



Uttarakhand Open University, Haldwani

MS 404

School of Management Studies and Commerce

Security Analysis and Portfolio Management



Block I Introduction to Investment and Securities

Block II Security Analysis

Security Analysis and Portfolio Management



Block – I

Block Title- Introduction to Investment and Securities

Block – II

Block Title- Security Analysis

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Course Name: Security Analysis and Portfolio Management

Course Code-MS404

Course Objective: The objective of the course is to provide the student the understanding of financial market environment and manage the investments for maximum returns.

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Unit I Introduction to Investments and Securities

Unit II Investment Alternatives

Unit III Investment Attributes

Unit IV Securities Market

Unit V Listing of securities

Unit VI Stock Exchanges and Their Mechanics

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Unit XXII Portfolio Revision and Portfolio Investment Process

Unit XXIII Portfolio Evaluation and Performance Management

Unit XXIV Value at Risk and Risk Management

Unit XXV SAP-An Introduction

Suggested Readings:

1. Donald E.Fischer & Ronald J.Jordan, 'Security Analysis & Portfolio Management', Prentice Hall of India Private Ltd., New Delhi 2000.
2. V.A.Avadhani – 'Securities Analysis and Portfolio Management', Himalaya Publishing House,1997.
3. V.K.Bhalla, 'Investment Management', S.Chand & Company Ltd., Seventh Edition, 2000.
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Block I

Introduction to Investment and Securities

UNIT 1 INTRODUCTION TO INVESTMENTS AND SECURITIES

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1.1 INTRODUCTION

The unit introduces the fundamental principles of investing and the role of various financial securities in wealth management. It examines the idea of using assets as a tool to accomplish financial objectives, including wealth preservation, income production, and capital appreciation. Important investment categories are covered, including primary and secondary securities markets as well as debt instruments, mutual funds, stocks, and alternative assets.

1.2 OBJECTIVES

After studying this unit, you will be able to understand:

- Understand the concept and significance of investments.
- Identify different types of investment options.
- Comprehend the functioning of securities markets.
- Analyze the relationship between risk and return.

1.3 WHAT IS AN INVESTMENT?

For most of your life, you will be earning and spending money. Rarely, though, will your current money income exactly balance with your consumption desires. Sometimes, you may have more money than you want to spend; at other times, you may want to purchase more than you can afford based on your current income. These imbalances will lead you either to borrow or to save to maximize the long-run benefits from your income. When current income exceeds current consumption desires, people tend to save the excess. They can do any of several things with these savings.

One possibility is to put the money under a mattress or bury it in the backyard until some future time when consumption desires exceed current income. When they retrieve their savings from the mattress or backyard, they have the same amount they saved. Another possibility is that they can give up the immediate possession of these savings for a future larger amount of money that will be available for future consumption. This trade-off of present consumption for a higher level of future consumption is the reason for saving. What you do with the savings to make them increase over time is investment. Those who give up immediate possession of savings (that is, defer consumption) expect to receive in the future a greater amount than they gave up.

Conversely, those who consume more than their current income (that is, borrow) must be willing to pay back in the future more than they borrowed. The rate of exchange between future consumption (future dollars) and current consumption (current dollars) is the pure rate of interest. Both people's willingness to pay this difference for borrowed funds and their desire to receive a surplus on their savings (i.e., some rate of return) give rise to an interest rate referred to as the pure time value of money. This interest rate is established in the capital

market by a comparison of the supply of excess income available (savings) to be invested and the demand for excess consumption (borrowing) at a given time. If you can exchange \$100 of certain income today for \$104 of certain income one year from today, then the pure rate of exchange on a risk-free investment (that is, the time value of money) is said to be 4 percent ($104/100 - 1$). The investor who gives up \$100 today expects to consume \$104 of goods and services in the future.

This assumes that the general price level in the economy stays the same. This price stability has rarely been the case during the past several decades when inflation rates

have varied from 1.1 percent in 1986 to as much as 13.3 percent in 1979, with a geometric average of 4.4 percent a year from 1970 to 2010. If investors expect a change in prices, they will require a higher rate of return to compensate for it. For example, if an investor expects a rise in prices (that is, he or she expects inflation) at the annual rate of 2 percent during the period of investment, he or she will increase the required interest rate by 2 percent. In our example, the investor would require \$106 in the future to defer the \$100 of consumption during an inflationary period (a 6 percent nominal, risk-free interest rate will be required instead of 4 percent).

Further, if the future payment from the investment is not certain, the investor will demand an interest rate that exceeds the nominal risk-free interest rate. The uncertainty of the payments from an investment is the investment risk. The additional return added to the nominal, risk-free interest rate is called a risk premium. In our previous example, the investor would require more than \$106 one year from today to compensate for the uncertainty. As an example, if the required amount were \$110, \$4 (4 percent) would be considered a risk premium.

1.4 WHY ARE INVESTMENTS IMPORTANT?

Investments are both important and useful in the context of present-day conditions. Some factors that have made investment decisions increasingly important are:

Longer life expectancy or planning for retirement, increasing rates of taxation, high interest rates, high rate of inflation, larger incomes and availability of a complex number of investment outlets.

1.4.1 Longer Life Expectancy

Investment decisions have become significant as people retire between the age of 60 and 65. Also, the trend shows longer life expectancy. The earnings from employment should be calculated in such a manner that a portion is put away as savings. Savings by themselves do not increase wealth: these must be invested in such a way that the principal and income will be adequate for a greater number of retirement years.

The importance of investment decisions is enhanced by the fact that there is an increasing number of women are working in organizations.

Men and women will be responsible for planning their own investments during their working life so that after retirement they are able to have a stable income. Increase in the working population, proper planning for life span and longevity have ensured the need for balanced investments.

1.4.2 Taxation

Taxation is one of crucial factors in any country which introduces an element of compulsion in a person's savings. There are various forms of savings outlets in our country in the form of investments which help in bringing down the tax level. These are discussed under availability of investment media.

1.4.3 Interest Rates

The level of interest rates is another aspect which is necessary for a sound investment plan. Interest rates vary between one investment and another. These may vary between risky and safe investments; they may also differ due to different benefit schemes offered by the investments. A high rate of interest may not be the only factor favouring the outlet for investment. The investor has to include in his portfolio several kinds of investments. He/she must maintain a portfolio with high risk and high return as well as low risk and low return. Stability of interest is as important as receiving a high rate of interest.

1.4.4 Inflation

Every developing economy is phased with the problem of rising prices and inflationary trends. In India, inflation has become a continuous problem since the last decade. In these years of rising prices, several problems are associated coupled with a falling standard of living. Before funds are invested, erosion of the resources will have to be carefully considered in order to make the right choice of investments. The investor will try and search an outlet which will give interest to cover any decrease due to inflation. He will also have to judge whether the interest return will be continuous or there is a likelihood of irregularity.

Coupled with high rates of interest, he/she will have to find an outlet which will ensure safety of principal. Besides high rate of interest and safety of principal, an investor has to always bear in mind the taxation angle. The interest earned through investment should not unduly increase his taxation burden. Otherwise, the benefit derived from interest will be reduced by an increase in taxation.

1.4.5 Income

Investment decisions have assumed importance due to the general increase in employment opportunities in India. The stages of development in the country have accelerated demand and a number of new organizations and services have increased. Jobs are available in new sectors like software technology: business processing offices, call centres, exports, media, tourism, hospitality, manufacturing sector, banks, insurance and financial services. The employment opportunities gave rise to increasing incomes. More incomes have increased a demand for investments in order to bring in more income.

above their regular income. The different avenues of investments can be selected to support the regular income.

Awareness of financial assets and real assets has led to the ability and willingness of working people to save and invest their funds for return in their lean period leading to the importance of investments.

Thus, the objectives of investment are to achieve a good rate of return in the future, reducing risk to get a good return, liquidity in time of emergencies, safety of funds by selecting the right avenues of investments and a hedge against inflation.

1.5 WHAT IS AN INVESTMENT ANALYSIS

Investment analysis is a broad term that encompasses many different aspects of investing. It can include analysing past returns to make predictions about future returns, selecting the type of investment vehicle that is best for an investor's needs or evaluating securities such as stocks and bonds for valuation and investor specificity.

1.6 TYPES OF INVESTMENT ANALYSIS

The main approaches to investment analysis include fundamental analysis, which examines a company's financial health, market position, and growth prospects; technical analysis, which focuses on price trends and market patterns; and quantitative analysis, which utilizes mathematical models to assess risk and return.

- **BOTTOM UP INVESTMENT ANALYSIS**

When making investment decisions, investors can use a bottom-up investment analysis approach or top-down approach. Bottom-up investment analysis entails analysing individual stocks for their merits, such as valuation, management competence, pricing power and other unique characteristics of the stock and company. Bottom-up investment analysis does not focus on economic cycles or market cycles first hand for capital allocation decisions but instead aims to find the best companies and stocks regardless of economic, market or particular industry macro trends. In essence, bottom-up investing takes more of a microeconomic approach to investing rather than a macroeconomic one, which is a hallmark of top-down investment analysis.

• TOP-DOWN INVESTMENT ANALYSIS

Top-down investment analysis emphasizes economic, market and industrial trends before making a more granular investment decision to allocate capital to specific companies. An example of a top-down approach is an investor evaluating industries and finding that financials will likely perform better than industrials; as a result, the investor decides his investment portfolio will be overweight financials and underweight industrials. The investor then proceeds to find the best stocks in each sector. On the contrary, a bottom-up investor may have found that an industrial company made for a compelling investment and allocated a significant amount of capital to it even though the outlook for its broader industry was negative.

2 FUNDAMENTAL ANALYSIS

Fundamental analysis stresses evaluating the financial health of companies as well as economic outlooks. Practitioners of fundamental analysis seek companies they believe the market has mispriced, that is, assigned a lower price than their intrinsic value. Often encompassing bottom-up analysis, these investors will evaluate a company's financial soundness, future business prospects, dividend potential and economic moat to determine whether they will make satisfactory investments. Proponents of this style include Warren Buffett and Benjamin Graham.

1.7 DIFFERENT ATTRIBUTES OF INVESTMENT

To enable a reasonable comparison of various investment avenues, the investor should study the following attributes:

I. Rate of Return

The rate of return comprises of two parts, i.e. annual income and capital gain or loss.

$$\text{Rate of return} = \frac{\text{Annual Income} + (\text{Ending Price} - \text{Beginning Price})}{\text{Beginning Price}}$$

II. Risk

The risk of an investment refers to the variability of the rate of return. It is the deviation of the outcome of an investment from its expected value.

III. Marketability

It is desirable that an investment instrument be marketable. An investment instrument is considered to be highly marketable when:

- (a) It can be transacted quickly.
- (b) The transaction cost including brokerage is low.
- (c) The price change between two transactions is negligible.

IV. Taxes

Some investment instruments provide tax benefits while others not. Tax benefits are mainly three types;

- (a) Initial tax benefits
- (b) Continuing tax benefits
- (c) Terminal tax benefits

V. Convenience

The degree of ease with which an investment can be made and managed. The degree of convenience varies from one investor to another.

1.8 INVESTMENT AVENUES

Most investors want to make investments in such a way that they get sky-high returns as fast as possible without the risk of losing the principal money they have invested. And this is the reason why many investors are always on the lookout for top investment plans where they can double their money in few months or years with little or no risk. However, it is a fact that investment products that give high returns with low risk do not exist. In reality, risk and returns are inversely related, i.e., higher the returns, higher is the risk, and vice versa.

So, while selecting an investment avenue, you have to match your own risk profile with the risks associated with the product before investing. There are some investments that carry high risk but have the potential to generate high inflation-adjusted returns than other asset class in the long term while some investments come with low-risk and therefore lower returns.

Here is a look at the top 10 investment avenues Indians look at while savings for their financial goals :

1. Direct equity

Investing in stocks may not be everyone's cup of tea as it's a volatile asset class and there is no guarantee of returns. Further, not only is it difficult to pick the right stock, timing your entry and exit is also not easy. The only silver lining is that over long periods, equity has been able to deliver higher than inflation-adjusted returns compared to all other asset classes. At the same time, the risk of losing a considerable portion of capital is high unless one opts for stop-loss method to curtail losses. In stop-loss, one places an advance order to sell a stock at a specific price. To reduce the risk to certain extent, you could diversify across sectors and market capitalisations. Currently, the 1-, 3-, 5 year market returns are around 13 percent, 8 percent and 12.5 percent, respectively.

2. Debentures or bonds

Debentures or bonds are long-term investment options with a fixed stream of cash flows depending on the quoted rate of interest. They are considered relatively less risky. An amount of risk involved in debentures or bonds is dependent upon who the issuer is. For example, if the issue is made by a government, the risk is assumed to be zero. However, investment in long term debentures or bonds, there are risk in terms of interest rate risk and price risk. Suppose, a person requires an amount to fund his child's education after 5 years. He is investing in a debenture having maturity period of 8 years, with coupon payment annually. In that case there is a risk of reinvesting coupon at a lower interest rate from end of year 1 to end of year 5 and there is a price risk for increase in rate of interest at the end of fifth year, in which price of security falls. In order to immunize risk, investment can be made as per duration concept. Following alternatives are available under debentures or bonds:

- (a) Government securities
- (b) Savings bonds
- (c) Public Sector Unit Bonds
- (d) Debentures of Private Sector Companies
- (e) Preference Shares

3. Money Market Instruments

Money market instruments are just like the debentures but the time period is very less. It is generally less than 1 year. Corporate entities can utilize their idle working capital by investing in money market instruments. Some of the money market instruments are:

- (a) Treasury Bills
- (b) Commercial Paper
- (c) Certificate of Deposits

4. Mutual Funds

Mutual funds are an easy and tension free way of investment and it automatically diversifies the investments. A mutual fund is an investment only in debt or only in equity or mix of debts and equity and ratio depending on the scheme. They provide with benefits such as professional approach, benefits of scale and convenience. Further investing in mutual fund will have advantage of getting professional management services, at a lower cost, which otherwise was not possible at all. In case of open ended mutual fund scheme, mutual fund is giving an assurance to investor that mutual fund will give support of secondary market. There is an absolute transparency about investment performance to investors. On real time basis, investors are informed about performance of investment. In mutual funds also, we can select among the following types of portfolios:

- (a) Equity Schemes
- (b) Debt Schemes
- (c) Balanced Schemes
- (d) Sector Specific Schemes etc.

