.67	-0.60	0.25

The above table shows the dilution of earnings per share has been the lowest when funds have been raised by the issue of debentures. In fact EPS increases

17. ABC company is currently on ordinary share capital of Rs 25,00,000 consisting of 25,000 shares of Rs each. The management is planning to raise another Rs 20,00,000 to finance an expansion programme. The options are

1. Entirely through ordinary shares
2. Rs 10 lac through ordinary shares and Rs 15 lac through debt @ 8% p.a
3. Rs 5 lac through ordinary shares and Rs 15 lac through debt @ 9% p.a
4. Rs 10 lac through ordinary shares and Rs 10 lac through preference shares with 5% dividend

The company's expected EBIT will be Rs 8,00,000. Assuming tax rate is 50%, determine EPS and comment which alternative is best and why?

Working

	Plan 1	Amount	Plan 2	Amount	Plan 3	Amount	Plan4	Amount
--	--------	--------	--------	--------	--------	--------	-------	--------

Existing	Ordinary shares 25000	25,00,000	Ordinary shares 25000	25,00,000	Ordinary shares 25000	25,00,000	Ordinary shares 25000	25,00,000
New issue								
	Ordinary shares 20000	20,00,000	Ordinary shares 10000	10,00,000	Ordinary shares 5,000	5,00,000	Ordinary shares 10000	10,00,000
	Preference shares	nil	Preference shares	nil	Preference shares	nil	5% Preference shares	10,00,000
	Debt	nil	8% Debt	10,00,000	9% Debt	15,00,000	Debt	
Total new issue		20,00,000		20,00,000		20,00,000		20,00,000
Total old and new		45,00,000		45,00,000		45,00,000		45,00,000

Solution:

Particulars	Additional fund of Rs20 lakhs raised through			
	Option 1 Ordinary shares	Option 2 Ordinary shares + long term loan	Option 3 Ordinary shares + long term loan	Option 4 Ordinary shares + preference shares
Earnings before interest and tax in lacs EBIT	8.00	8.00	8.00	8.00

Less interest	--	0.80	1.35	--
Earning before tax EBT	8.00	7.20	6.65	8.00
Less tax	4.00	3.60	3.33	4.00
Earning after tax EAT	4.00	3.60	3.32	4.00
Less preference shares dividend	--	--	--	0.50
Earnings available to equity shareholders	4.00	3.60	3.32	3.50
No of ordinary shares	45,000	35,000	30,000	35,000
Earnings per share EPS	Rs 8.88	Rs 10.29	Rs 11.07	Rs 10.00

18. ARC has currently equity capital consisting of 1,00,000 units to 1,20,000 units. EPS has gone up by 80%. The management is planning to raise Rs 25,00,000 to finance a major programme of expansion and is considering 3 alternative methods of financing

1. To issue 25,000 equity shares of Rs 100 each
2. To issue 25,000 8% debentures of Rs 100 each
3. To issue 25,000, 8% preference shares of Rs 100 each

The company's EBIT is Rs 8,00,000. Assume a corporate rate of 50%, determine EPS in each alternative and comment on the results

Solution:

Particulars	Alternative 1 Equity shares	Alternative 2 Debentures	Alternative 3 Preference shares
Earning before interest and tax in lacs EBIT	8,00,000	8,00,000	8,00,000
Less interest @ 8%	---	2,00,000	----
Earning before tax EBT	8,00,000	6,00,000	8,00,000

Less tax @ 50%	4,00,000	3,00,000	4,00,000
Earning after tax EAT	4,00,000	3,00,000	4,00,000
Less preference shares dividend @ 8%	----	---	2,00,000
Earnings available to equity shareholders	4,00,000	3,00,000	2,00,000
No of shares	40,000	15,000	15,000
Earnings per share EPS	10	20	13.33

Comment: alternative 2 is more profitable to adopt because it gives the highest earnings per share than other alternatives

COST OF CAPITAL

Lecture Notes 1- Basics concept Introduction

The main objective of business firm is to maximize the wealth of shareholders in the long run. The management should only invest in projects with give return in excess of cost of funds invested in the project of business the difficulty will arise in determination of cost of funds if it is raised from different sources of different countries the various sources of funds to the company are in the form of equity and debt.

The cost of capital is the rate of return the company has to pay to various suppliers of fund in the company there are variations in the cost of capital due to the fact that different kind of investment carry different levels of which is compensated for the different level of return on their investment.

There are two main sources of capital for a company: Shareholders and lenders usually debutant holders are Financial Institutions the cost of equity and cost of that are the rates of return that need to be offered to these two groups of suppliers of capital in order to attract funds from them.

The cost of capital is a very important factor to be considered in deciding the firm's capital structure. It is one of the bases of the theories of financial management. Of course, cost of capital is to a certain extent debatable aspect of financial management. Yet it is a fact that before determining the capital structure a company is required to compute the cost of capital of various sources of finance and compare them. On that basis the company decides which source of finance is the best and in the interest of the owners and even of creditors.

From the viewpoint of investors, cost of capital is the reward of postponement of his present needs, so as to get a fair return on his investment in future. But from the viewpoint of the company, the cost of capital refers to the financial burden that a company has to bear in financing its business through various sources.

MEANING :

Hampton, John defines the term as "the rate of return the firm requires from investment in order to increase the value of the firm in the market place". The following are the basic characteristics of cost of capital :

- i) Cost of capital is a rate of return, It is not a cost as such.
- ii) This return, however, is calculated on the basis of actual cost of different components of capital.
- iii) A firm's cost of capital represents minimum rate of return that will result in atleast maintaining (If not increasing) the value of its equity shares.
- iv) It is related to long term capital funds.
- v) Cost of capital consists of three components :
 - a) Return at Zero Risk Level. (r_0)
 - b) Premium for Business Risk (b)
 - c) Premium for Financial Risk (f)
- vi) The cost of capital may be put in the form of the following equation :

$$K = r_0 + b + f$$

Where K = Cost of Capital, r_0 = Return at Zero Risk Level, b = Premium for Business Risk f
= Premium for Financial Risk

COST OF CAPITAL IN CAPITAL BUDGETING:

Determination of cost of capital is essential for capital budgeting decision the cost of capital is used as the discount rate in npv calculations and as targeted rate of return for comparing with projects internal rate of return cost of capital is defined as the maximum rate of return that firm must earn on its investment so that the market value per share remains unchanged when the internal rate of return i r method is used in a project appraisal the area of the project is compared with the cost of capital it provides a yardstick to measure the worth of investment proposal and performs the role accept or reject situation in it is also referred to as cutoff rate target rate hurdle, rate minimum required rate of return and standard rate etc.

ELEMENTS OF COST OF CAPITAL

- a) Cost of equity (K_e)
- b) Cost of retained earning (K_r)
- c) Cost of preferred capital(K_p)
- d) Cost of debt (K_d) Importance

The determination of the firm's cost of capital is important from the point of view of the following:

- i) It is the basis of appraising new capital expenditure proposals. This gives the acceptance / rejection criterion for capital expenditure projects.
- ii) The finance manager must raise capital from different sources in a way that it optimizes the risk and cost factors. The sources of funds which have less cost involve high risk. Cost of capital helps the managers in determining the optimal capital structure. iii) It is the basis for evaluating the financial performance of top management. iv It helps in formulating appropriate dividend policy.
- v) It also helps the organization in developing an appropriate working capital policy.

COST OF EQUITY (K_E)

The funds required for the project are raised from the equity shareholders which are the permanent nature. These funds need not be repayable during the lifetime of organization. Hence it is permanent source of funds full stops the equity shareholders are the owners of company. The main objective of the firm is to maximize the wealth of the equity shareholders. Equity share capital is there is capital of the company. If the company's business is doing well the ultimate beneficial are equity shareholder who will get the return in the form of dividend from the company and the capital appreciation for their investment. If the company comes for liquidation due to losses the ultimate and worst sufferers are the equity shareholders. Sometimes they may not get there investments points back during the liquidation process.

Profit after taxation, less dividend paid out of the shareholders, are one that belong to the equity shareholder which have been invested in the company and therefore those read and find should be included in the category of equity, The cost of retained earnings is discuss separately from the cost of equity capital.

The cost of equity may be defined as the minimum rate of return that a company must earn on the equity finance portion of an investment project so that the market price of the share remains unchanged.