1.8.1 FEATURES OF INVESTMENT AVENUES

The features of an investment programme consists of safety of principal, liquidity, income stability, adequate income, purchasing power, stability, appreciation, freedom from management of investments, legality and transferability.

(a) Safety of Principal

The investor, to be certain of the safety of principal, should carefully review the economic and industry trends before choosing the types of investment. To ensure safety of principal, the investor should consider diversification of assets. Adequate diversification involves mixing investment commitments by industry, geographically, by management, by financial type and by maturities. A proper combination of these factors would reduce the risk of loss. Diversification in proper investment programmes must be reasonably accomplished.

(b) Liquidity

An investor requires a minimum amount of liquidity in his investments to meet emergencies. Liquidity will be ensured if the investor buys a proportion of readily saleable securities out of his total portfolio. He may, therefore, keep a small proportion of cash, fixed deposits and units which can be immediately made liquid. Investments like stocks and property or real estate cannot ensure immediate liquidity.

(c) Income Stability

Regularity of income at a consistent rate is necessary in any investment pattern. Not only stability, it is also important to see that income is adequate after taxes. It is possible to find out some good securities which pay practically all their earnings in dividends.

(d) Appreciation and Purchasing Power Stability

Investors should balance their portfolios to fight against any purchasing power instability. Investors should judge price level inflation, explore the possibility of gain and loss in the investments available to them, limitations of personal and family considerations. The investors should also try and forecast which securities will appreciate. A purchase of property at the right time will lead to appreciation in time. Growth stock will also appreciate over time. These, however, should be done through analysis and not as speculation or gamble.

(e) Legality and Freedom from Care

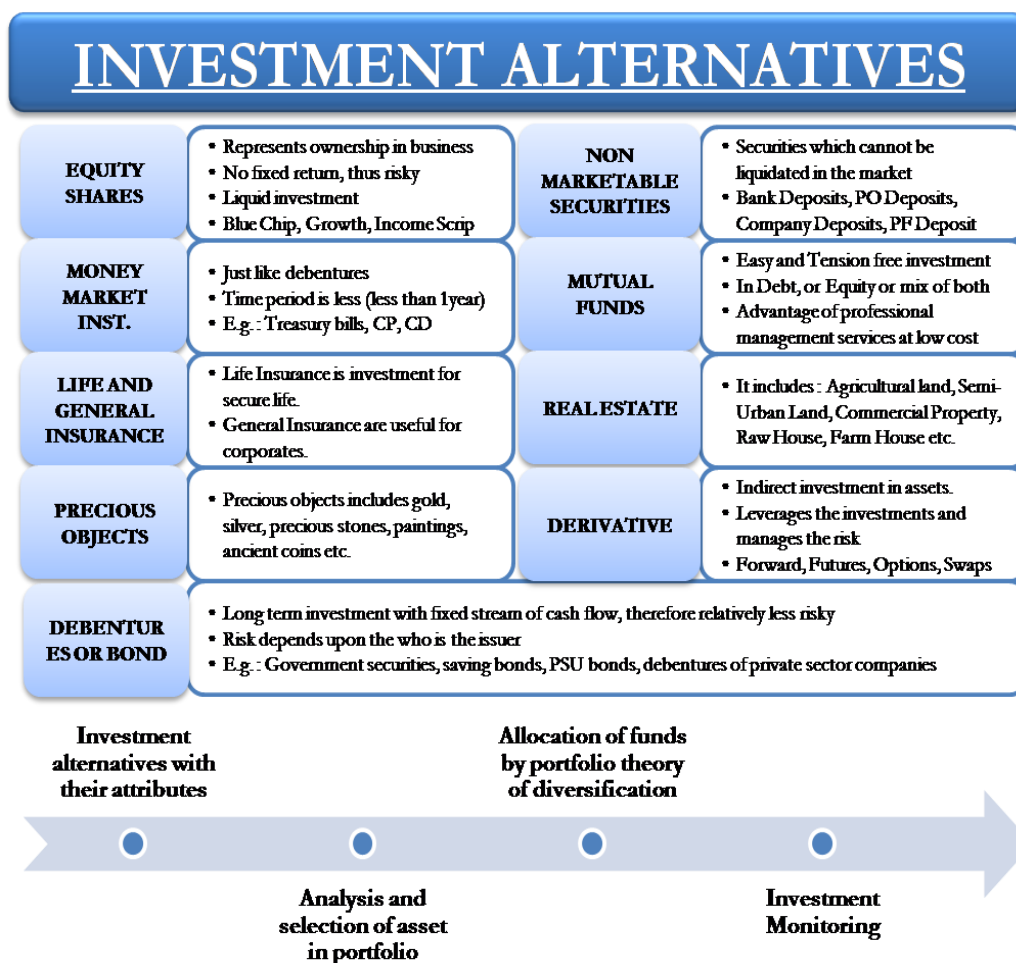
All investments should be approved by law. Law relating to minors, estates, trusts, shares and insurance be studied. Illegal securities will bring out many problems for the investors. One way of being free from care is to invest in securities like Unit Trust of India, Life Insurance Corporation, mutual funds or savings certificates. The management of securities is then left to the care of the Trust who diversifies the investments according to safety, stability and liquidity with the consideration of their investment policy. The identity of legal securities and investments in such securities will also help the investor in avoiding many problems.

(f) Tangibility

Intangible securities have many times lost their value due to price level inflation, confiscatory laws or social collapse. Investment is a study of employment of funds for the purpose of a return to the investor. It is of long-term horizon and it has to be planned through a proper process of evaluation. The investment process consists of different stages such as preparing an investment policy, making investment analysis, valuation of securities, portfolio construction and review.

1.9 INVESTMENT ALTERNATIVES

Let us now discuss the investment alternatives. The following are identified as the investment alternatives;



• LIFE INSURANCE AND GENERAL INSURANCE

They are one of the important parts of good investment portfolios. Life insurance is an investment for the security of life. The main objective of other investment avenues is to earn a return but the primary objective of life insurance is to secure our families against unfortunate event of our death. It is popular in individuals. Other kinds of general insurances are useful for corporate. There are different types of insurances which are as follows:

- (a) Endowment Insurance Policy
- (b) Money Back Policy
- (c) Whole Life Policy
- (d) Term Insurance Policy
- (e) General Insurance for any kind of assets.

- **REAL ESTATE**

Every investor has some part of their portfolio invested in real assets. Almost every individual and corporate investor invests in residential and office buildings respectively.

Apart from these, others include:

- (a) Agricultural Land
- (b) Semi-Urban Land
- (c) Commercial Property
- (d) Raw House
- (e) Farm House etc.

- **PRECIOUS OBJECTS**

Precious objects include gold, silver and other precious stones like the diamond. Some artistic people invest in art objects like paintings, ancient coins etc.

- **DERIVATIVES**

Derivatives mean indirect investments in the assets. The derivatives market is growing at a tremendous speed. The important benefit of investing in derivatives is that it leverages the investment, manages the risk and helps in doing speculation. Derivatives include:

- (a) Forwards
- (b) Futures
- (c) Options
- (d) Swaps etc.



Check Your Progress-A

Q1. State True or False.

- The rate of exchange between future consumption (future dollars) and current consumption (current dollars) is the pure rate of interest.
- The main objective of other investment avenues is to earn a return but the primary objective of life insurance is to secure our families against unfortunate event of death.
- Precious objects include gold, silver and other precious stones like the diamond.

Q2. Multiple choice questions

- i. What is the primary goal of investing?
- a) To accumulate wealth
 - b) To save money
 - c) To avoid financial loss
 - d) To pay off debt
- ii. Which of the following is NOT a type of investment?
- a) Stocks
 - b) Bonds
 - c) Cash
 - d) Credit cards
- iii. In which market are new securities issued?
- a) Secondary market
 - b) Primary market
 - c) Derivative market
 - d) Forex market

1.10 VARIABLE INCOME SECURITIES

1.10.1 Definition

The term variable-income security refers to investments that provide their owners with a rate of return that is dynamic and determined by market forces. Variable-income securities provide investors with both greater risks as well as rewards.

1.10.2 Explanation

Variable-income securities, also known as variable-rate securities, are typically valued by investors looking for higher returns than those offered by fixed-income securities. The classic example of a variable-income security is common stock, which can offer investors virtually unlimited up-side growth as well as the complete loss of principal. In exchange for this risk, investors in these securities demand higher returns than their fixed-income counterparts. In addition to common stocks, examples of variable-income securities include:

- (a) Variable Rate Demand Obligations (VRDO): municipal bonds that have long-term maturities that reset on a relatively short-term basis.
- (b) Floating Rate Notes (FRN): bonds that feature a variable rate coupon, typically indexed to a money market rate such as federal funds or LIBOR plus a margin spread.

The rate of interest on FRNs will increase or decrease quarterly based on the auction rates of 13-week Treasury bills.

1.11 SUMMARY

Investment is employment of funds for achieving additional income and growth in value. Further, Investment must be distinguished from speculation and gambling in terms of time horizon, risk, return and decision-making process. Investment is usually planned whereas speculation and gambling depend on immediate decisions with also the element of 'luck'. Investments are transfers of financial assets from one person to another. They range from low risk to high risk. Also, Investments are usually long-term and low risk. Speculation is high risk and high return and for short-term period of time. Moreover, Investments may be financial claims or real and tangible assets like land and buildings, plant and machinery, gold, antiques, etc. Also to remember that Investment may be direct and indirect securities like shares and debentures. Investments in provident funds, pension funds and mutual funds are forms of indirect investments. An investment programme should consist of safety of the principal amount, liquidity, income and purchasing power stability and appreciation. The investment process consists of four stages. These are investment policy, investment analysis, valuation of securities, and portfolio construction and review.



1.12 GLOSSARY

Allocation: To give something to someone as their share of a total amount, to use in a particular way.

Asset: Something valuable belonging to a person or organization that can be used for the payment of debts.

Assurance: a promise.

Auction: Public sale of goods or property, where people make higher and higher bids (offers of money) for each thing, until the thing is sold to the persons who will pay most.

Benefit: A helpful or good effect, or something intended to help.

Borrow: To get or receive something from someone with the intention of giving it back after a period of time; to take money from a bank or other financial organization and pay it back over a period of time.

Compel: To force someone to do something.

Compensate: To pay someone money in exchange for something that has been lost or damaged or for some problem.

Consumption: The situation in which information, entertainment, etc. is intended for a particular group of people.

Debenture: A type of loan, often used by companies to raise money, that is paid back over a long period of time and at a fixed rate of interest.

Derivative: If something is derivative, it is not the result of new ideas, but has been developed from or copies something else.

Dividend: The profit of a company that is paid to the people who own shares in it.

Economic: relating to trade, industry, and money.

Equity: The value of a company, divided into many equal parts owned by the shareholders, or one of the equal parts into which the value of a company is divided.

Estate: A large area of land in the country that is owned by a family or an organization and is often used for growing crops or raising animals.

Evaluate: To judge or calculate the quality, importance, amount, or value of something.

Fundamental: Forming the base, from which everything else develops.

Hallmark: A typical characteristic or feature of a person or thing.

Immediate: Happening or done without delay or very soon after something else.

Income: Money that is earned from doing work or received from investments.

Industrial: In or related to industry, or having a lot of industry and factories, etc.

Inflation: A general, continuous increase in prices.

Insurance: An agreement in which you pay a company money and they pay your costs if you have an accident, injury, etc.

Investment: The act of putting money, effort, time, etc. into something to make a profit or get an advantage, or the money, effort, time, etc. used to do this.

Liquidity: The fact of being available in the form of money, rather than investments or property, or of being able to be changed into money easily.

Margin: The amount by which one thing is different from another.

Marketability: The fact of being easy to sell.

Moat: A long, wide hole that is dug all the way around a place such as a castle and usually filled with water, to make it more difficult to attack.

Negligible: Too slight or small in amount to be of importance.

Nominal: In name or thought but not in fact or not as things really are.

Premium: An amount that is more than usual.

Proponent: A person who speaks publicly in support of a particular idea or plan of action.

Possession: The fact that you have or own something.

Purchase: To buy something.

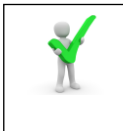
Risk: The possibility of something bad happening.

Speculation: the activity of guessing possible answers to a question without having enough information to be certain.

Tax: (an amount of) money paid to the government that is based on your income or the cost of goods or services you have bought.

Transaction: An occasion when someone buys or sells something, or when money is exchanged or the activity of buying or selling something.

Treasury: The government department, in the UK and some other countries, that is responsible for financial matters such as spending and tax.



1.13 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q1.

- i) True
- ii) True
- iii) True

Q2. i. a

- ii. d
- iii. b



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1.15 SUGGESTED READINGS

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3. V.K. Bhalla, ‘Investment Management’, S.Chand & Company Ltd., Seventh Edition.
4. Punithavathy Pandian, ‘Security Analysis & Portfolio Management’ – Vikas Publishing House Pvt., Ltd.