METHODS OF COST OF CAPITAL:

DIVIDEND YIELD METHOD:

The dividend person is expected on the current market price per share. As per this method, the cost of capital is defined as “the discount rate that liquids the present value of all accepted future divider per share with the net proceeds of the sale (or the current market price)of a share”.

This method is based on the assumption that the market value of shares is directly related to the Future dividend on the shares. Another assumption is that the future dividend per share is accepted

to be constant and the company is expected to earn at least this yield to keep the shareholders content.

$$K_E = D_1 / P_E$$

K_E = Cost of equity

D_1 = Annual dividend per share

P_E = Ex Dividend market price per share

This method emphasis of future dividend accepted to be constant. It does not allow any growth rate. But in reality, shareholder expects the return from is equity investment to grow overtime.

Example 1:

Rachana has disbursed a dividend of Rs 30 on each Company at a premium of Rs 10. The current market price is Rs 80. Calculate the cost of Equity as per dividend yield method.

$$K_E = D_1 / P_E$$

K_E = Cost of equity

D_1 = Annual dividend per share

P_E = Ex Dividend market price per share

$$K_E = 30 / 80$$

37%

Example 2:

ABC limited issues 10000 equity shares of Rs 10 each at a premium of Rs 2 each. The company has incurred issue expenses of Rs 5000. The equity shareholders experts the rate of dividend to 18% p.a. Calculate cost of equity share capital.

$$K_E = D_1 / NP$$

$$NP = (10000 \text{ equity share} * 12) - 5000 / 10000 \text{ Equity Share}$$

$$= 115000 / 10000 \text{ Equity Share}$$

$$= \text{Rs } 11.50$$

$$K_E = 1.80 / 11.50$$

$$15.56\%$$

DIVIDEND GROWTH MODEL:

Shareholders will normally expect dividend to increase year after year and not to remain constant in perpetuity. In this method and allowance for future growth in dividend is added to the current dividend yield.

It is recognized that the current market price of a share reflects expected future dividend. The dividend growth model is also called as “Gordon dividend growth model”

$$K_E = \frac{D_0(1+g)}{P_E} + g$$

P_E

D_0 = Last dividend per share

g = constant annual growth rate of dividends

P_E = Ex dividend market price per share

Example 3:

The equity of sun limited is traded in the market at Rs 90 each. The current year dividend per share is Rs 18 . The subsequent growth in dividends is expected at the rate of 6% . Calculate the cost of Equity Capital

$$K_E = \frac{D_0(1+g)}{P_E} + g$$

P_E

D_0 = Last dividend per share g = constant

annual growth rate of dividends

$P_E = E \times$ dividend market price per share

$$K_E = \frac{D_1}{P_E} + g$$

PE

$$= \frac{18}{90} + 0.06$$

90

$$= 26\%$$

Example 4:

The details of dividend Paid by RQ trades limited on existing equity share of Rs 10 each for the past 6 years is given below:

Year	2013	2014	2015	2016	2017	2018
Dividend per share	1.05	1.10	1.16	1.21	1.27	1.34

The current market price of the equity share is Rs 40. it is expected to maintain the fixed dividend pay-out ratio in the future. the company has issued new equity share of Rs 10 each and the cost of its flotation is Re 0.50 per share. The expected dividend to be declared for the current year is Rs 1.40

Calculation of dividend growth rate:

The last five years (2013 is ignored since the dividend of 2013 is compared with the dividend of years 2018)

The dividend has increased from 1.05 to 1.34

Compound factor=1.34/1.05=1.2762

By looking into compound value Of Re 1 table the sum of Re 1 would accumulate to Re 1.2762 in five years is 5%

$$K_E = \frac{D_1}{P_E} + g$$

$$= \frac{1.40}{9.50} + 0.05$$

$$= 0.1474 + 0.05$$

$$= 19.74\%$$

Or

$$K_E = \frac{D_0(1+g)}{P_E} + g$$

D_0 = Last dividend per share
 g = constant annual growth rate of dividends

P_E = Ex dividend market price per share

$$= \frac{1.34(1+0.05)}{9.50} + 0.05$$

$$= 0.1474 + 0.05$$

$$= 19.8\%$$

Criticism:

The dividend growth model is criticized on the following reasons

1. The future growth pattern is impossible to predict because it will be inconsistent and uneven
2. Due to unnecessary and of future and in perfect information, only historical growth is to be used for prediction of future growth
3. Calculation only cost of equity capital ignoring the cost of other forms of capital may not be valid.
4. The dividend growth depends on the retained earnings of the company and the growth is difficult to assume

PRICE EARNING METHOD:

This method takes into consideration the Earning per share EPS and the market price of the share. It is based on the assumption that the investor capitalizes the stream of future earnings of the share and the earning of a person need not be in the form of dividend and also it need not be disturbed to the shareholders. It based on argument that even if the earning are not disturb and dividend, it is kept in the retained earnings and it causes future growth in the earning of the company as well as the increase in market price of the share. In calculation of cost equity share capital The Earning per share is divided by the current market price.

$$K_E = E/M$$

E current earning per share

M = Market price per share

Example 5:

Ganesh Ltd has 50000 equity shares of Rs 10 each and its current market value is Rs 45 each . the after tax profit of the company for the year ended 31st march 2018 is 960000. Calculate cost of capital based on price / earnings method

Calculation of current earning per share = $960000/50000$ equity shares =19.20

$$K_E = E/M = 19.20/45 = 42.67\%$$

E current earning per share , M = Market price per share

CAPITAL ASSET PRICING MODEL:

CAPM divide the cost of equity into two components:

The nearest risk free return available on investing in government Bond and additional risk Premium for investing in a particular share or investment. This risk premium in turn comprises the average return on the overall market portfolio and the beta factor or risk of the particular investment. Thus CA PM assess the cost of equity for an investment.

$$K_E = R_F + \text{Beta} (R_M - R_F)$$

K_E = cost of equity

R_F = risk free rate of return

R_M = average market Return

Beta of investment

Example: Anuj limited share beta factor is RS 1.40 the risk free rate of interest on government securities is 9%. the expected rate of return on company equity share is 16%. Calculate the cost of equity based on capital asset pricing model .

$$K_E = R_F + \text{Beta} (R_M - R_F) = 0.09 + 1.40(0.16 - 0.09)$$

$$= 0.09 + 1.40(0.07)$$

$$= 0.09 + 0.098$$

$$= 18.8\%$$

If the beta is reduced to 1

$$= R_F + \text{Beta} (R_M - R_F) = 0.09 + 1 (0.16 - 0.09)$$

$$= 0.09 + 1 (0.07)$$

$$= 0.09 + 0.07$$

$$= 16\%$$

If beta is 0.8

$$= R_F + \text{Beta} (R_M - R_F) = 0.09 + 0.08(0.16 - 0.09)$$

$$= 0.09 + 0.08 (0.07)$$

$$= 0.09 + 0.0056$$

$$= 9.56\%$$

Assignment:

1. Bhuvan has disbursed a dividend of Rs 20 on each Company at a premium of Rs 12. The current market price is Rs 110. Calculate the cost of Equity as per dividend yield method.

2. ABC limited issues 10000 equity shares of Rs 10 each at a premium of Rs 2 each. The company has incurred issue expenses of Rs 5000. The equity shareholders expect the rate of dividend to be 18% p.a. Calculate cost of equity share capital.

Will your answer be different if your current market price is Rs 21?

3. The equity of PQR limited is traded in the market at Rs 180 each. The current year dividend per share is Rs 26. The subsequent growth in dividends is expected at the rate of 6%. Calculate the cost of Equity Capital

4. The shares of Sunil limited are selling at Rs 24 per share the firm had paid dividend @Rs 1.80 per share last year. The estimated growth of the company is approximately 5% per year. Determine the cost of equity capital of the company.