1.16 TERMINAL QUESTIONS

1. Define investment analysis and elucidate its types.
2. What are different investment avenues?
3. Discuss the overall purpose people have for investing. Define investment.
4. Explain features of investment avenues.
5. Give examples of variable income securities.
6. What are the attributes of investment?

UNIT 2 INVESTMENT ALTERNATIVES

- 2.1 Introduction**
- 2.2 Objectives**
- 2.3 Investor Classification**
- 2.4 Corporate Bonds**
- 2.5 Derivatives**
- 2.6 Equity shares**
- 2.7 Glossary**
- 2.8 Answers to Check Your Progress**
- 2.9 References**
- 2.10 Suggested Readings**
- 2.11 Terminal Questions**

2.1 INTRODUCTION

The unit on Investment Alternatives introduces learners to the wide range of investment options available to individuals and institutions. It explores various financial instruments beyond traditional savings accounts, providing a deeper understanding of how different asset classes can help achieve financial goals. The unit covers key alternatives such as equities (stocks), bonds, mutual funds, real estate, commodities, and alternative investments like hedge funds and private equity. You will also understand investor classification in detail.

2.2 OBJECTIVES

After studying this unit, you will be able to understand:

- The classification of investors based on their risk tolerance.
- The characteristics, risks, and potential returns of different investment options such as equities, bonds, mutual funds, real estate, and commodities.
- The suitability of each investment alternative for different types of investors.

2.3 INVESTOR CLASSIFICATION

2.3.1 Risk Group

Investors can be classified into different groups depending on their attitude towards risk. Each Investor also has an indifference point at which his own expectations of return match with the risk that he can take. A well-diversified portfolio carefully chosen from the numerous securities available in the market will help the investor in achieving his objectives. The investor should also be able to assess his own behaviour pattern before he aims at a particular goal which he wishes to attain. Broadly, he should be able to identify whether he is a risk averter, risk neutral or risk taker. If he identifies himself as risk averter his normal behaviour pattern will show his preference for investments of low market rate risk and interest rate risk.

He would prefer government securities. Life insurance policies, unit trust certificates which he is sure will give him a continuous return. He would not be able to pay any extra amount for any uncertain or unexpected action. Another class of investors are called the risk neutrals. Such investors are willing to pay for making an investment provided they get a return of an equal value.

Their investment trends show that they try to take some risk stocks in their total investment programme but have a larger number of securities which give them a firm return. The risk takers from the third category of investor do not mind paying more than the expected value of an asset for an uncertain future. They believe in high return for a greater risk. Such investors have the potentialities to be gamblers. While investors can be classified in categories of high risk, medium risk and no risk takers, it can be said that the major group of investors are those who can absorb medium risk. Most investors are willing to sacrifice some expected income or return if the income is certain.

<i>Income Group</i>	<i>Return</i>	<i>Risk</i>	<i>Tax Benefits</i>
Low	High	Medium	Nil
Medium	High	Medium	Maximum
High	High	Medium	Maximum

Fig 2.1 Expectation level of investors

2.3.2 Income Group

The income group of an investor evokes responses to the available investment outlets. The higher the income group of an investor the greater will be his desire for purchasing assets which will give him a favourable tax treatment. The source of income usually has a bearing on deduction of tax. Certain sources of income are taxed like ordinary

income. Other income may be exempted from income tax. Under Section 80C, life insurance, provident fund, postal schemes have a reduction from gross total income up to Rs.1 lakh of savings for calculation of tax.

The investments must be geared in a manner that combines the features of low risk and low taxation to the maximum benefit. Low income group investor will not look towards tax benefit. His maximum utility will be at a point of greater reward.

<i>Type</i>	<i>Risk Acceptable</i>	<i>Type of Investment</i>	<i>Behavior</i>
Risk averters	No risk	Life Insurance, Unit Certificates, Govt. Certificates	Will pay less for uncertain action.
Risk neutrals	Some risk	Common Stocks, Units, Life Policies	Will pay equal to expected return of uncertain action.
Risk takers	High risk	Common Stocks, Bonds, Convertible Securities	Will pay more than expected value for an uncertain action.

Fig 2.2 Classification of Investors

2.4 CORPORATE BONDS

Investment alternatives offer a wide range of options that cater to various investor preferences, risk appetites, and financial objectives. Let us learn from corporate bonds. Bonds are senior securities in a firm. They represent a promise by a company to the bondholder to pay a specified rate of interest during a stated time period annually and the return of the principal sum on the date of maturity. Date of maturity is also called the date of retirement of a bond. Bonds are of many kinds. The difference in bonds is due to the terms and conditions and features each bond bears. Bonds may be distinguished according to their repayment provisions, types of security pledged, time of maturity and technical factors.

Bonds are an important source of funds to the corporate sector. They are usually an issue of long-term debt of a corporate organization. Since no one individual can fulfil the requirements of the firms, the loan in parts of small denominations and sold to investors in the form of bonds.

2.4.1 The Bond Indenture

The bond indenture is a legal instrument incorporating an agreement between the corporation which issues bonds, the bondholder who lends money and the trustee which is either the commercial bank or trust company and represents the bondholder. Thus, three

parties are, involved: the company, bondholders and the trustee. The bondholders acquire their bonds and automatically accept the indenture. The role of the trustee is mainly coordination between the company and the bond holders. A single trustee represents all the bondholders and gives information on legal and financial problems.

The indenture consists of:

- a) The rate of interest or coupon rate,
- b) Authorization of issue,
- c) The specimen copy of a bond,
- d) The Trustee's certificate,
- e) The pledged property as security,
- f) Endorsement,
- g) Registration,
- h) Restrictions,
- i) Agreements,
- j) Remedies when problems occur between trustee and bondholder,
- k) All legal terminologies for purposes of clarity,
- l) In case of conversion the rights of bondholders, and
- m) In case of redemption of the rights of bondholders.

2.4.2 FEATURES OF BONDS

- **Repayment of Principal:** Bonds are issued in denomination of Rs.1000 but there are also bonds and Rs.100 and of values as high as Rs.5, 000 and Rs.10, 000. Financial institutions are known to buy bonds bearing higher values. The value of the bond is called the 'face value, par value or maturity value'. The value of the bond represents the promise to repay the amount to the bondholder at the end of the specified period. This in other words, may be called the most important feature of bond, return of the principal to the lender on a fixed date specified earlier.
- **Specified Time Period:** The second feature is the maturity date of the bond. The time specified in the bond is called the maturity date or date of repayment of principal amount. The maturity date of bonds varies according to the requirement of each organization. Some organizations issue bonds of a long-term nature. The number of years of these bonds varies from 20 years to 100 years maturity. Other issues of bonds are for medium term and between 5-10 years. Shorter-term bonds are identified as those whose maturity is below 4 years. The bond indent specifically gives the maturity date of the bond. This is the promise to pay the principal amount on a specified date after the expiry of the number of years for which it is issued.

- **Call:** Bonds have an additional feature of call'. This is a privilege to the issuing company to repurchase the bonds at a slightly higher price above the par value. For example, a bond of face value of Rs.1, 000 and maturity of 20 years yields an interest of Rs.70 annually. After the first 5 years of issue, the market rate of interest on bonds falls considerably. The ruling rate being 5% the company may choose to use the call feature and buy back the bond for Rs.1050. This is a little higher than the face value of Rs.1000.

By calling the bonds, the company saves money. It may call back the bonds yielding interest of Rs.70 and issue fresh bonds which will yield Rs.50 per year. The firm has been able to save Rs.20 per year per bond for the next 15 years till the maturity of the bond. By paying Rs.50 higher than the face value on the bond for early redemption of the bond, the company saves a much higher amount. The bond holder is on the losing side because he gets the return of the principal amount earlier than he expected. Since, the current market rate of interest is prevailing at a lower rate he cannot buy any other bond which will fetch him an income of Rs.70 per bond per year.

This feature gives a right to the issuing company. The bondholder should be aware of the call feature before he makes an investment in bonds. He can protect himself by investing in bonds of shorter durations. Although there is risk of fluctuations in interest rates for short durations, a ten year period is considered to be good life of a bond from the point of view of the bondholder.

- **Pledge of Security:** The issuing company sometimes promises to pay to the bondholder by offering some security like property. The pledge of security is a promise to the bondholders in writing and signed under seal and presented to the trustee by the company. A simple promise to pay without the proper formalities is not considered as a pledge of security.
- **Interest:** The rate of interest to be paid to bondholder and the time of payment is recorded in the bond as well as in the indenture. 'Interest rate' is also called the 'coupon rate'. Interest on bond may be made by cheque or coupon. When interest is paid to the bondholder by cheque the principal amount on the bond is usually registered to interest value. The coupons are numbered and every coupon represents, the interest payment period. When the coupon becomes due, the bondholder presents the coupon to the authorized banker and receives interest. The coupons are usually bearer bonds and are negotiable when they become due and payable. Coupons should be kept safely because it is difficult to recover them if they are lost, since the name of the owner is not required in order to encash them and cheque is paid on the face value

of the bond. Interest on bonds should be paid regularly by the issuing authority. Government bonds are very reliable as they are paid in time.

2.4.2 TYPES OF BONDS

- **Serial Bonds:** Serial bonds are issued by an organization with different maturity dates. This is done to enable the firm that if all the bonds were retired together. From the point of view of the bondholder, this gives him a chance to select a bond of the maturity date which would suit his portfolio. He may select a short term maturity bond if he meets his need or take a bond with long term maturity bond if he already has too many shorter term investments.
- **Sinking Fund Bonds:** Sometimes, an organization plans the issue of its bonds in such a way that there is no burden on the company at the time of retiring bonds. This has the advantage of using the funds as well as retiring them without any excessive liquidity problems. The company sets apart an amount annually for retirement of bonds. The annual instalment is usually fixed and put in a sinking fund through the trustees. The trustee uses his discretion in investing these funds. He may use the fund to call the bonds every year or purchase bonds from them at a discount. Sinking fund bonds are commonly used as a measure of industrial financing.
- **Registered Bonds:** A registered bond protects the owner from loss of principal. The bondholder's bond numbers, name address and type of bond are entered in the register of the issuing company. The bondholder has to comply with the firm's formalities at the time of transfer of bonds. While receiving interest, registered bondholders usually get their payment by cheque. The main advantage of registering a bond is that if the bond is misplaced or lost, the bondholder does not suffer a loss unlike the unregistered bonds.
- **Debenture Bonds:** Debentures in the USA are considered to be slightly different from bonds. Debenture bonds are issued by those companies who have an excellent credit rating but do not have security in the form of assets to pledge to the bondholders. The debenture holders are creditors of the firm and receive the full rate of interest whether company makes a profit or not. In India, debentures can be issued with the specific permission of the Controller of Capital Issues. Bearer debentures are not considered legal and permissible documents in India. Convertible debentures have become popular in recent years. Convertible debentures have lower rates of interest but the convertible clause makes it an attractive investment. Debentures can be of different kinds. They may be registered, convertible; mortgage guaranteed and may also combine more than one feature in one issue.

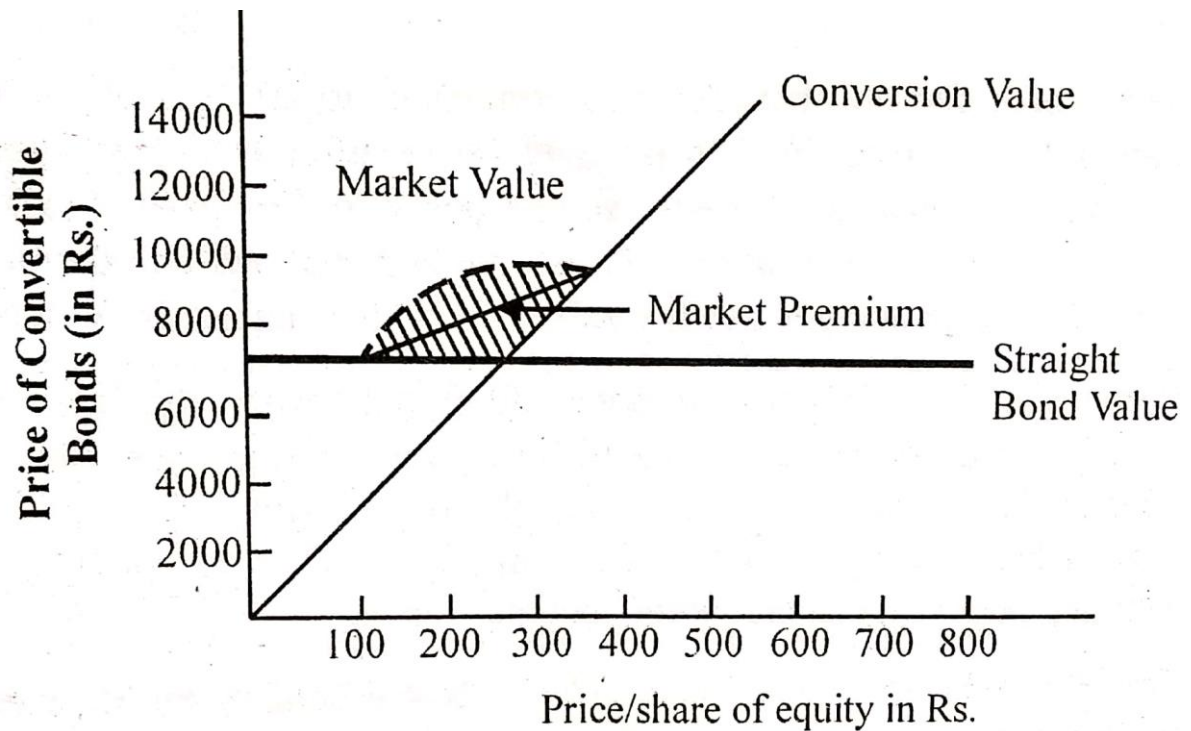
- **Mortgage Bonds:** A mortgage bond is a promise by the bond issuing authority to pledge real property as additional security. If the company does not pay its bondholders the interest or the principal, when it falls due, the bondholders have the right to sell the security and get back their dues. The value of mortgages and the kind of charge on property. A first charge is the most suitable and highly secure form of investment, compared to a general charge. Mortgage bonds may be open end, close end and limited open end. An open end mortgage bond permits the bond issuing company to issue additional bonds if earnings and asset coverage makes it possible to do so. In close end mortgage bonds, the company can make only one issue of bonds and while those bonds exist, new bonds cannot be issued. The limited open end bonds permits the organisation to issue specified number of fresh bonds series distributed over a number of years.
- **Collateral Trust Bonds:** A collateral trust bond is issued generally when two companies exist and are in relationship of parent and subsidiary. The collateral that is provided in these bonds is the personal property of company which issues the bonds. A typical example of such bonds is when a parent company requires funds; it issues collateral bonds by pledging securities of its own subsidiary company. The collaterals are generally in the form of intangible securities like shares or bonds. These bonds have a priority charge on the shares or bonds which are used as collaterals. The quality of the collateral bonds is determined by the assets and earning position of both the parent as well as the subsidiary company.
- **Equipment Trust Bonds:** In the USA, a typical example of Equipment Trust Bonds is the issue of bonds with equipment like machinery as security. The property papers are submitted to trustees. These bonds are retired serially; the usual method of using these bonds was to issue 20% equity and 80% bonds. The equity issue is like a reverse to the lender in cases where the value of the asset falls in the market. The trustee also has the right to sell the equity and pay the bondholders in case of default.
- **Supplemental Credit Bonds:** When additional pledge is guaranteed to the bondholders their bonds are categorical supplemental by an additional non-specific guarantee. Such bonds are classified as: Guaranteed Bonds, Joint Bonds and Assumed Bonds.
- **Guaranteed Bonds:** Guaranteed Bonds are issued as bonds secured by the issuing company and they are guaranteed by another company. Sometimes, a company takes assets through a lease. The leasing company guarantees the bonds of the bond issuing company regarding interest and principal amount due on bonds.