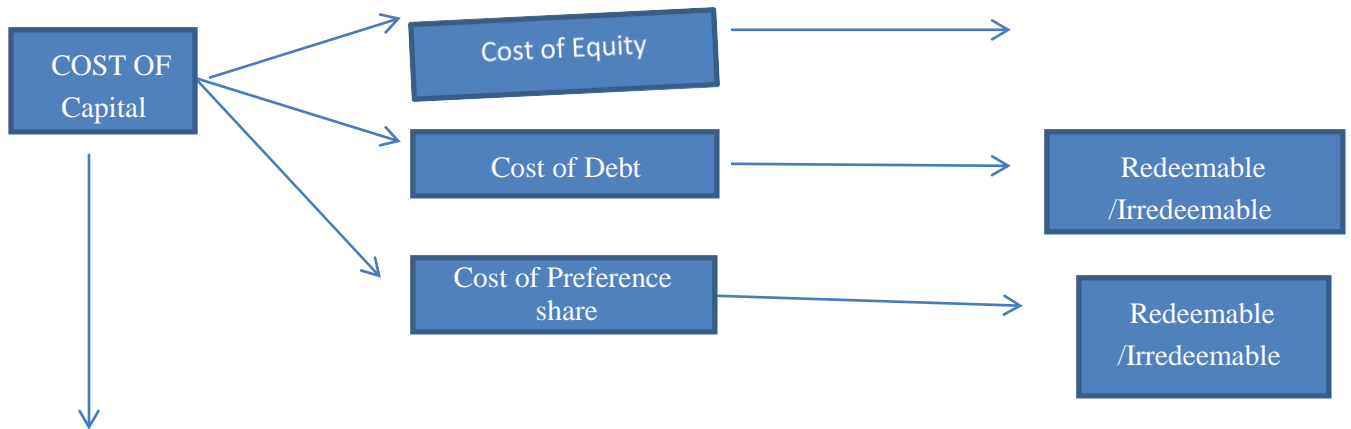
5. Suhas Textiles Ltd. wishes to determine its cost of equity capital, K_e . The prevailing market price of the share is Rs. 50 per share. The firm expects to pay a dividend of Rs. 4 at the end of the coming year 2013. The dividends paid on the equity shares over the past six years are as follows:

Year Dividend (Rs.)

2012	3.80
2011	3.62
2010	3.47
2009	3.33
2008	3.12
2007	2.97

The firm maintained a fixed dividend payout from 2006 onwards. The annual growth rate of dividends, g , is approximately 5 percent.

6. Sharan limited share beta factor is 1.00 the risk free rate of interest on government securities is 6%. The expected rate of return on company equity share is 14%. Calculate the cost of equity based on capital asset pricing model



WEIGHTED AVERAGE COST OF CAPITAL(WACC): $\text{weight of equity} * \text{cost of equity} + \text{weight of Debt} * \text{Cost of debt}$

The capital structure of a firm normally includes the Debt component also. That may be in the form of debenture, bonds, term loan from Financial Institutions and Bank etc. The debt is carried of fixed rate of interest payable to them, irrespective of the profitability of the company. Since the coupon rate is fixed the firm increases its earnings through debt financing. Then after payment of fixed interest charges more surplus is available for equity shareholders, and hence

EPS will increase.

An important point to be remembered that dividends payable to equity shareholders and preference shareholder is an appropriation of profit, whereas the interest payable on Debt is a charge against profit. Therefore, any payment towards interest will reduce the profit of ultimately the companies tax liabilities would decrease. This phenomenon is called “Tax shield”. The tax Shield is viewed as a beneficial accrues to the company which is geared. To gain the full tax shield the following conditions apply.

The company must be able to show a taxable profit every year to take full advantage of the tax shield.

If the company makes losses, the tax shield goes down and cost of borrowing increases.

The debt maybe perpetual Debt or redeemable Debt and for calculation of cost of debt the following information is required

1. Net cash inflow for each source of Debt and cost of raising debt.
2. The amount of periodic interest payment and principal repayment on maturity.
3. Corporate taxation rate.

COST OF PERPETUAL DEBT: The cost of perpetual debt (Irredeemable debt) is calculated with following :

$$K_D = I(1-T)/D$$

Where

K_D = cost of debt

I = annual Interest payment

T = company's effective corporate tax rate

D = Net proceeds of issue of debenture , Bonds, term loan etc

COST OF REDEEMABLE DEBT :

$$K_D = [I + (R_v - S_v/N)] (1-T)$$

$$(Rv+Sv/2)$$

KD= cost of debt

I = Annual Interest payment

T= company's effective corporate tax rate

Rv= Redeemable value of debt at the time of maturity

Sv= sale value less discount and flotation expenses

Problems :

1. A company has 10% perpetual debt of Rs 1,00,000. The tax rate is 35%. Determine the cost of capital (before tax as well as after tax) assuming the debt is issued at,

- i. Par
- ii. 10% discount
- iii. 10% premium

Solution

i. Debt at Par

Before tax $K_d = (I/NP) * 100$

$$= (10,000/1,00,000) * 100$$

$$= 10\%$$

$$\begin{aligned}
 \text{After tax Kd} &= (I/NP) * (1-t) * 100 \\
 &= (10,000/1,00,000) * (1-0.35) * 100 \\
 &= 6.5\%
 \end{aligned}$$

ii. At 10% discount

$$\begin{aligned}
 \text{Before tax Kd} &= (I/NP) * 100\% \\
 &= (10,000/1,00,00 - 10\% \text{ of } 1,00,000) * 100\% \\
 &= (10,000/90,000) * 100\% \\
 &= 11.11\%
 \end{aligned}$$

$$\begin{aligned}
 \text{After Tax Kd} &= I/NP * (1-t) * 100\% \\
 &= (10,000/90,000) * (1-0.35) * 100\% \\
 &= 7.22\%
 \end{aligned}$$

iii. At premium

$$\begin{aligned}
 \text{Before tax Kd} &= I/NP * 100\% \\
 &= (10,000/(1,00,000 + 10\% \text{ of } 1,00,000)) * 100\% \\
 &= (10,000/1,10,000) * 100\% \\
 &= 9.09\%
 \end{aligned}$$

$$\begin{aligned}
 \text{After tax Kd} &= I/NP * (1-t) * 100\% \\
 &= 10,000/1,10,000 * (1-0.35) * 100\% \\
 &= 5.91\%
 \end{aligned}$$

2. Neelam Steel limited issued 30000 irredeemable 14% debentures of Rs 150 each. The cost of flotation of debentures is 5% of the total issued amount. The Company's taxation rate is 40% . Calculate the cost of debt.

Calculation of net proceeds :

Total issued amount	30000 debentures*150	4500000
Less Floataion cost	4500000*5/100	225000
Net Proceeds from issue		4275000

Annual charges =4500000*14/100=Rs630000

$$KD=I(1-T)/D$$

Where

KD= cost of debt

I = annual Interest payment

T= company's effective corporate tax rate

D= Net proceeds of issue of debenture, Bonds, term loan etc

$$=630000(1-0.40)/4275000=8.84\%$$

COST OF REDEEMABLE DEBT :

$$KD=[I+(Rv-Sv/N)] (1-T)$$

$$(Rv-Sv/2)$$

KD= cost of debt

I = Annual Interest payment

T= company's effective corporate tax rate

Rv= Redeemable value of debt at the time of maturity

Sv= sale value less discount and flotation expenses

1. Surya industries limited have raised funds through issue of 10000 debenture of Rs 150 each at a discount of Rs 10Per debenture with 10 years maturity. the coupon rate is 16% . The flotation cost is Rs 5 per Debenture. The debentures are redeemable with 10% premium. The corporate taxation rate is 40% . Calculate cost of debt.

$$KD=[I+(Rv-Sv/N)] (1-T)$$

$$(Rv+Sv/2)$$

$$[24+(165-135/10)](1-0.40)$$

=

$$(165+135/2)$$

=10.8%

If the debt raised is certain of its redemption at the end of specified period IRR Method can be used of calculating cost of debt .

Assignment:

Calculate the cost of Debt capital:

1. X limited issues 12% debentures of face value of Rs 100 each and realizes Rs95 per debenture . The debentures are redeemable after 10 Years at a premium of 10%
2. A company has 10% perpetual debt of Rs 2,00,000. The tax rate is 40%. Determine the cost of capital (before tax as well as after tax) assuming the debt is issued at, par, 10% discount and 10% premium .
3. X limited issues 10% debentures of face value of Rs 100 each and realizes Rs95 per debenture. The debenture are redeemable after 20 Years at a premium of 10%.
4. Ganesh limited issued 60000 irredeemable 14% debentures of Rs 150 each. The cost of flotation of debentures is 5% of the total issued amount. The Company's taxation rate is 40% . Calculate the cost of debt.
5. Write a note on Cost of debt

COST OF RETAINED EARNINGS

The retained earnings is one of the sources of finance available for the established companies to finance it is expansion and diversification programs. These are the funds accumulated over years of the company by keeping part of the funds generate without distribution.