- **Joint Bonds:** Joint bonds are guaranteed bonds secured jointly by two or more companies. These bonds are issued when two or more companies are in need of finance and decide to raise the funds together through bonds. It serves the purpose of the company as well as the investor. The company raises funds at reduced cost. Since funds are raised jointly, dual operations of advertising and the formalities of capital issues control are avoided. The investor is in a favourable position as he has security by pledge of two organizations.
- **Assumed Bonds:** These bonds are the result of a decision between two companies to amalgamate or merge together. For example, Company X decides to merge into Company Y. X's issue of bonds prior to merger then becomes the obligation of Company Y when merger is affected. These are called assumed bonds as Company Y didn't originally issue them but as a result of merger the debt was passed on to them. The bondholder receives an additional pledge from Company Y. He is more secure as his bonds due to merger get the safety of both Companies X and Y.
- **Income Bonds:** Such bonds offer interest to the bondholders only when the firm earns a profit. If profit is not declared in a particular year, interest on bonds is cumulated for a future period when the company can sufficiently earn and make a profit.
- **Convertible Bonds:** It is the right given to a bondholder to buy a bond at the time of issue and later exchange it for equity shares of the same company. This gives the bondholder a future promise by the issuing company the growth in capital of the company. The price of the convertible bonds to a great extent depends on the price of equity shares. The bond price increases if the price of equity shares rises and vice versa. The bond is exchanged into common stock at a future date. The specifications of date of conversion into equity as well as the rate at which it is usually in the form of a written clause in the bond indenture. A convertible bond is which it will be converted often considered to be a trade-off between, "the provision of protection and expected future appreciation" The investor prefers to buy bonds rather than equity shares because the risk in bonds is lower than equity but higher than a non-convertible bond. A convertible security should, therefore be evaluated in a dual manner. For example, if the price of equity is Rs.30 in the market and a bond can be changed for 15 equity shares, the conversion value will be 450 (15 x 30) and whenever the stock price changes the conversion value will change. The conversion can be applied in this manner:

P = Price of equity

S = Number of shares into which bond is convertible and the conversion value of bond is:

$$C = P \times S$$



$$\# \text{ Market Premium} = \text{Market Value}$$

Fig 2.3 Graph showing Market Value, Market Premium, Straight Debt Value and Conversion Value

The price of convertible bonds is shown on the Y-axis and X-axis represents the price share of equity. In relative terms, the premium can be calculated in the following manner:

- (a) Premium Over Conversion Value = $\frac{\text{Bond Price} - \text{Conversion Price}}{\text{Conversion Value}}$
- (b) Premium Over Investment Value = $\frac{\text{Bond Price} - \text{Investment Value}}{\text{Bond Price}}$
- (c) Conversion Parity Price of Stock = $\frac{\text{Price of the bond}}{\text{No. Of shares upon conversion}}$

2.4.3 Evaluation of Convertible Bonds

The factors involved in evaluating convertible bonds are:

- (a) Quality of Issue,

- (b) The current price of convertible bond,
- (c) The expected future appreciation of the equity (return and risk), and
- (d) Tax benefits.

The quality of issue is important from the point of view that it is a fixed income security first and the issue must be such that the interest will be continuously received by the bondholder without default. The quality of the issue is also important because ultimately the bondholder will own the equity issue of that company and his income in the form of dividend will depend on the quality of equity issues and work performance of the company.

The current market price of the issue is usually above the conversion value and straight debt value of a convertible bond. The straight debt value is like a floor which reduces the falling risk of the issue. If the floor value is about 15% below market price it is adequate for providing downside protection. If it is more than 15%, the straight value debt will not be adequate in providing protection.

The hypothesis is that the purchase of a convertible bond is a method which will reduce risk and try to provide a greater return than on a non-convertible equity stock in which it is to be converted. This appreciation should be expected to appreciate about 25% of the effective price which is paid for the equity. Also, the premium should be adequate and market value should not be very high over the conversion values of a bond. If the premium is very high it will reduce the potential return on a convertible bond. The premium as a rule should be about 20%.

Estimating Return and Risk on Convertible Bonds

The Return and Risk on Bonds has to be calculated from the point of view of the firm as well as bondholders. The firm issues convertible bonds as a measure of securing equity financing indirectly. The bondholder buys convertible bonds with the view that he gets a hedge and his risk level falls because of the investment value and its floor effect. Further, he also anticipates an appreciation in the near future. The return which the bondholder expects is the discount rate which equates the sum of the annual interest payments till the year of conversion (N) and the terminal conversion value in the year N. Therefore, the investor can use the following equation:

$$M = \sum_{t=1}^n \frac{I}{(1+k)^t} + \frac{TV}{(1+k)^n}$$

Where M = Price of Bond.

TV = Terminal value of bond call price if surrendered on call-maturity value if redeemed.
Conversion value if converted.

I = Interest received yearly.

N = Number of years of holding the bond.

k = Discount rate.

Brigham has a model on convertible bonds.¹ This is illustrated graphically.

Fig 2.4 Estimating Return and Risk on Convertible Bonds

In the graph, the straight debt value is shown by the line BXM. This is the highest or maximum price at which the bond can sell without taking into account the associated stock price. The BXM line slopes upwards till it is equal to the fair value M. The reason for this is that the bond is first issued at an interest rate which is lower than the current rates on similar bond but which do not have the convertible clause. The investor is interested in the convertible bond even at a lower interest rate because of convertibility feature. After a gap of some time, the discount from the value of nonconvertible bond gets erased. This is so because when the bond will be at face value and there will be a neutralizing factor on the time value of money. At maturity, the waiting period is over and there is no discounting of time. Therefore, the straight value of debt equals M.

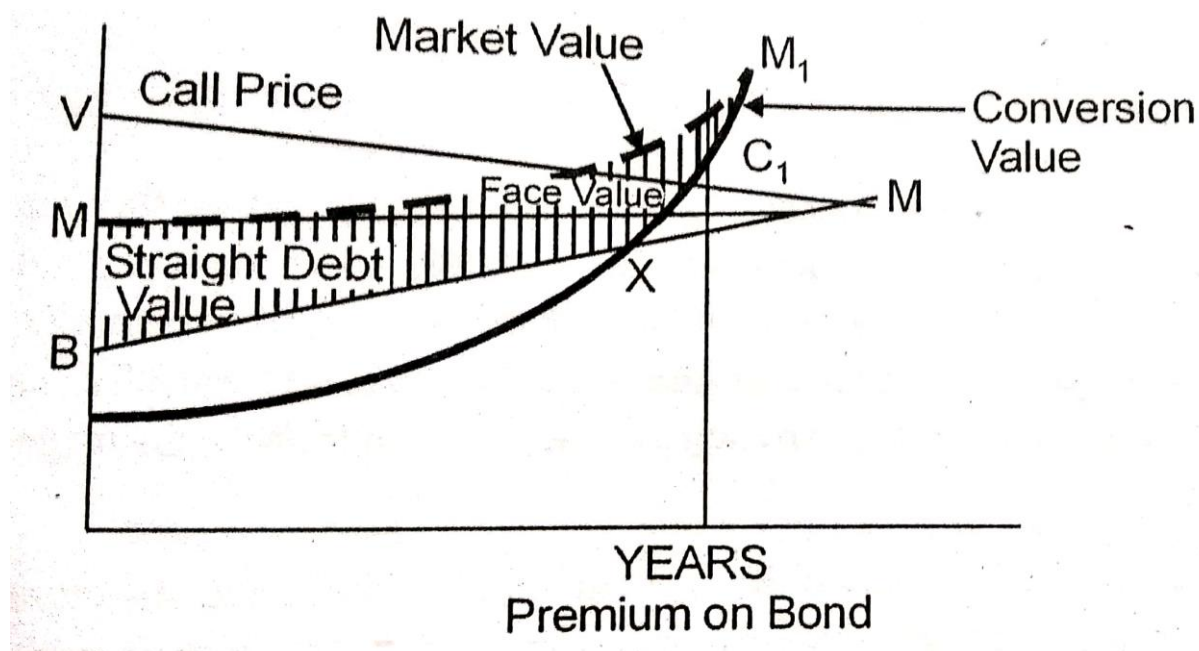


Fig 2.5 Example of Brigham's Model of Convertible Debenture

The conversion value of a convertible bond is given graphically as CXC_1 for the benefit of the bondholder and the equity stock price associated with the convertible bond is assumed will rise at a constant rate of growth. Thus, conversion value CXC_1 rises and increases every year till the bond is called in year N . Therefore, CXC_1 rises up rapidly. MM_1 represents the market price of bond represents the market price of bond. This is the price at which the bond will be bought and sold. This will also rise with time in a similar manner as conversion value (CXC_t).

These will meet at M , because the market price has to rise with conversion value. If it falls below the conversion value, the value of the bond would be nullified, CXC , i.e. more rapidly than MM_1 line. Premium is shown in the shaded area of the graph BX or the straight debt value in the shaded area is larger than the conversion value (shaded area), VM is the call price line to be paid by a company if the bonds are redeemed before maturity and are not converted. The call price is more than the face value of the bond but if falls at periodic intervals and becomes nil at maturity. The decline in the call premium show VM downward sloping. On the call date, N market value and conversion value become identical.

If the bond is called, the premium is reduced because such a bond can either be converted into stock or redeemed at straight debt value. Either of these options is lower than market value. With the passing of time the conversion value increases and it is likely that the issuing company will call the bond. If the bond is to be called the bondholder would not like to pay a premium. Also, when conversion value rises, the straight debt value falls far below. This depicts a higher potential loss if the equity stock price falls.

Another reason for decline in premium is analysed in drawing out a relationship between the return (yield) on a bond and on a stock. If the conversion value is higher than the straight value the increases in price of equity and bond move together. The only difference is that the bond gives a fixed interest but a share promises a dividend. Dividend rise or fall will reflect the rise or fall of equity stock. Due to these reasons, an investor would not be attracted to hold a bond in favour of equity and the premium on a bond would fall.

Tax Treatment

A convertible bond is treated as a capital asset under the Income Tax Act. The convertibility clause constitutes a transfer from debenture bond to equity issues. When these bonds are converted into equity issues the profit or gain is taxable if these are quoted at a higher market price even though profit has not been realized in terms of cash. Any convertible bond which is held for less than 36 months is treated as a short-term capital asset. Debenture bonds held as stock in trade and resulting in profit are also taxable as normal profit. When a convertible bond is held for more than 36 months, and

then, converted into equity issues the investor may claim exemption from income tax under Section 54E.

A long-term capital asset is exempted from tax if net considerations received as a result of transfer of capital asset is transferred or any additional compensation is received after February 28, 1979, but before March, 1, 1983. Specified asset is 7.5%, 7-Year National Rural Development Bonds. After February 28, 1983, specified assets are notified government securities, units issued under Capital Gains Unit Scheme. 1983, notified National Rural Development Bonds. 7.5%, 3-Year Rural Development Bonds II issue and notified debentures issued by the Housing and Urban Development Corporation Limited. Amendments have been made from time-to-time.

2.4.4. ADVANTAGES OF CONVERTIBLE BONDS

Fixed Income: Convertible bonds offer the investor a fixed rate of interest of investment. Most small investors are interested in a fixed income and would not worry about the corporate image or growth in which they make an investment. A new company offering convertible bonds is of great advantage to such investors. They are assured of a fixed income as well as ownership rights at a later date. The expectation of an investor or is that of a company stabilizes itself after some years of active working. At such a time, he would be able to get ownership rights and gain a profit also.

Expansion: A convertible bond is often issued by a firm when its capital structure does not permit extensive expansion through further issue of equities or taking loans from the market at a higher rate of interest. A firm makes an attempt to balance its capital structure as well as expand its business without delay. If expansion cannot be postponed and a large amount is required to finance such an expansion, the best measures to a company are to consider an issue of convertible security. Sometimes, convertible bonds may be used to provide funds during the gestation period. Also the floatation costs of convertible securities are lower than equity issue as cost of underwriting is much lower. The cost of issue to the firm during the period of gestation or expansion will be lower when convertible bonds are issued.

Depressed Capital Market: A capital market is very sensitive to conditions in the economy. Political instability, riots, war, economic conditions depress the capital market. Equity issues do not evoke responses from the general public as the value of shares in such conditions is very low. Convertible bonds may be considered to be quite attractive in these conditions as to provide the twin objective of fixed income and option for transfer at a later date. Public response to these issues helps to bring some activity in a dull capital market.

2.6 DRAWBACKS OF CONVERTIBLE BONDS

A convertible bond has a particular drawback. So long as these bonds are bought at a reasonable price, keeping them on one's portfolio has all the advantages outlined above. If these bonds are bought at a very high price, the return is sometimes evaluated as negative. Also, there is an excessive danger of loss if the price of the bond falls due to market risk or fall in the evenings. Another drawback of convertible bond is the discretion of a company to call bonds. Bondholders may at the will of the issuing company be forced to return their bonds at a small profit.



Check Your Progress-A

Q1. Multiple choice questions

- i. What is a disadvantage of investing in convertible bonds compared to regular bonds?
 - a) Higher interest rates
 - b) Less potential for capital appreciation
 - c) The possibility of dilution of ownership when converted to equity
 - d) No fixed income
- ii. Which type of investor primarily seeks to preserve capital and avoid risk?
 - a) Aggressive investor
 - b) Conservative investor
 - c) Speculative investor
 - d) Moderate investor
- iii. What characterizes a moderate investor?
 - a) A focus solely on high returns with high risk
 - b) A balanced approach to risk and return
 - c) A complete avoidance of market volatility
 - d) An emphasis on fixed-income securities only

2.5 DERIVATIVES

A derivative is a financial instrument whose value depends on underlying assets. The underlying assets could be prices of traded securities of gold, copper, aluminium and may even cover prices of fruits and flowers. Derivatives have become important in India since 1995, with the amendment of the Securities Contract Regulation Act of 1956. Derivatives such as options and futures are traded actively on many exchanges. Forward contracts, and different types of options are regularly traded outside exchanges by financial institutions, banks and corporate in over-the-counter markets. There is no single market place or an organized exchange.

Organized exchanges began trading in options on securities in 1973, whereas exchange traded debt options started trading in 1982. On the other hand, fixed income futures began trading in 1975, but equity related futures started trading in 1982. The reasons for debt options being stronger than futures are that stock exchanges tend to introduce those instruments that they think will be successful in trading.

In the equity market, a relatively large proportion of the total risk of a security is unsystematic. At the same time many securities display a high degree of liquidity that can be expected to be maintained for long periods of time.

2.5.1 CLASSIFICATION OF DERIVATIVES

Derivatives can be classified as:

- **Commodities derivatives:** These are derivatives on commodities like sugar, jute, paper, castor seeds.
- **Financial Derivatives:** These derivatives deal in shares, currencies and gilt-edged securities.
- **Basic Derivatives:** Futures and Options are basic derivatives.
- **Complex Derivatives:** Interest rate futures and swaps are classified as complex derivatives.
- **Exchange traded derivatives:** They are standard contracts traded according to the rules and regulations of a stock exchange. Only members can trade in exchange traded derivatives and they are guaranteed against counter-party default. Contracts are settled daily.

- **OTC Derivatives:** They are regulated by statutory provisions. Swaps, forward contracts in foreign exchange are usually OTC derivatives and have a high risk of default different stock markets.

2.6 EQUITY SHARES

Equity shares are also called common shares and are from the point of view of investment more risky than both bonds and preference shares. They, however, afford greater advantage than both the other securities and in the capital market enjoy a better position as far as the investor's attraction is concerned; Equity stock gives several rights to the shareholders.

2.6.1 CHARACTERISTICS OF EQUITY SHARES

- 1) **Voting Rights:** The equity stocks carry with them:
 - (a) a special right of voting for the members owning equity shares,
 - (b) a right to receive a notice of the Annual General Meeting every year,
 - (c) the right to be elected members of the Executive Committee,
 - (d) become a director than both the bondholders and of the company on purchasing qualification shares. They are considered preference stockholders.
- 2) **Ownership Rights:** The equity stockholders are also the owners of the firm. Each stockholder receives an ownership equivalent to the stock that he holds in the firm. The total stock of a company is divided and every stockholder had the right to be a member of the company. He is, however, limited according to the investment he makes in the company. His existence in the company is perpetual as there is no maturity date or redemption date of an equity is released only if the equity stockholder so desires by transferring or selling his shares in the stock.
- 3) **Par Value:** An equity stock has a face value which is also called the par value of the stock. Equity stock may be sold or issued at a premium or at a discount but the face value will be the denomination. It shows the liability of an investor. Equity stock may be issued in denominations of Rs.10, 5, 2 or 1. Thus, Rs.10 denomination is the face value. Any amount above which this is sold, i.e., Rs.12, may be called in excess of the face value and Rs.2 may be considered as the premium. Similarly, if it is issued at Rs.8, then the discount may be considered as Rs.2. The face value or the par value remains the same but these stocks may be actively traded in the stock exchange and their price may increase or decrease according to the marketability of these shares. Multinational firms in India are rated at a very high

price. Many shares of Rs.10 face value are being sold at Rs.90, Rs.120 or Rs.150. This being the premium value, the shareholders liability is, however, limited to the face value or par value of the investment.

- 4) **Right Shares:** The shareholder has a right of receiving additional shares whenever they are issued by the company are offered to the existing shareholders and only on their refusal can others be offered. Sometimes, some amount is reserved for the existing shareholders and then an issue is made by the company. These right shares are also called subscription rights and this right can be sold at cum-dividend or ex-dividend.

2.7 SUMMARY

Investment is employment of funds for achieving additional income and growth in value. Further, Investment must be distinguished from speculation and gambling in terms of time horizon, risk, return and decision-making process. Investment is usually planned whereas speculation and gambling depend on immediate decisions with also the element of 'luck'. Investments are transfers of financial assets from one person to another. They range from low risk to high risk. Also, Investments are usually long-term and low risk. Speculation is high risk and high return and for short-term period of time. Moreover, Investments may be financial claims or real and tangible assets like land and buildings, plant and machinery, gold, antiques, etc. Also to remember that Investment may be direct and indirect securities like shares and debentures. Investments in provident funds, pension funds and mutual funds are forms of indirect investments. An investment programme should consist of safety of the principal amount, liquidity, income and purchasing power stability and appreciation. The investment process consists of four stages. These are investment policy, investment analysis, valuation of securities, and portfolio construction and review.



2.8 GLOSSARY

Agreement: the situation in which people have the same opinion, or in which they approve of or accept something.

Authorization: official permission for something to happen, or the act of giving someone official permission to do something.

Bondholder: a person or organization that holds a bond.

Collateral: valuable property owned by someone who wants to borrow money, that they will become the property of the company or person who lends the money if the debt is not paid back.

Convertible: used to refer to a type of money that can be easily exchanged into other types of money.

Corporate: of or shared by a whole group and not just of a single member.

Debenture: a type of loan, often used by companies to raise money, that is paid back over a long period of time and at a fixed rate of interest.

Duration: the length of time that something lasts.

Fund: an amount of money saved, collected, or provided for a particular purpose.

Increase: to (make something) become larger in amount or size.

Income: money that is earned from doing work or received from investments.

Incorporate: to include something as part of something larger.

Investor: a person who puts money into something in order to make a profit or get an advantage.

Maturity: a very advanced or developed form or state.

Maximum: being the largest amount or number allowed or possible.

Mortgage: An agreement that allows you to borrow money from a bank or similar organization, especially in order to buy a house, or the amount of money itself.

Multinational: Involving several different countries, or (of a business) producing and selling goods in several different countries.

Perpetual: Continuing for ever in the same way.

Postpone: to delay an event and plan or decide that it should happen at a later date or time.

Potential: Possible when the necessary conditions exist.

Redeem: To make something or someone seem less bad.

Redemption: Be beyond/past redemption.

Restriction: An official limit on something.

Shareholder: A person who owns shares a company and therefore gets part of the company's profits and the right to vote on how the company is controlled.

Specimen: something shown or examined as an example; a typical example.

Trustee: a person, often one of a group, who controls property and/or money for another person or an organization.



2.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q1.

- i. c
- ii. b
- iii. b



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2.11 SUGGESTED READINGS

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2. V.A. Avadhani – 'Securities Analysis and Portfolio Management', Himalaya Publishing House.
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2.11 TERMINAL QUESTIONS

1. "Bonds do not give the right of ownership, yet they are considered to be senior securities." Comment
2. Discuss the different types of bonds. How would you evaluate a convertible bond?
3. What is a convertible bond? Discuss the advantages of buying such a bond. How do you estimate risk and return features of convertible bonds?
4. What is a derivative? Explain its types.
5. 'Equity shares are a good investment'. Discuss.

UNIT 3 INVESTMENT ATTRIBUTES

3.1 Introduction

3.2 Objectives

3.3 What is an investment?

3.4 Why are investments important?

3.5 What is an Investment Analysis

3.6 Types of Investment Analysis

3.7 Different Attributes of Investment

3.8 Investment Avenues

3.9 Investment Alternatives

3.10 Variable Income Securities

3.11 Summary

3.12 Glossary

3.13 Answers to Check Your Progress

3.14 References

3.15 Suggested Readings

3.16 Terminal Questions

3.1 INTRODUCTION

This unit focuses on the key investment attributes that play a critical role in evaluating different types of investment opportunities. It introduces fundamental concepts such as risk, which refers to the variability in returns, and return, which measures the potential financial gains or losses over time.

Investment is the employment of funds with the aim of getting return on it. In general terms, investment means the use of money in the hope of making more money. In finance, investment means the purchase of a financial product or other item of value with an expectation of favourable future returns. Investment of hard earned money is a crucial activity of every human being. Investment is the commitment of funds which have been saved from current consumption with the hope that some benefits will be received in future. Thus, it is a reward for waiting for money.

3.2 OBJECTIVES

After studying this unit, you will be able to;

- Understand key investment attributes such as risk, return, liquidity, time horizon, and diversification, and their role in investment decision-making.
- Understand elements of investments.
- Apply investment attributes to make informed and strategic investment decisions.

3.3 MEANING OF INVESTMENT

Investment is the employment of funds with the aim of getting return on it. In general terms, investment means the use of money in the hope of making more money. In finance, investment means the purchase of a financial product or other item of value with an expectation of favourable future returns. Investment of hard-earned money is a crucial activity of every human being. Investment is the commitment of funds which have been saved from current consumption with the hope that some benefits will be received in future. Thus, it is a reward for waiting for money.

Savings of the people are invested in assets depending on their risk and return demands. Investment refers to the concept of deferred consumption, which involves purchasing an asset, giving a loan or keeping funds in a bank account with the aim of generating future returns. Various investment options are available, offering differing risk-reward trade-offs. An understanding of the core concepts and a thorough analysis of the options can help an investor create a portfolio that maximizes returns while minimizing risk exposure.

There are two concepts of Investment:

1) Economic Investment: The concept of economic investment means addition to the capital stock of the society. The capital stock of the society is the goods which are used in the production of other goods. The term investment implies the formation of new and productive capital in the form of new construction and producers durable instrument such as plant and machinery. Inventories and human capital are also included in this concept. Thus, an investment, in economic terms, means an increase in building, equipment, and inventory.

2) Financial Investment: This is an allocation of monetary resources to assets that are expected to yield some gain or return over a given period of time. It means an exchange of financial claims such as shares and bonds, real estate, etc. Financial investment involves contrasts written on pieces of paper such as shares and debentures.

People invest their funds in shares, debentures, fixed deposits, national saving certificates, life insurance policies; provident fund etc. in their view investment is a commitment of funds to derive future income in the form of interest, dividends, rent, premiums, pension benefits and the appreciation of the value of their principal capital. In primitive economies most investments are of the real variety whereas in a modern economy much investment is of the financial variety.

3.4 INVESTMENT AND SPECULATION

“Speculation is an activity, quite contrary to its literal meaning, in which a person assumes high risks, often without regard for the safety of their invested principal, to achieve large capital gains.” The time span in which the gain is sought to be made is usually very short. Investment involves putting money into an asset which is not necessarily marketable in order to enjoy a series of returns. The investor sacrifices some money today in anticipation of a financial return in future. He indulges in a bit of speculation. There is an element of speculation involved in all investment decisions.

However, it does not mean that all investments are speculative by nature. Genuine investments are carefully thought-out decisions. On the other hand, speculative investment, are not carefully thought-out decisions. They are based on tips, and rumours. Speculation has a special meaning when talking about money. The person who speculates is called a speculator.