The equity shares holders of the company are entitled to these funds are also taken into account while calculating the cost of equity. But so long as the retained profits are not distributed to the shareholder, the company can use the funds within the company for further profitable

Hence cost of equity includes retained earnings. But in practice, retained earnings are slightly cheaper source of capital as compared to the cost of equity capital. Therefore the cost of retained earnings is treated separately from the cost of equity capital.

The cost of retained earnings to the shareholders is basically the opportunity cost of such fund to them. It is equal to the income that they would otherwise obtain by placing these funds in alternative investment. The cost of retained earnings is determined based on the opportunity rate of earnings of Equity shareholders, which is being forgone continually. If the retained earnings are distributed to equity share holders attract personal taxation of individual shareholders and therefore, the cost of earnings is calculated as follows ;

$$K_R = K_E(1-T)$$

Where K_R = Cost of retained earnings

K_E = Cost of equity capital

T = Tax rate of individual

COST OF PREFERENCE SHARE

The cost of preference share capital is the rate of return that must be earned on preference capital financed investments; to keep unchanged the earnings available to equity share holders.

Cost of irredeemable preference shares- The cost of irredeemable preference shares is the rate of preference dividend also called the coupon rate divided by net issue proceeds

$$K_p = D_p / NP$$

K_p = Cost of preference capital

D_p = Preference dividend

NP = Net proceeds received from issue of preference share after meeting the issue expenses

EXAMPLE 1

ABC limited has issued 1000000 irredeemable preference share of Rs 150 each at coupon rate of

14% p.a. The issue expenses are Rs 15 per share . calculate the cost of preference share capital

$$K_p = D_p / NP$$

K_p = Cost of preference capital

D_p = Preference dividend

NP = Net proceeds received from issue of preference share after meeting the issue expenses

$$K_p = 21 / 135 (150 - 15)$$

$$K_p = 15.55\%$$

Cost of Redeemable preference share:

COST OF REDEEMABLE DEBT :

$$K_P = \frac{D + (R_v - S_v / N)}{(R_v + S_v / 2)}$$

$$(R_v + S_v / 2)$$

K_P = cost of Preference shares

D = constant annual dividend payment

N = no of years to redemption

R_v = Redeemable value of Preference share at the time of redemption
 S_v = sale value less discount and flotation expenses

Example 2:

PS LTD has Rs 100 preference share redeemable at premium of 10% with 15 year maturity . The coupon rate is 12%, flotation cost is 5% sale price is Rs 95. Calculate the cost of preference share .

$$K_P = \frac{D + (R_v - S_v/N)}{(R_v + S_v/2)}$$

$$(R_v + S_v/2)$$

K_P = cost of Preference shares

D = constant annual dividend payment

N = no of years to redemption

R_v = Redeemable value of Preference share at the time of redemption
 S_v = sale value less discount and flotation expenses

$$K_p = \frac{12 + (110 - 90)/15}{110 + 90/2}$$

$$= 13.33\%$$

Assignment :

1. PQR limited has issued 2000000 irredeemable preference share of Rs 300 each at coupon rate of 14% p.a. The issue expenses are Rs 30 per share . Calculate the cost of preference share capital
2. SS LTD has Rs 200 preference share redeemable at premium of 20% with 30 year maturity . The coupon rate is 12%, flotation cost is 5% sale price is Rs 100. Calculate the cost of preference share .

WEIGHTED AVERAGE COST OF CAPITAL

Cost of capital is overall composite capital of capital and may be defined as the average of the cost of each specific fund. Weighted average cost of capital (WACC) is defined as the weighted average of the cost of various sources of Finance, weight being the market value of each source of the finance outstanding. Cost of various source of Finance refers to the return expected by the respective investors.

The CIMA defines the weighted average cost of capital “as the average cost of company’s finance (Equity, debenture, bank loans) weighted according to the proportion each elements bare to total pool of capital, weighting is usually based on market valuations current yield and cost after tax”

The argument in favour of using WACC stems from the concept that investment capital from various sources should be seen as a pool of available capital for all the capital projects of an organization. Hence cost of capital should be weight average cost of capital. Financing decision, which determines the optimal Capital mix, is traditionally made without making any reference to the acceptance or otherwise of a specific project.

Similarly a specific project is evaluated without considering the mode of financing of the project. Traditionally, optimal capital structure is assumed at a point where WACC is minimum.

For project evaluation, this WACC is considered as the minimum rate of return required from projects to pay of the expected Return of the investor and as such WACC is generally referred to as the required rate of return.

Accordingly, the relative worth of a project is determined using this required rate of return as a discounting rate. Thus WACC get more importance in both the decision.

SIMPLE WACC :

The simple WACC is calculated without consideration to the impact of tax on cost of capital. The combined cost of equity capital and Deb capital is the WACC for a company as whole .

If the company's is all Equity Financed, the cost of equity will be the cost of capital. In case of geared companies, the WACC :

$$\text{WACC} = (\text{Cost of equity} * \% \text{Equity}) + (\text{Cost of Debt} * \% \text{Debt})$$

Choice of Weights

The weights to be employed can be book value, market values, historic or target. Book value weights are based on the accounting values to assess the proportion of each type of capital in the firm's structure.

Market value weights measure the proportion of each type of financing at its market value. Market value weights are preferred because they approximate the current value of various instruments of finance employed by the company.

Historic weights can be book or market weights based on actual data. Such weights however would represent actual rather than desired proportions of various types of capital in the capital structure.

Target weights, which can also be based on book or market values, reflect the desired capital structure proportions. If the firm's historic capital structure is not much different from 'optimal' or desired capital structure, the cost of capital in both the cases is mostly similar. However, from a strictly theoretical point of view, the target market value weighting scheme should be preferred.

Marginal weights are determined on the basis of financing mix in additional new capital to be raised for investments. The new capital to be raised is marginal capital. The proportions of new capital raised will be the marginal weights.

Problem 1: A firm has the following capital structure and after-tax costs for the different sources of funds used :

Source of Funds Amount	Rs.	Proportion%	After tax cost%
Debt	40,00,000	20	4.50
Preference Shares	20,00,000	10	9.00
Equity Shares	60,00,000	30	11.00
Retained Earnings	80,00,000	40	10.00
	2,00,00,000	100	

Calculate cost of weighted capital by using book value method.

Solution:

Method of Financing	Proportion%	Cost%	Weighted cost
Debt	20	4.50	0.90
Preference Shares	10	9.00	0.90
Equity Shares	30	11.00	3.30
Retained Earnings	40	10.00	4.00
			9.10%

Problem 2: M. Ltd. is a consumer products company with well-established brand names. The cost of capital is estimated at the end of 2001 for use in evaluating Investment proposals in 2002. The data is as follows

Source	Book Value in Rs. 0000	Market Value in Rs. 0000	Current Interest Rate%
Debentures(7.5%)	45	29	13.2

Debentures (9.5%)	50	42	13.2
Debentures(14%)	75	78	13.2
Other debt Total	210	192	13.2
Total debt	380	341	13.2
Preference	20	10	14.0
Shares(7%)			
Equity Shares	720	824	

Equity Share Data Years

	1996	1997	1998	1999	2000	2001
Dividend per Share	1.45	1.60	1.77	2.05	2.28	2.48
Earnings per share	2.97	3.73	4.21	4.83	4.86	4.95
Price per share	24.0	50.0				

Explanatory Notes

- Interest rates on the three debentures issues were set at the rate (13.2%) on the recently issued debentures of the firm which is selling close to par. This was considered to be the best estimate
- Other debt includes different types of loans from financial institutions and other privately placed debentures.
- Market value is based on interest rates provided in the firm's annual report.
- Preference share is Rs. 100 par : current market price is s. 50 per share.