A speculator does not buy goods to own them, but to sell them later. The reason is that speculator wants to profit from the changes of market prices. One tries to buy the goods when they are cheap and to sell them when they are expensive. Speculation includes the buying, holding, selling and short selling of stocks, bonds, commodities, currencies, real estate collectibles, derivatives or any valuable financial instrument. It is the opposite of buying because one wants to use them for daily life or to get income from them (as dividends or interest). Speculation should not be considered purely a form of gambling, as speculators do make an informed decision before choosing to acquire the additional risks.

Additionally, speculation cannot be categorized as a traditional investment because the acquired risk is higher than average. More sophisticated investors will also use a hedging strategy in combination with their speculative investment in order to limit potential losses.

Points Of Comparison	Investor	Speculator
Planning Horizon	Usually investors have longer investment horizon which leads to few years. Investors generally opt for longer investment horizon.	A Speculator has a very short planning horizon. His holding period normally extends from few days to few months.
Risk	An investor normally is willing to assume a reasonable & moderate level of risk and he is rarely ready to assume high level of risk.	Speculators, knowingly or unknowingly is ready to take very high level of risk. Generally he is ready to lose basic capital also.
Return Expectation	An investor usually seeks a reasonable rate of return at limited risk offered by the asset classes.	Speculator usually has a very high return expectation and for that he is ready to bear high risk also.
Basis of decisions	An investor focuses on fundamental aspects and evaluates the future prospects of the companies in which investment is made.	Speculator gives more importance to technical charts, news and sentiments of the market.
Leverage	Normally, investors invest only his own funds and avoids borrowed fund. Investors don't create leverage positions.	Speculators may invest borrowed funds and create leverage positions to make more money.

Fig 3.1 Aspects of Investment & Speculation

	INVESTMENT	SPECULATION
 TIME HORIZON	Long-term, saving for future	Generally a short timeline of less than one year
 LEVEL OF RISK	Moderate	High
 INVESTOR ATTITUDE	Cautious and conservative	Aggressive
 DECISION CRITERIA	Based on fundamental and basic factors	Based on technical charts, market psychology and individual opinion
 EXAMPLES	Stock market, bonds, mutual funds	Options, foreign currencies, cryptocurrencies

Fig 3.2 Comparison of Investment & Speculation

3.5 INVESTMENT ATTRIBUTES

Since there is much at stake in an investment decision, an investor should consider the basic attributes of investments when deciding on a suitable option. At least four investment attributes are integral to sound decisions in this sphere:

- **Safety:** Although the degree of risk varies across investment types, all investments bear risk. Therefore, it is important to determine how much risk is involved in an investment. The average performance of an investment normally provides a good indicator. However, past performance is merely a guide to future performance - not a guarantee. Some investments, like variable annuities, may have a safety net while others expose the investor to comprehensive losses in the event of failure. Investors should also consider whether they could manage the safety risk associated with an investment -financially and psychologically.
- **Rate of return:** Investments (growth options) generally provide higher rates of return compared to other asset classes - cash and income options. The rate of return compensates for the level of risk involved. Therefore, higher risk investments should necessarily bear higher rates of return to attract investors. It is important not to be preoccupied with the rate of return without assessing its relation to safety.

$$\text{Rate of Return} = \frac{\{\text{Annual Income} + (\text{Ending Price} - \text{Purchasing Price})\}}{\text{Purchasing Price}}$$

		Annual Income		(Ending Price – Purchasing Price)
Rate of Return	=	_____	+	_____
		Purchasing Price		Purchasing Price
		(Current Yield)		(Capital Gain or Loss)

Fig 3.3 Rate of Return

- **Liquidity:** A liquid investment is one you can easily convert to cash or cash equivalents. In other words, a liquid investment is tradable- there are ample buyers and sellers on the market for a liquid investment. An example of a liquid investment is currency trading. When you trade currencies, there is always

someone willing to buy when you want to sell and vice versa. With other investments, like stock options you may hold an illiquid asset at various points in your investment horizon.

- **Duration:** The duration of an investment-, particularly how long it may take to generate a healthy rate of return- is a vital consideration for an investor. The investment horizon should match the period that your funds must be invested for or how long it would take to generate a desired return.

3.4 ELEMENTS OF INVESTMENTS

The Elements of Investments are as follows:

- **Return:** Investors buy or sell financial instruments in order to earn return on them. The return on investment is the reward to the investors. The return includes both current income and capital gain or losses, which arises by the increase or decrease of the security price.
- **Risk:** Risk is the chance of loss due to variability of returns on an investment. In case of every investment, there is a chance of loss. It may be loss of interest, dividend or principal amount of investment. However, risk and return are inseparable. Return is a precise statistical term and it is measurable. But the risk is not precise statistical term. However, the risk can be quantified. The investment process should be considered in terms of both risk and return.
- **Time:** time is an important factor in investment. It offers several different courses of action. Time period depends on the attitude of the investor who follows a 'buy and hold' policy. As time moves on, analysis believes that conditions may change and investors may reevaluate expected returns and risk for each investment.
- **Liquidity:** Liquidity is also important factor to be considered while making an investment. Liquidity refers to the ability of an investment to be converted into cash as and when required. The investor wants his money back any time. Therefore, the investment should provide liquidity to the investor.
- **Tax Saving:** The investors should get the benefit of tax exemption from the investments. There are certain investments which provide tax exemption to the investor. The tax saving investments increases the return on investment. Therefore, the investors should also think of saving income tax and invest money in order to maximize the return on investment.



Check Your Progress-A

Q1. Multiple choice questions

- i) **The ability to quickly convert an investment into cash is known as:**
- Diversification
 - Time horizon
 - Return
 - Liquidity
- ii) **Which of the following is investment attribute?**
- Safety
 - Rate of return
 - Liquidity
 - All of the above
- iii) **Investments that have a higher potential for gain also typically have:**
- Lower risk
 - Higher risk
 - Faster liquidity
 - Longer time horizons
- iv) **Spreading investments across different types of assets to reduce overall risk is called:**
- Diversification
 - Liquidity
 - Time horizon
 - Return

3.5 CHARACTERISTICS OF BOND

- FACE/PAR VALUE**

The first characteristic of a bond is its face, or par value. This represents the amount of principal that a bondholder will receive at maturity, and is also the value that that a bond is issued for at the time that a company or government first sells them. The majority of corporate bonds today carry a face value of \$1,000, but may vary by issuer. Government bonds are often sold with higher face values, some of which can be as high

as a hundred thousand or even a million dollars. The face value of a bond should not be confused with the price of a bond observed in the market – the face value is always a given amount, while the price of a bond will fluctuate over time. When the observed market price of a bond is lower than the stated face value, it is said to be trading at a discount, and when the market price is higher than par it trades at a premium.

- **COUPON/YIELD**

The coupon or yield of a bond is the interest rate the issuer agrees to pay its bondholders. Interest payments on corporate bonds are typically paid semi-annually but may also be paid annually or quarterly. Some bonds do not pay a coupon at all (zero-coupon bonds), but are instead sold at an initial discount to be repaid at the full face value at maturity, which has the same net effect as paying interest on a bond sold at face value. The yield is expressed at a percentage of the face value, so a yield of 10% on a \$1,000 bond would imply an annual payment of \$100 in interest. If the interest rate paid on a bond remains the same for the life of the security it is a fixed rate, while if it floats and changes over time it is referred to as adjustable or variable rate. Variable rates are typically pegged as a spread above some other benchmark rate such as that paid on 10-year government bonds or the LIBOR rate.

The yield of a bond is determined by a number of factors. First, the prevailing interest rate environment, second inflation expectations, and third the chances of being repaid or not. The greater the risk of *not* being repaid, the higher the yield on the bond. A bond with a shorter maturity is more predictable, therefore than a bond with a long maturity – and therefore a bond with a longer maturity will carry a higher interest rate. A company on an insecure financial footing will also carry a higher interest rate on its bonds since it may be more likely to default than a solid, blue chip company.

MATURITY

The maturity is the date at which the bond's principal comes due and must be repaid to lenders in full. Maturities for corporate bonds are typically in the range of one to five years, with some bonds maturing in 10 or even 30 years. Occasionally, a company will issue a so-called century bond that matures in 100 years. Government bonds can be short term (a few months) to many years (10 or 30 years). The bond maturity is decided by the issuer, and influences the bond's yield – the longer the time to maturity, the more chances that a company has to fail to repay, and therefore the higher the yield that it must carry.

- **ISSUER**

The type and quality of the bond issuer is also an important characteristic of a bond, as the issuer's stability is your main assurance of getting paid back in full. For example, the U.S. government is far more secure than any one corporation. Its default risk (the chance of the debt not being paid back) is extremely small - so small that U.S. government securities are often referred to as risk-free assets. The reason behind this is that a government will always be able to bring in future revenue to pay its debts through

taxation. A company, on the other hand, must continue to make profits, which are far from guaranteed. This added risk means corporate bonds must offer a higher yield in order to entice investors - this is the risk/return trade off in action, sometimes known as the “yield spread” between corporate and government bonds.

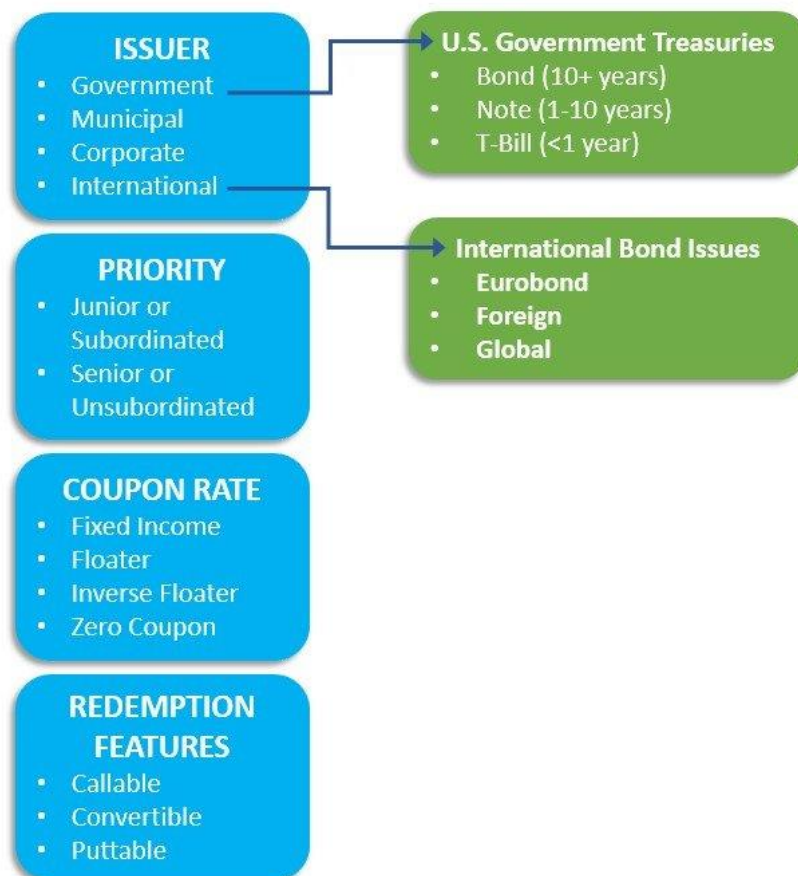


Fig 3.4 Characteristics of Bond

3.6 INTRODUCTION TO THE FINANCIAL MARKETS

Financial markets are those centres and arrangements that make it possible to buy and sell financial assets. In other words simple words, they facilitate

the process of buying and selling:

- Financial Assets
- Claims
- Services

Sometimes, it is possible to come across the existence of a financial market with a physical location. An example of such a physically existing financial market is the Stock Exchange.

3.7 CLASSIFICATION OF FINANCIAL MARKETS

There are 2 broad classifications of financial markets:

- (a) the organized markets and
- (b) the unorganized market. Furthermore, these 2 broad categories are further sub-classified into various heads.

Read further to gain absolute in-depth knowledge of the various kinds/ classifications of financial markets.

I. ORGANIZED MARKET

The organized market consists of standard rules and regulations which govern the functioning of financial dealings. Moreover, the financial organizations which follow the rules and regulations of apex institutions while dealing with their financial functions belong to the organized financial market. Therefore, there is a high degree of institutionalization and instrumentalization. Moreover, these markets are often also subject to high supervision and strict control of the RBI or any other regulatory body.

They are further subclassified into capital market and money market.

1. Capital Market

The capital market is a market that deals with financial assets. These financial assets have a long maturity period or an indefinite maturity period. Moreover, the capital market deals with any long-term securities which have a maturity period of above one year. In simple words, the capital market is a financial market that deals with:

- Financial assets with long or indefinite maturity period; and
- Long-term (wherein the maturity period is beyond 1 year) securities

Furthermore, the capital market is further sub-classified into 3 broad categories Industrial securities market, government securities market and long-term loans market.

(a) Industrial securities market

(i) **Primary Market** –is also another name for ‘new issue market’ or ‘new financial claims’. The primary market or the new issues market deals with those financial securities that are It is a market for industrial securities only. It deals with industrial securities like equity shares, preference shares, debentures, bonds, etc. Moreover, it is a market where industrial organizations raise their capital by issuing investment instruments to the public.

Furthermore, this market is of 2 types, primary market and secondary market.

issued to the investing public for the first time. Moreover, the borrowers in the primary market exchange new financial securities for long-term funds. And thus primary market helps in the formation of capital.

There are 3 ways in which the company can raise capital in the new issues market. The company can either choose the public issue, the rights issue or the private placements. In addition, *the public issue* is common when new companies want to raise capital for the first time. However, if an existing company wants to raise further capital, it first offers to the existing shareholders. This is *the rights issue*. Finally, *private placements* are the way of selling securities privately to small groups of investors.

(ii) Secondary Market –is also another name for the stock exchange. The secondary market is a market for the secondary sale of securities. In simple words, securities which were already a part of the primary market are a part of this market. However, the secondary market facilitates the buying and selling of secondary securities. Moreover, these securities are often a part of the stock exchange trades. This market provides for a continuous and regular market for the buying and selling of secondary securities.

b. Government securities market

This securities market indulges in the trading of government securities. Moreover, there are 2 types of government securities: long-term and short-term. Therefore, the long-term government securities are a part of the capital market and the short-term government securities are a part of the money market. Some examples of government securities that are a part of this market are securities issued by the:

- Central government
- State government
- Port trust
- Semi-government authorities

Furthermore, these government securities may be in the form of:

- Promissory note
- Stock certificates
- Bearer bonds

c. Long-term loans market

In this market, development banks and commercial banks play a major role in supplying loans. These banks comprise the long-term loans market wherein they lend long-term loans to corporate. They are further classified into 3 types.

(i) Term Loan Market – is responsible for providing term loans to corporate customers either directly or indirectly. Furthermore, they either provide long-term loans or medium-term loans to the customers.

(ii) A market for Mortgages – is a market that supplies mortgage loans mainly to only individual customers. However, such a loan is often given against the security of an immovable property.

(iii) A market for Financial Guarantees – is a market where finances are provided with the guarantee of a reputed person.

2. Money Market

The money market is a market that deals with financial assets. These financial assets have a short maturity period or a definite maturity period. Moreover, the money market deals with any short-term securities which have a maturity period of under one year. In simple words, the money market is a financial market that deals with:

- financial assets with short or definite maturity period; and
- short-term (wherein the maturity period is below 1 year) securities

Furthermore, the capital market is further sub-classified into 4 broad categories.

a. Call money market – is a market for extremely short period loans. These loans mature within 1 to 14 days. Therefore, they are highly liquid in nature. Moreover, these loans are repayable on demand, either at the option of the lender or the borrower.

b. Commercial bill market – is a market for bills of exchange arising out of trade transactions that are genuine in nature. However, the bill market is underdeveloped in India. Although the RBI is taking many steps to develop a proper bill market, it seems to be difficult to establish one in India.

c. Treasury bill market – is a market for treasury bills which has a very short-term maturity period. In addition, a treasury bill is a promissory note that is issued by the Government. However, there are 2 types of treasury bills: (i) the ordinary and (ii) the ad hoc treasury bills.

d. Short-term loan market – is a market where short-term loans are provided to corporate customers. Because these loans facilitate the meeting of the firm's working capital requirements.

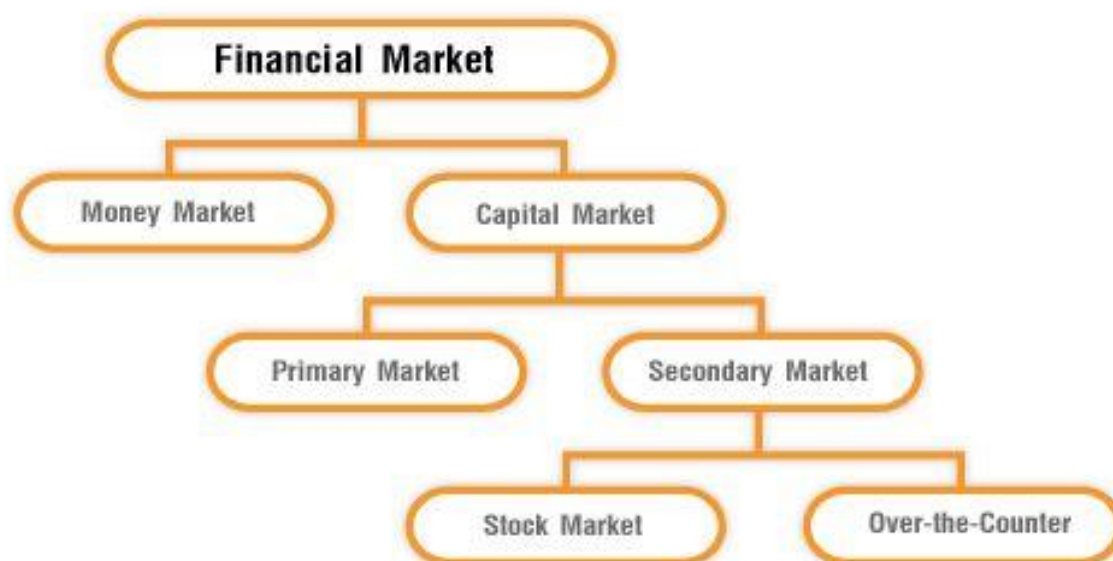


Fig 3.4 Classification of Financial Market

II. UNORGANIZED MARKET

There are many money lenders and indigenous bankers who lend money to the public. These money lenders do not fall under the supervision of any specific apex institute. And hence, they do not have to follow strict principles, rules and regulations. Many private finance companies and chit funds do not fall under the control of the RBI. Such institutions comprise of the unorganized financial markets.

3.8 SUMMARY

Investment is employment of funds for achieving additional income and growth in value. Further, Investment must be distinguished from speculation and gambling in terms of time horizon, risk, return and decision-making process. Investment is usually planned whereas speculation and gambling depend on immediate decisions with also the element of 'luck'. Investments are transfers of financial assets from one person to another. They range from low risk to high risk. Also, Investments are usually long-term and low risk. Speculation is high risk and high return and for short-term period of time. Moreover, Investments may be financial claims or real and tangible assets like land and buildings, plant and machinery, gold, antiques, etc. Also to remember that Investment may be direct and indirect securities like shares and debentures. Investments in provident funds, pension funds and mutual funds are forms of indirect investments. An investment

programme should consist of safety of the principal amount, liquidity, income and purchasing power stability and appreciation. The investment process consists of four stages. These are investment policy, investment analysis, valuation of securities, and portfolio construction and review.



3.9 GLOSSARY

Ability: The physical or mental power or skill needed to do something.

Activity: The situation in which a lot of things are happening or people are moving around.

Assess: To judge or decide the amount, value, quality, or importance of something.

Asset: Something valuable belonging to a person or organization that can be used for the payment of debts.

Attributes: A quality or characteristic that someone or something has.

Bearer: The person who owns an official document or banknote.

Borrower: A person or organization that borrows something, especially money from a bank.

Capital: The most important place for a particular business or activity.

Characteristics: A typical or noticeable quality of someone or something.

Claim: To say that something is true or is a fact, although you cannot prove it and other people might not believe it.

Continuous: Without a pause or interruption.

Contrary: Used to show that you think or feel the opposite of what has just been stated.

Corporate: of or shared by a whole group and not just of a single member.

Currency: The money that is used in a particular country at a particular time.

Duration: The length of time that something lasts.

Economy: The system of trade and industry by which the wealth of a country is made and used.

Element: A part of something.

Exchange: The act of giving something to someone and them giving you something else.

Financial: Relating to money or how money is managed.

Guarantee: A promise that something will be done or will happen, especially a written promise by a company to repair or change a product that develops a fault within a particular period of time.

Indefinite: Not exact, not clear, or without clear limits.

Industrial: In or related to industry, or having a lot of industry and factories, etc.

Investment: The act of putting money, effort, time, etc. into something to make a profit or get an advantage, or the money, effort, time, etc. used to do this.

Investor: A person who puts money into something in order to make a profit or get an advantage.

Liquidity: Money, rather than investments or property, or assets that can be changed into money easily.

Literal: A literal translation of a text is done by translating each word separately, without looking at how the words are used together in a phrase or sentence.

Market: The business or trade in a particular product, including financial products.

Mortgage: An agreement that allows you to borrow money from a bank or similar organization, especially in order to buy a house, or the amount of money itself.

Occasionally: Sometimes but not often.

Option: One thing that can be chosen from a set of possibilities, or the freedom to make a choice.

Organized: Arranged according to a particular system.

Placement: The act of finding the right place for something.

Policy: A set of ideas or a plan of what to do in particular situations that has been agreed to officially by a group of people, a business organization, a government, or a political party.

Predictable: Something that is predictable happens in a way or at a time that you know about before it happens.

Primary: More important than anything else; main.

Principal: First in order of importance.

Prevailing: Existing in a particular place or at a particular time.

Process: A series of actions that you take in order to achieve a result.

Provident: Making arrangements for future needs, especially by saving money.

Purchase: to buy something.

Repay: to pay back or to reward someone or something.

Responsible: to have control and authority over something or someone and the duty of taking care of it, him, or her.

Return: to come or go back to a previous place.

Re-evaluate: to consider or examine something again in order to make changes or to form a new opinion about it.

Security: protection of a person, building, organization, or country against threats such as crime or attacks by foreign countries.

Service: a government system or private organization that is responsible for a particular type of activity, or for providing a particular thing that people need.

Speculation: the activity of guessing possible answers to a question without having enough information to be certain.

Stock: the total amount of goods or the amount of a particular type of goods available in a shop.

Supply: to provide something that is wanted or needed, often in large quantities and over a long period of time.

Trade: the activity of buying and selling, or exchanging, goods and/or services between people or countries.



3.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

- Q1.**
- i. d) Liquidity
 - ii. d) All of the above
 - iii. b) Higher risk
 - iv. a) Diversification



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3.12 SUGGESTED READINGS

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3.13 TERMINAL QUESTIONS

1. Explain the meaning and concept of investment.
2. Elucidate the types of financial markets.
3. List the characteristics of bond.
4. What are investment attributes? Enlist them.
5. What are the elements of investment?
6. Compare investment and speculation.

UNIT 4 SECURITIES MARKET

- 4.1 Introduction**
- 4.2 Objectives**
- 4.3 Meaning of Securities Market**
- 4.4 Role of Securities Market**
- 4.5 Participants of Securities Market**
- 4.6 Regulatory Framework**
- 4.7 Structure of Securities Market**
- 4.8 Role of NSE and BSE in Securities Market**
- 4.9 Summary**
- 4.10 Glossary**
- 4.11 References**
- 4.12 Terminal & Model Questions**

4.1 INTRODUCTION

In the previous units you have learned about the different investments instruments available and the attributes they possess. They have two broad categories – Financial assets and Real assets. Financial assets are equity shares, corporate bonds, government securities, mutual funds schemes, derivative instruments, deposits with bank, insurance policies. Real estate and precious goods are the tangible assets like residential house, commercial property, agriculture farm, gold and precious stones. By the time as the economy advances the importance of financial assets tends to increase. Of course both of these investments alternatives are complementary and not the competitive. The present unit will give you an overview of Indian Securities Market and its role in the economic development, participants in the security market and the different regulatory bodies regulating the functioning of the securities market. The structure of Indian securities market is discussed in detail in this unit which enables the learners to understand the various processes involved in the primary and secondary market, position of debt and

derivative market in the Indian economy and the role of NSE and BSE in the security market.

4.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the meaning and role of securities market.
- Know about the different participants in the securities market and their functions.
- Find out the Regulatory Authorities of the securities market
- Describe the structure of securities market
- Know about the role of NSE and BSE in the securities market

4.3 MEANING OF SECURITIES MARKET

Securities market is a broad term encompasses number of markets in which securities are bought and sold. The one of the classification of the securities market is based upon the whether the securities are new issues or already outstanding and owned by investors. New issues are made available in the primary market, and the securities that are already outstanding and owned are generally bought and sold in the secondary market. Another classification of securities market is based upon the maturity period. Securities whose maturity period is one or less than one year is normally trade in the money market and the securities whose maturity period is more than one year is traded in the capital market. Securities market is of advantage to both issuer and investor. As to the benefit to the issuers the securities market assists the Government and business houses to raise funds easily to meet their capital needs and to the investors the market provide an avenue to channelize their idle funds for the productive purpose and liquidity is also ensured to them as they can easily resell their securities at known price in the secondary market.

4.4 ROLE OF SECURITIES MARKET

The following narrates the role of securities market;

1. Security market provides a channel to transfer funds from those who have funds and wants to use their funds for productive purpose to those who needs funds for the growth of the industry and ultimately for the growth of the economy.
2. It helps companies to raise funds easily and use those funds for the further extension and development of the companies.

3. It allows individuals to mobilize their savings into productive purpose. For e.g. consider the setting up of a large steel plant that is expected to generate jobs and growth for the coming years. An individual or a single household would not be able to set up the plant, but a company that issues securities to raise funds from many investors would be able to do so. By investing in the plant, investors would benefit from the growth and revenue created by it.
4. Securities are liquid assets which mean they can be easily converted into cash by selling them in the market at any given point of time. This enables investors to buy and sell the securities at any time as they require and thus earn profits due to price fluctuations of securities. For e.g. suppose an investor has purchased 100 shares of ABC Ltd. at Rs.30 per share. After one year the price of the share is quoting at Rs.50 in the market. The investor can opt to sell his shares and earn a profit of 2000 from the sale.
5. The prices of securities in secondary market are the barometer of the performance of the company. Just by looking at the prices of securities and comparing it with its past prices or by comparing the prices of the securities of companies from the same industry investors can easily take their investment decision i.e. whether it is worth to invest in that company or not.

4.5 PARTICIPANTS OF SECURITIES MARKETS

The four important elements of security market are Investors, Issuers, Intermediaries and regulators.

1. Investor– Investors are the backbone of the securities market of any economy as they are the ones who lend their surplus resources for funding the setting up or expansion of companies in return of financial gain i.e. interest, dividend, capital appreciation, bonus etc. Investors are of two types mainly, retail and institutional investors.