Since the firm's dividend and earnings have been growing steadily since 1996, the constant growth model can be used to estimate cost of equity. Through dividends have growth at a slightly higher

rate than earnings, one may assume that shareholders would expect them to grow at the same earnings (10.8%). Also assume, on the basis of the past record that the shareholders expect a dividend of Rs. 2.60 in 2002. Calculate cost of Capital

Solution :

$$K_e = \frac{D}{P} + g$$

$$= \frac{\text{Rs. 2.60}}{\text{Rs. 50}} + 0.108$$

$$= 16\%$$

If the investors expect the dividends to grow at the higher rate (11.3%), the cost of equity capital works out to 16.5%. Applying the beta method, we obtain a somewhat higher number. Beta for M Ltd. is assumed to be 0.85. Interest rate on government bonds (riskless rate) in 2001 would be say, 12 percent. The market risk premium is 6%. Thus

$$K_e = \text{Riskless rate} + \text{Risk premium} * \text{beta}$$

$$= 12\% + 6\% * 0.85$$

$$= 17.1\%$$

Thus the cost of capital for M Ltd. :

Particular	Amount Rs.	Weight	Cost	Weight * Cost
Debt	341	0.29	7.1	2.1
Preference Shares	10	0.01	14.0	0.1
Equity Shares	824	0.70	17.0	11.9

Total	1175	1.00	17.0	14.9
-------	------	------	------	------

Weighted Average Cost of Capital : 14.9%

Explanation

- Market value of debt, preference and equity shares are used.
- Current interest rate on debt is adjusted for tax rate of 46 percent, which is the firm's effective rate $13.2\% (1-0.46) = 7.1\%$. Current preference dividend rate of 14% is used.

Problem 3: The PQR Company has the following capital structure in 31st March 2012:

Particulars	Amount (Rs)
Ordinary Shares (2,00,000 shares)	40,00,000
10% Preference shares	10,00,000
14% Debentures	30,00,000
Total	80,00,000

The share of the company sells for Rs.20. It is expected that company will pay next year a dividend of Rs.2 per share which will grow at 7% forever. Assume 50% tax rate . You are required to:

- Compute a weighted average cost of capital based on the existing capital structure.
- Compute the new weighted average cost of capital if the company raises an additional of Rs.20,00,000 debt by issuing 15% debentures. This would result in

increasing the expected dividend to Rs.3 and leave the growth rate unchanged , but the price of share will fall to Rs.15 per share.

Sol. i) Cost of Equity = $\frac{D}{P} + g = \frac{2}{20} + 0.07 = 0.17 = 17\%$

Cost of Preference shares = 10% (given)

Cost of Debentures = $14\% (1 - t) = 14\% (1 - 0.5) = 7\%$

Computation of Weighted Average Cost of Capital

Source	Amount (Rs)	Weights {1}	Cost of Capital (%) {2}	Weighted COC (%) { 1 * 2 }
Ordinary Shares	40,00,000	0.50	17.00	8.50
10% Preference Shares	10,00,000	0.125	10.00	1.25
14% Debentures	30,00,000	0.375	7.00	2.625
Total	80,00,000	1.00	WACC -	12.375

ii) New source added - 15% Debentures

New Cost of Equity = $3 + 0.07 = 0.27 = 27\%$

$$\text{Cost of additional debt} = 15\% (1 - t) = 15\% (1 - 0.5) = 7.5\%$$

Computation of New Weighted Average Cost of Capital

Source	Amount (Rs)	Weights {1}	Cost of Capital (%) {2}	Weighted COC (%) { 1 * 2 }
Ordinary Shares	40,00,000	0.40	27.00	10.80
10% Preference Shares	10,00,000	0.10	10.00	1.00
14% Debentures	30,00,000	0.30	7.00	2.10
15% Debentures	20,00,000	0.20	7.50	1.50
Total	1,00,00,000	1.00	WACC -	15.40

Problem 4 :Compute Weighted Average Cost of Capital (WACC) under each of the following three financial plans. If $K_e = 15$ per cent, $K_p = 10$ per cent and $K_d = 8$ per cent.

Financing Plans	Weight of Equity Capital	Weight of Preference Capital	Weight of Debt Capital
1	0.50	0.30	0.20
2	0.30	0.40	0.30
3	0.20	0.30	0.30

- Financial Plan 1:

Particulars	Weights	Cost of capital	WACC
Equity capital	0.5	15%	7.5%
Preference capital	0.3	10%	3%
Debt capital	0.2	8%	1.6%

Total WACC = 12.1%

-

- Financial Plan 2:

Particulars	Weights	Cost of capital	WACC
Equity capital	0.3	15%	4.5%
Preference capital	0.4	10%	4%
Debt capital	0.3	8%	2.4%

Total WACC = 10.9%

-

- Financial Plan 3:

Particulars	Weights	Cost of capital	WACC
Equity capital	0.2	15%	3%
Preference capital	0.3	10%	3%
Debt capital	0.3	8%	2.4%

Total WACC = 8.4%

Problem 5 :On the basis of following information, determine the weighted average cost of capital (assume tax rate is 40%)

Capital component	Details
-------------------	---------

a)Equity share capital	10, 00,000 equity shares of Rs 100 market value per share Rs 250. Growth rate of dividend is 6%. Dividend per equity share is Rs25
b) retained earnings	Rs 5 crores
c) debentures	1,00,000 debentures of Rs 100 each. Interest rate 15%. Current market value Rs 110 each
d) preference capital	50,000 shares of Rs 100 each dividend rate 11 %. Current market price 90 Rs each.

Solution:

SOURCES	AMOUNT	WEIGHTS	COC	WACC
Equity share+ retained earnings	150000000	90.90	16 %	1454.4
Debentures	10000000	6.06	9%	54.54
Preference capital	5000000	3.03	11%	33.33
Total	165000000	100		1542.27

Working note:

$$1) \text{ cost of equity} = \frac{D}{p} + g = \frac{25}{250} + 0.06 = 0.16 \times 100 = 16\%$$

$$2) \text{ Debentures} = I(1-t) = 0.15(1-0.40) = 0.09 \times 100 = 9\%$$

$$3) \text{ Preference capital} = \frac{D}{NP} = \frac{11}{100} = 0.11 \times 100 = 11\%$$

Problem 6: Chethan ltd has the following book value capital structure:

1) Equity capital (10 million shares @ 10 per share) =Rs 100 million.

2) Preference capital 11% (100,000 shares, RS 100 Per share) =10 million.

3) Retained earnings =RS 120 million .

4) Debentures 13.5 %(500000 debentures ,Rs 100 each) =Rs 50 million

5) 12 % loan = Rs 80 million.

The next expected divided per share is Rs 1.50. The divided per share is expected to grow @70%. The market price per share is Rs20.Preference share, redeemable after 6 years are selling for Rs 80 per debenture. The tax rate is 50%. Calculate the weighted average cost of capital using:

1) Book value proportions, and

2) Market value proportions.

SOULUTION:

COMPUTATION OF WEIGHTED AVERAGE COST OF CAPITAL (K₀) USING BOOK – VALUE PROPOSTIONS:

SOURCE	BOOK VALUE	BOOK VALUE WEIGHTS	AFTER TAX	WEIGHTED COST (%)
EQUITY SHARES	100	0.28	14.50	4.06
11%P SHARES	10	0.03	15.42	0.46
RETAINED EARNINGS	120	0.33	14.50	4.78
13.5 %DEBENTURES	50	0.14	9.35	1.30
12%LOAN	80	0.22	6	1.32
	360	1.00		11.92
WEIGHTED AVERAGE COST OF CAPITAL				11.92%

WORKING NOTE:

1) cost of equity shares(k_e) = $D/MP * 100 + G$ where, preference divided (D) = Rs 1.50. marker price = Rs 20 growth rate (G) =7%
 $K_e = 1.50/20 * 100 + 7\%$ 14.5%

2) COST OF PREFERENCE SHARES (K_p) = $\frac{D + \frac{1}{n}(P - NP)}{\frac{1}{2}(P + NP)}$

Where,

PAR VALUE / Redemption value (P/RV) =100

NET proceed (NP) =75

NUMBRS OF YEARS (n)=10

Preference divided (D) =11

$K_p = \frac{11 + \frac{1}{10}(100 - 75)}{\frac{1}{2}(100 + 75)} = \frac{11 + 2.5}{8.75} = 0.1542$ or 15.42%

$\frac{1}{2}(100 + 75) = 8.75$

3)cost of retained earnings (K_r) = 14.50% (same as cost of equity share)

4)cost of denbentures (K_d) = $\frac{I + \frac{1}{n}(p - NP)}{\frac{1}{2}(P + NP)} (1 - T)$

$\frac{1}{2}(P + NP)$

WHERE,

Intrereest/fixed change per annum (I)=13.5%

Par value /face value/redeembale value (P/RV) =Rs 100

Net proceed (NP) = 80

TAX RATE (t) =50% or 0.50

Numbers of years in which the debt is to be redeemed (n) = 6 years

$$K_d = \frac{[\{ 13.5 \% + 1/6(100-80) \} 91 - 0.50]}{\frac{1}{2} (100+80)}$$

$$= \frac{[\{ 13.5 \% + 1/6(20) \} (0.50)}{\frac{1}{2} (180)} = \frac{[(13.5 \% + 3.33) 0.50]}{90} = \frac{8.415}{90} = 0.0935 \text{ or } 9.35$$

$\frac{1}{2} (180)$

90

90

4) Cost of loan = interest rate (1-tax rate) = 12% (1-0.50) = 6%

PROBLEM ON WEIGHTED AVERAGE COST OF CAPITAL

1. ABC chemicals ltd has paid up equity capital 600000 equity share of Rs 10 each. The current market price of the share is Rs 24. During the current year the company has declared a dividend of Rs 6 per share. The company has also previously issued 14% Preference share of Rs 10 each aggregating Rs 30 Lakhs and 13% 50000 debenture of Rs 100 each. The company corporate tax rate is 40%, the growth in dividend on equity share is expected at 5%. In case of preference share the company has received only 90% of the face value of shares after deducting issue expenses.

Calculate WACC of the company.

$$\text{COST OF EQUITY CAPITAL} = \frac{\text{Dividend}}{\text{Market Price}} * 100 + \text{growth rate}$$

$$= \frac{6}{24} * 100 + 5\%$$

24

=30%

COST OF PREFERENCE CAPITAL =Preference dividend /New issue receipt =1.4(14% on Rs 10)/9.50=14.74%

Cost of Debenture =I(1-T)

=13% (1-0.40)=7.8%

I Method

Nominal value	Name of the stock	Ratio%	Cost of Capital%	WACC%
6000000	Equity Capital	42.86	30	12.86
3000000	14% Preference Capital	21.43	14.74	3.16
5000000	15% Debentures	35.71	7.8	2.78
14000000		100		18.80

II Method

Name of the stock	Nominal value	Cost of Capital%	Product
Equity Capital	6000000	30	1800000
14% Preference Capital	3000000	14.74	442200
15% Debentures	5000000	7.8	390000
	14000000		26322000

WACC= (2632200/14000000)100=18.80

2. The capital structure of PQR traders“ Ltd as on 31 3 2017 is as follows:

Rs in cores

Equity capital :100 lakhs equity shares of Rs 10 each	10
Reserves	2
14% Debenture of Rs 100 each	3

For the year ended 31 3 2017 the company has paid equity dividend at 20%. As the company is a market leader with good future, dividend is likely to grow by 5% every year. The equity shares are now treated at Rs 80 per share in the stock Exchange. Income tax rate applicable to the company is 50% **Calculate:**

Current weighted cost of capital

The company has plans to raise a further Rs 5 crores by a way of long term loan at 16% interest. When this takes place the, market value of equity share is expected to fall to Rs 50 per share . What will be the new WACC of the company?

Solution: a)

Cost of Debt capital = $I(1-T)$

$$=14\% (1-0.50)=7\%$$

$KD=I(1-T)/D$

Where

KD= Cost of debt

I = annual Interest payment=145

T= company's effective corporate tax rate =50%

D= Net proceeds of issue of debenture , Bonds, term loan etc

$$KE = \frac{D}{MV} + g$$

$$= \frac{2}{80} + 0.05 = 7.5\%$$

KE= Cost of equity Capital
D Expected dividend 2
MV= Market Value of the share 80
G=growth rate in dividend 5%

WEIGHTED AVERAGE COST OF CAPITAL

Rs in crore

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Equity Capital	10	80	7.5	6
Reserves	2			
Debentures	3	20	7.0	1.4
Total	15	100		7.4%

b) WEIGHTED AVERAGE COST OF CAPITAL: After raising further debt of Rs 5 Crore

cost of existing debt of Rs 3 crores = $14(1-0.50)$	7%
cost of new Debt of Rs 5 crore = $16(1-0.50)$	8%
cost of Equity = $KE = \frac{D}{MV} + g$	
$= \frac{2}{50} + 0.05 =$	9%

--

New capital structure:

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Shareholders fund	12	60	9	5.4
Debentures	3	15	7	1.05
Long term loan	5	25	8	2
Total	20	100		8.45

3. Determine the weighted average cost of capital (K_o) using 1) Book value weights; and 2) Market value weights. The following information is available for your perusal. The K C Ltd.'s

present book value capital structure is (Rs)

Debenture (Rs 100 per debenture)	800000
Preference shares (Rs 100 per share)	200000
Equity shares (Rs 10 per share)	1000000
2000000	<u> </u>

All these securities are traded in the capital markets. Recent prices are debentures @Rs 110, preference shares @Rs 120 and equity shares @22. Anticipated external financing opportunities are:

- 1) Rs 100 per debenture redeemable at par: 10 year maturity, 13% coupon rate, 4% flotation costs, sale price Rs 100.
- 2) Rs 100 preference share redeemable at par: 10 year maturity, 14% dividend rate, 5% flotation costs, sale price Rs 100.
- 3) Equity shares Rs 2 per share flotation costs, sale price Rs 22.

In addition, the dividend expected on the equity share at the end of the year Rs2 per share, the anticipated growth rate in dividends is 7% and the company has the practice of paying all its earning in the form of dividends. The corporate tax rate is 50%.

Solution :

Calculation of WACC of the company.

$$KE = \frac{D1}{NP} + g$$

$$= \frac{2}{20} + 0.07 = 15\%$$

KE= Cost of equity Capital
D1 Expected dividend
NP= Net Proceeds sale price –flotation cost 22-2=20 G=growth rate in dividend

$$KD = \frac{I + (Rv - Sv/N)}{(Rv + Sv/2)} (1 - T)$$

$$(Rv + Sv/2)$$

KD = cost of debt

I = Annual Interest payment Rs 100*8/100

T = company's effective corporate tax rate 50%

Rv = Redeemable value of debt at the time of maturity 100

Sv = sale value less discount and flotation expenses = 96 N = term of maturity period of debenture 20 Years

$$= \frac{[8 + (100 - 96/20)](1 - 0.50)}{(100 + 96/2)}$$

=

$$(100 + 96/2)$$

= 4.18%

COST OF Preference shares :

$$K_P = \frac{D + (R_v - S_v / N)}{(R_v + S_v / 2)}$$

$$(R_v + S_v / 2)$$

KP= Cost of Preference shares

D=constant annual dividend payment =10(100*10/100)

N= no of years to redemption =15

Rv= Redeemable value of Preference share at the time of redemption =100 Sv= sale value less discount and flotation expenses=95

$$K_p = \frac{10 + (100 - 95) / 15}{(100 + 95 / 2)}$$

$$(100 + 95 / 2)$$

=10.59%

WEIGHTED AVERAGE COST OF CAPITAL

Based on book Value :

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Equity Capital	1000000	0.50	15.00	7.50
Preference Capital	200000	0.10	10.59	1.06
Debentures	800000	0.40	4.18	1.67
Total	2000000	1.00		10.23

Based on Market Value :

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Equity Capital	2200000	66.26	15.00	9.94
Preference Capital	240000	7.23	10.59	0.77
Debentures	880000	26.51	4.18	1.11

Total 3320000 100 11.82

4. The following is the capital structure of XYZ Ltd as on 31/12/2015

Equity shares 10000 shares (of rs 100 each)	1000000
10% Preference share (of rs 100 each)	400000
12% Debentures	600000
	2000000

The market price of the company share is 110 and it is expected that a dividend of Rs 10 per share would be declared for the year 2015. The dividend growth rate is 6%

- 1) If the company tax rate is 50% calculate WACC
- 2) If the expansion plans, the company intend to borrow a fund of Rs 10 Lakh bearing 14% rate of interest. What will be the company revised WACC? The financial decision is increase dividend from Rs 10 to Rs 12 per share. However the market price of the equity share is expected to decline from Rs 110 to Rs 105. Per share. Current financial scheme

<p>Cost of equity share</p> $KE = \frac{D1}{P} + g$ $= \frac{10}{110} + 0.06 = 15.09\%$ <p>Kd = I(1-T)</p> $= 12\%(1-0.50)$ $= 6\%$

Calculation of WACC

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Equity Capital	1000000	0.50	15.09	7.54
10% Preference Capital	400000	0.20	10.00	2.00
12% Debentures	600000	0.30	6.00	1.80
Total	2000000	1.00		11.34

Revised financial scheme

Cost of equity share

$$KE = \frac{D1}{P} + g$$

$$= \frac{12}{105} + 0.06 = 17.42\%$$

$$Kd = I(1-T)$$

$$= 12\%(1-0.50)$$

$$= 6\%$$

$$Kd = I(1-T)$$

$$= 14\%(1-0.50)$$

$$= 7\%$$

Sources of capital	Book value Rs	%	Cost of capital %	Weighted cost %
Equity Capital	1000000	0.333	17.42	5.80
10% Preference Capital	400000	0.134	10.00	1.34
12% Debentures	600000	0.200	6.00	1.20
14% debenture	1000000	0.333	7.00	2.33
Total	3000000	1.00	WACC	10.67

5. The following information has been extracted from the balance sheet as on 31/3/2012

Rs . Lakhs

Equity	400
12% debenture	400
Term Loan (intest 18%)	1200
	2000

- Determine the WACC of the company. It has been paying dividends at consistent rate of 20% pa
- What difference will it make if the current price of the Rs 100 share is Rs 160
- Determine the effects of income tax on the cost of capital under both premises

Solution:

a) WACC: Book Value

Sources of capital	Amount (Rs . Lakhs)	%	Cost of capital %	Weighted cost %
Equity Capital	400	0.20	20	4.00
12% Debentures	400	0.20	12	2.40
Term Loan (18%)	1200	0.60	18	10.80
Total	2000	1.00	WACC	17.20

b) WACC: Market Value

Sources of capital	Amount (Rs . Lakhs)	%	Cost of capital %	Weighted cost %
Equity Capital	400	0.20	20 -----*100=12.5 160	2.50
12% Debentures	400	0.20	12	2.40

Term Loan (18%)	1200	0.60	18	10.80
Total	2000	1.00	WACC	15.7

C) WACC: Based on book value after considering tax shield (assumption tax rate 50%)

Sources of capital	Cost of capital %	Tax Shield	Net Cost	Proportion of capital %	Weighted cost %
Equity Capital	20	-	20	0.20	4.00
12% Debentures	12	0.5	6	0.20	1.20
Term Loan (18%)	18	0.5	9	0.60	5.40
Total				1.00	WACC =10.60

d) WACC: Based on Market value after considering tax shield (assumption tax rate 50%)

Sources of capital	Cost of capital %	Tax Shield	Net Cost	Proportion of capital %	Weighted cost %
Equity Capital	12.5	-	12.5	0.20	2.50
12% Debentures	12	0.5	6.0	0.20	1.20
Term Loan (18%)	18	0.5	9.0	0.60	5.40
Total				1.00	WACC =9.10

6. Calculate weighted average cost of capital from the following

4,000 Equity shares (Fully paid up)	4,00,000
3,000 6% Debentures	3,00,000
2,000 6% Preference Shares	2,00,000
Retained Earnings	1,00,000

Earnings per equity share have been Rs. 10 during the past years and equity shares are being sold in the market at par. Assume corporate tax at 50 per cent and shareholder's tax liability 25 per cent

Solution :

Calculation of Different Source of Capital

Cost of Equity Shares Capital:

$$\begin{aligned}
 \text{KE (after tax)} &= \frac{\text{DPS}}{\text{MPS}} \cdot 100 \\
 &= \frac{\text{Rs.10}}{\text{Rs.100}} \cdot 100 \cdot 10\%
 \end{aligned}$$

Cost of Debentures:

$$\begin{aligned}
 \text{Cd (after tax)} &= \frac{I}{NP} \cdot 100(1 - T) \\
 &= \frac{\text{Rs.6}}{\text{Rs.100}} \cdot 100(1 - .50) \\
 &= 6\% \cdot .50 = 3\%
 \end{aligned}$$

Cost of Preference Shares: $C_p \text{ (after tax)} = \text{DPS} \cdot 100$

NP

=

$\text{Rs.}6 \cdot 100 \cdot 6\%$

Rs.100

Cost of Retained Earnings:

$C_r \text{ (after tax)} =$

$\text{DPS}(1-T_p) \cdot 100$

MPS

$\text{Rs.}10(1-.25) \cdot 100 \cdot 7.5\%$

Computation of Weighted Average Cost of Capital

Sources	Amount	After Tax Cost	Total after tax cost
Equity Shares Capital	4, 00,0 00	10%	40000
Debentures	3, 00,0 00	3%	9000
Preference Shares Capital	2, 00,0 00	6%	12000
	1, 00,0 00	7.5%	7500
	1000000		68500

$\text{WACC} = (68500/1000000)100 = 6.85\%$

SOURCES OF FINANCING

Capital budgeting decisions are financed using long-term sources. The various types of longterm sources are categorized into:

- Equity Capital
- Hybrid Capital
- Debt Capital

Long-Term Sources

Equity capital Hybrid capital Debt Capital e.g. Equity shares or e.g. Preference shares e.g. Debenture/Bonds ordinary shares or shares and Term loans

Shares: Shares represent ownership securities.

- In case of joint stock companies, owner's capital is divided into very small fractions say Rs. 5/-,
- Rs. 10/-, Rs. 20/- etc. Each fraction is termed as shares.
- The person (natural or legal) who purchases/subscribes to these shares are known as „shareholders“.
- Whatever shareholders receives against their investment is known as dividend. This may be in form of cash or kind.

- Shareholders act as part owner to the concerned organization because they possess voting right. The extent of ownership depends upon the extent of share holding. Voting right means right to vote, which in turn means right to elect board of directors, which constitutes apex body of concerned organization.

Debentures: Debentures represent creditor ship securities.

- In case of joint stock companies, a part of debt capital is divided into very small fractions sayRs. 5/-, Rs. 10/-, Rs. 20/- etc. Each fraction is termed as Debentures.
- The person (natural or legal) who purchases/subscribes these debentures are known as debenture holders.
- Debenture holders receive interest against their investment.
- Debenture holders act as creditors to the organization concerned because they have legal right to receive interest and principal repayment at the end of maturity, depending upon the nature of debenture

Preference Shares: Preference Shares represent hybrid securities. The term hybrid means dual and thus Preference Shareholders possess dual characteristics. In other words, sometimes they behave like ownership securities and sometimes they behave like creditorship securities.

- In case of joint stock companies, a part of total capital is divided into very small fractions say Rs. 5/-, Rs. 10/-, Rs. 20/- etc. Each fraction is termed as Preference shares.
- The person (natural or legal) who purchases/subscribes these Preference shares are known as
- Preference shareholders.
- Whatever Preference shareholders receives against their investment is known as Preference dividend. The rate of preference dividend remains fixed and thus Preference share behaves like debt(creditorship) securities. The term preference means preference over equity shareholder.
- Unlike equity shareholders, preference shareholders do not act as part owner to the concerned organization because they do not possess voting right. However, under section

84 of Companies Act, in case the organization defaults in paying preference dividend up to three years, then Preference Shareholders will automatically get voting right and hence will interfere in the controlling of concerned organization and thus Preference Shareholders start behaving like equity (ownership)shareholders.

Difference between Equity shares, Preference shares and Debentures/Bonds

- | | | | | |
|----------|------------------------|---|--|--|
| 1 | Control | Have control over organization because organization except u/s Companies Act. | Do not have control over organization. | Do not have control over organization. |
| 2 | Maturity | Do not have maturity period. | Equity capital maturity period depending | Usually have maturity period. |
| 3 | Claim on Income | Have residual claim. Thus all the risk is equity shares. | Have preference over income. | Have first claim on Asset. Borne by equity shareholders. |
| 4 | Claim on Asset | Have residual claim. | Have preference over | Have first claim on Asset. |

Asset Thus all the risk is equity shares .borne by equity shareholders. **Difference between Debentures and Bonds**

- Technically there is no difference between Debentures and Bonds as both are debt instruments. However the difference between two is due to practice in the financial market. They are,
- Generally, public sector organizations issue their debt instruments in the name of bonds whereas
- private sector organizations issue their debt instruments in the name of debentures. *e.g.* Railway
- Bonds, RBI bonds etc.
- Generally the unit size of bonds is very high as compared to debentures and therefore bonds are
- normally secured whereas debentures are unsecured. *e.g.* the unit size of bonds come in lakhs but

- again there are bonds of Rs. 100 prevailing in market but again Rs. 5 or Rs. 10 sized bonds do not exist.
- Generally bonds are not convertible whereas debentures are convertible. Convertible debentures are those debentures, which convert into pre-specified number of shares after certain time.

ADVANTAGES AND DISADVANTAGES OF EQUITY SHARES, PREFERENCE SHARES AND DEBENTURES

Advantages of Equity Shares

Company's Point of View

- **No legal obligation:** In case of equity shares, there is no legal obligation regarding payment of dividend.
- **Permanent source of finance:** Equity capital permanently remains with the organization. It is never paid except under liquidation.
- **Suitable source of finance:** A company whose expected future earnings are not stable or which deals in products with highly elastic demand or which does not have sufficient fixed assets to offer as security to debenture holders can use this source of raising funds to its benefit because of risk sharing capabilities.

Investor's or Shareholder's Point of View

- **Ownership:** Equity shareholders are the real owners of the organization (company) because they have voting rights. In other words, only equity shareholders have right to elect

board of director along with Managing Director, which is the apex body of any organization.

- **Risk-return trade off:** Since all the risk is borne by equity shareholders, they get the rewards by way of increased dividends (in case of huge residual income) leading to appreciation in the value of shares.

Disadvantages of Equity Shares

Company's Point of View | **Trading on equity:** In case only equity shares are issued, the company cannot take the advantage of trading of equity, which is against the firm's objective of maximizing shareholder's wealth.

No maturity: Equity shares do not have maturity period. In other words, equity capital permanently remains with the organization.

Over capitalization: As equity capital cannot be redeemed, there is a danger of over capitalization.

Interference in functioning of management: Because of voting right, equity shareholders can interfere in the management and hence can put obstacles in fair functioning of management.

Speculation: Possibility of speculation goes up during prosperous periods because of higher dividends to be paid leading to increase in the value of shares in the market. Investor's or

Shareholder's Point of View

No fixed/stable income: Investors, who are risk-averse and wish to earn fixed income, have no attraction for such shares.

Residual claim on income: Equity shareholders have residual claim on income. In other words, they are paid after preference shareholders and debenture holders. Thus all the risk is borne by equity shareholders.

Residual claim on Asset: Equity shareholders have residual claim on asset in case of liquidation. Thus again all the risk is borne by equity shareholders.

No maturity: Equity capital do not have maturity period, they permanently remain with the organization.

Advantages or Merits of Preference Shares

Company's Point of View

No legal obligation: There is no legal obligation regarding payment of preference dividend.

Preference dividend is payable only out of distributable profits at the discretion of the management. Hence, a company does not face legal action if it does not pay dividend.

Long-term source: Preference shares provide a long-term capital for the company.

No interference in management: Preference shareholders do not carry voting power and hence do not interfere in the management of concerned organization except under section 84 of Companies Act.

Trading on equity: In case of preference shares, fixed rate of dividend is paid. This enables a company to adopt trading on equity *i.e.* to increase rate of earnings on equity shares after paying a lower fixed rate of dividend on preference shares.

No security: As no specific assets are pledged against preferred stock, the mortgageable assets of the company are conserved. Investor's or Shareholder's Point of View **Stable income:** It earns a fixed rate of dividend.

Preferential right against assets: It has preference over equity shares regarding claim on assets for repayment of capital at the time of liquidation.

Preferential right against income: It provides preferential rights regarding payment of dividends.

Safety of interest: Preference shares although carry no voting rights, but in case the organization defaults in paying dividend up to three years, then according to section 84 of Companies Act they automatically get voting right and hence behaves like equity shares.

Disadvantages of Preference Shares

Company's Point of View

High cost of capital: It is an expensive source of finance as compared to debt because generally the investors expect a higher rate of dividend on preference shares as compared to the rate of interest on debentures.

Fixed burden: Cumulative preference shares become a permanent burden so far as the payment of dividend is concerned.

Loss of credit worthiness: Although there is no legal obligation of a company to pay dividend on

preference shares, but frequent delays or non-payment of preference dividend adversely affect the credit worthiness of the firm.

No tax advantage: Preference share dividend is not a deductible expense while calculating tax whereas interest on debt capital is a deductible expense.

Disadvantage to equity shareholders: In some cases, *i.e.* in case the organization defaults in paying dividend up to three years, then according to section 84 of Companies Act they automatically get voting right and hence the control of the company in the hands of equity shareholders may get diluted.

Shareholder's Point of view

- **Dependency on management:** As the preference shareholders, ordinarily, do not have any voting rights, they remain at the mercy of the management for the payment of dividend and redemption of their capital.
- **Low income:** The rate of dividend on preference shares is usually lower as compared to the equity shares.
- **Claim on asset:** Preference shareholders do not have any charge on the assets of the company, while debentures usually provide a charge on all the assets of the company.
- **Market price:** The market prices of preference shares fluctuate much more than that of debentures.

Advantages of Debentures

Company's Point of View

Long-term source: Debentures provide long-term funds to a company.

Low rate of interest: The rate of interest payable on debentures is, usually, lower than the rate of dividend paid on share.

Tax advantage: The interest on debentures is a tax-deductible expense. This lowers effective cost of debentures (debt capital) as compared to ownership securities where dividend is not a tax deductible expense.

No interference in management: Debt financing does not result into dilution of control because debenture holders do not have any voting rights.

Trading on equity: A company can trade on equity by mixing debentures in its capital structure and thereby increase its earnings per share.

Remedy for over capitalization: In the case of over capitalization the company can redeem the debentures to balance its capital structure.

Flexibility in capital structure: Debentures provide flexibility in the capital structure of a company as the same can be redeemed as and when the company has surplus funds and desires to do so.

A boon during depression period: Even during depression, when the stock market sentiment is very low, a company may be able to raise funds through issue of debentures or bonds because of certainty of income and low risk to investors.

Investor's or Shareholder's Point of View

- **Fixed and stable income:** Debentures provide a fixed, regular and stable source of income to its investors.
- **Safe investment:** It is a comparatively safer investment because debenture holders have either a specific or a floating charge on all the assets of the company and enjoy the status of a superior creditor in the event of liquidation of the company.
- **Convertibility:** In case of convertible debentures, debenture holders have option to convert debentures into shares.
- **Liquidity:** A debenture is usually a more liquid investment and an investor can sell or mortgage his instrument to obtain loans from financial institutions.

- **Security:** Various provisions of the debenture trust deed and the guidelines issued by the Securities and Exchange Board of India in this regard protect the interest of debenture holders.

Disadvantage of Debentures

Company's Point of View

- **Fixed obligation:** The fixed interest charges and repayment of principal amount on maturity are legal obligations of the company. These have to be paid even when there are no profits. Hence, it is a permanent burden on the company
- **Cost of equity capital:** The use of debt financing usually increases the risk perception of investors in the firm. This enhanced financial risk increases the cost of equity capital.
- **Cost of debenture:** Cost of raising finance through debenture is also high because of high stamp duty.
- **Unsuitable source of finance:** A company whose expected future earnings are not stable or which deals in products with highly elastic demand or which does not have sufficient fixed assets to offer as security to debenture holders cannot use this source of raising funds to its benefit.

Investor's or Shareholder's Point of View

- **Control:** Debentures do not carry any voting rights and hence its holders do not have any controlling power over the management of the company.
- **Fixed income:** Debenture holders are merely creditors and not the owners of the company. They do not have any claim on the surplus assets and profits of the company beyond the fixed interest and their principal amount.
- **Tax liability:** Interest on debentures is fully taxable while shareholders may avoid tax by way of stock dividend (bonus shares) in place of cash dividend.
- **Market price:** The prices of debentures in the market fluctuate with the changes in the interest rates.

- **Uncertainty about redemption** also restricts certain investors from investing in such securities.

Reference :

1. Financial Management by Prasanna Chandra, 9/e, McGraw-Hill publications, 2014.
2. Financial Management Pandey I M, Vikas publication house Pvt Limited, New Delhi, 10th edition, 2010
3. Financial Management by Khan M Y & Jain P K , 6/e, McGraw -Hill publication, 2014.
4. Fundamentals of Financial Management, Brigham & Houston, 12/e, Cengage Learning, 2009.
5. Financial Management A Step-by-Step Approach – N.R.Parasuraman, 1/e, Cengage, 2013.
6. Financial Management, Sheeba Kapil, 2/e, Pearsons Publication, 2016