- Retail investors are individuals that invest small sums of money. ex: salaried employees.
- Institutional investors are institutions that invest large amount of money and have specialized knowledge. e.g.: banks, companies, government organisations etc.

2. Issuers– Issuers are the government or the corporate sector that issue securities and raise funds in order to meet their capital requirements. Securities are issued by taking into consideration the returns to be provided in exchange of using investor's funds. The following are common issuers in securities markets:

- Companies issue securities to raise short term and long term capital for conducting their business operations, expansion or diversification.
- Financial institutions and banks issue securities for excess capital needs that are not met by deposits or government grants.

- Public sector companies owned by government may issue securities in order to increase the holding of public investors in the company.
- Mutual Funds issue units of security to the group of people and invest their money in equity, preference shares and also in the money market.

3. Intermediaries– The third critical element of the market is the intermediaries who act as conduits between the investors and issuers. Intermediaries in the securities markets are agents responsible for coordinating between investors (lenders) and issuers (borrowers), and organizing the transfer of funds between them. They are a link between the investors and issuers and help carry out transactions easily. Some of the intermediaries in the securities markets are listed below:

- Asset management companies
- Portfolio managers
- Merchant bankers
- Underwriters
- Stock brokers
- Sub-brokers
- Clearing member of a clearing corporation or house
- Trading members of the derivative segment of a stock exchange
- Bankers to an issue
- Registrars of an issue
- Share transfer agents
- Depository participants
- Custodians of securities
- Trustees of trust deeds
- Credit rating agencies
- Investment advisers

4 Regulators- Regulatory bodies regulate the functioning of the securities market, is another important element of the securities market. The regulators ensure that the market participants behave in a desired manner so that the securities market continues to be a major source of finance for corporate and government and interest of investors are protected. The regulators develop reasonable market practices and regulate the conduct of issuers of securities and the intermediaries. They are also in charge of protecting the interests of the investors and also ensure that a high service standard from the intermediaries and supply of quality securities and non-manipulated demand for them in the market.

4.6 REGULATORY FRAMEWORK

At present, the five main Acts governing the securities markets are (a) the SEBI Act, 1992; which is the supervisory and regulatory authority for the stock and capital market. (b) the Companies Act, 1956, which regulates the activities of the companies from birth to death and sets the code of conduct for the corporate sector in relation to issuance, allotment and transfer of securities, and disclosures to be made in public issues; (c) the Securities Contracts (Regulation) Act, 1956, which provides for regulation of transactions in securities through control over the recognized stock exchanges (d) the Depositories Act, 1996 which provides for electronic maintenance and transfer of ownership of demat shares and (e) Prevention of Money Laundering Act, 2002.

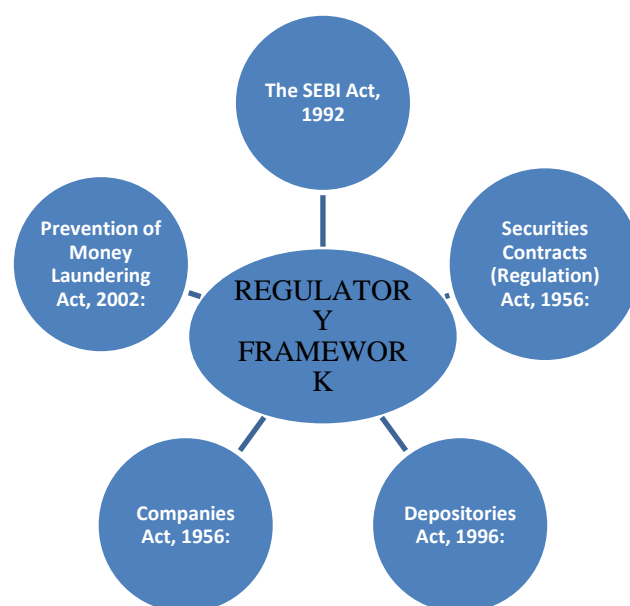


Fig-4.1

4.6.1 Legislation

The SEBI Act, 1992:

The SEBI Act, 1992 which established SEBI and empower it with statutory powers for (a) protecting the interests of investors (b) promoting the development of the securities market, and (c) regulating the securities market. Its regulatory jurisdiction extends over corporates in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with the securities market. It can conduct enquiries, audits, and inspection of all concerned, and adjudicate offences under the Act. It has the powers to register and regulate all market intermediaries, as well as to penalize them in case of violations of the provisions of the Act, Rules, and Regulations made there under. SEBI has full autonomy and the authority to regulate and develop an orderly securities market.

Securities Contracts (Regulation) Act, 1956:

Securities Contracts (Regulation) Act, 1956 an act was enacted in order to prevent undesirable transactions in the securities and to regulate the working of stock exchanges in the country. It gives the Central Government regulatory jurisdiction over (a) stock exchanges through the process of their recognition and continued supervision, (b) dealing in securities, and (c) the listing requirements of securities on the stock exchanges. As a condition of recognition, a stock exchange complies with the conditions prescribed by the Central Government. Organized trading activity in securities takes place on a specified recognized stock exchange. The stock exchanges determine their own listing regulations, which have to conform to the minimum listing criteria set out in the Rules.

Depositories Act, 1996:

The Depositories Act, 1996 provides for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed, accuracy, and security by (a) making securities of public limited companies freely transferable, subject to certain exceptions; (b) dematerializing the securities in the depository mode; and (c) providing for the maintenance of ownership records in a book entry form. In order to streamline the settlement process, the Act envisages the transfer of ownership of securities electronically by book entry, without making the securities move from person to person. The Act has made the securities of all public limited companies freely transferable, restricting the company's right to use discretion in effecting the transfer of securities, and the transfer deed and other procedural requirements under the Companies Act have been dispensed with.

Companies Act, 1956:

It deals with the issue, allotment, and transfer of securities, as well as various aspects relating to company management. It provides the standard of disclosure in public issues of capital, particularly in the fields of company management and projects, information about other listed companies under the same management, and the management's perception of risk factors. It also regulates underwriting, the use of premium and discounts on issues, rights, and bonus issues, the payment of interest and dividends, the supply of annual reports, and other information.

Prevention of Money Laundering Act, 2002:

The primary objective of this Act is to prevent money laundering, and to allow the confiscation of property derived from money laundering. According to the definition of "money laundering," anyone who acquires, owns, possess, or transfers any proceeds of crime, or knowingly enters into any transaction that is related to the proceeds of crime either directly or indirectly, or conceals or aids in the concealment of the proceeds or gains of crime within India or outside India commits the offence of money laundering. Besides prescribing the punishment for this offence, the Act provides other measures for the prevention of money laundering. The Act also casts an obligation on the intermediaries, the banking companies, etc. to furnish information of such prescribed

transactions to the Financial Intelligence Unit-India, to appoint a principal officer, to maintain certain records, etc.



Check Your Progress-A

Q1. What is security market?

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Q2. What is the role of securities market?

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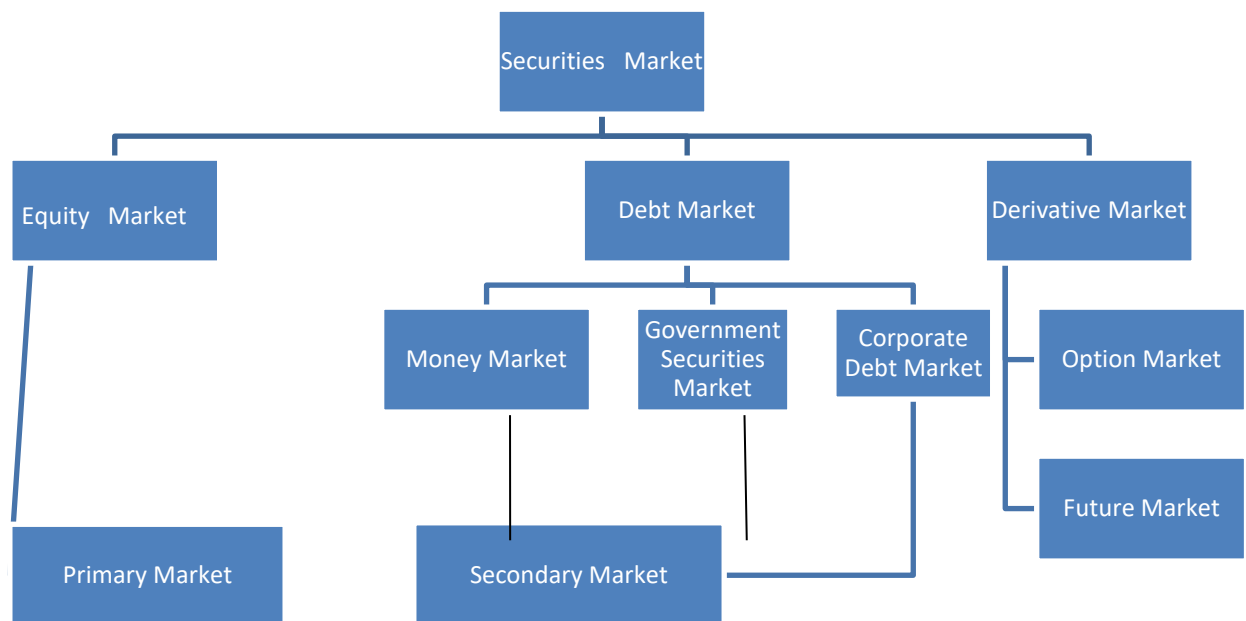
Q3. Who are the issuers in Indian Securities Market?

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Q4. Explain briefly the regulatory framework of securities market.

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4.7 STRUCTURE OF SECURITIES MARKET



Security Market is a market of Equity Market, Debt Market and Derivative Market. Debt market is further divided in to three parts i.e. Money Market, Government Securities Market and Corporate Debt Market. The derivatives market in turn divided in to two parts i.e. Option Market and the Future Market. Except the derivatives market Equity market and Debt Market has two components – Primary Market and Secondary Market. Primary market deals with the new securities, that is, securities which are not previously available and offered to the investors first time. These securities are first time offered to the investors or funds are mobilized through the public issues of prospectus, private placement, right issues and preferential issues. Whereas secondary market is a market in which, existing securities are resold and bought among investors or traders usually on a stock exchange, over the counter or elsewhere. Primary market creates the financial assets and secondary market makes them marketable.

Equity Market

Equity market is also called share market or stock market, is a market where the shares of companies or entities are issued and traded either through the exchanges or through

the brokers. The shares are first issued to the public for subscription in the primary market or 'New Issue Market' and issued shares are further traded by the investors in the secondary market. Primary market and secondary market are discussed in detail in this unit. Equity shares are the main source of long term capital of the company and they represent the real ownership of a company. The holders of the equity shares have voting rights and they participate in the important decision of the company.

Equity Market in India: The Indian Equity Market is popularly known as the Indian stock market. The Indian equity market is the third biggest market after China and Hong Kong in the Asian region.

Ways to issue equity capital in Primary Market

There are three ways by which company can raise capital in the primary market

- Public Issue
- Right issue
- Private Placement

Public Issues

Public issue means an Initial Public offer (IPO) or further public offer (FPO).

Initial Public Offering (IPO)

An Initial Public Offering (IPO) is an offering when an unlisted company makes either a fresh issue of securities (i.e. equity shares and convertible securities) or an offer for sale of its existing securities or both for the first time to the public. A convertible security means a security which is convertible into/ exchangeable with equity shares of the issuer at a later date with / without the option of the holder and it includes the convertible debt instruments and convertible preference share.

Further Public offering (FPO)

An FPO is made when an already listed company makes either a fresh issue of securities to the public or an offer for sale to the public, through an offer document. FPO is also known as subsequent or seasoned public offerings. SEBI Guidelines defines listed company as a company which has any of its securities offered through an offer document listed on a recognized stock exchange and also includes the public limited companies whose securities are listed on the recognized stock exchange. Listed companies' issues FPO for their growth and diversification plans.

Rights Issue

Right issue is the issue of new securities in which the existing shareholders are given the pre-emptive rights to subscribe to the new issue on a pro-rata basis. In the right issues existing shareholders have given the rights to subscribe to a proportionate number of fresh, extra shares at a pre-determined price. Generally companies offer right shares to expand, diversify or restructure their balance sheet. Right shares are offered to the existing shareholders at a discount to the market price due to a variety of reasons. Firstly, they want their issue fully subscribed. Secondly, to reward their existing shareholders. Thirdly, to hike their stake in their companies, thus, avoiding the preferential allotment route which is subject to lot of restrictions. Funds raised through this route did not affect the stake of both its existing shareholders and promoters.

Private Placement

In case of private placement securities are directly offer to the small numbers of investors through merchant bankers. These investors are the selected clients such as financial institutions, banks, corporates and high net worth individuals. Company law defines a privately placed issue to be the one seeking subscription from 50 members. In private placement no prospectus is issued. Funds raised through the private placement route offers several advantages to the issue company. The time taken and cost of raising funds through this route is very less as compared to the public issues and right issues. Private placement route is more flexible than other routes as such it does not require the detailed compliance of formalities, rating, and disclosure norms. Because of these advantages this route of raising finance is more popular in USA where generally, debt instruments are privately placed. In India this route is gaining momentum during last few years, in view of the prolonged subdued conditions in the new issue market. In terms of instruments, debt instruments, mainly bonds and debentures are preferred the most and equity portion is raised through the preference shares. The major issuers of these securities are financial institutions, banks, and central and state level undertakings. The subscribers of the securities are banks, mutual funds, provident fund and high net worth individuals.

Secondary Market

The secondary market –also referred to as stock market, where existing listed securities are traded. The primary market provides the channel for creation and sale of new securities, while secondary market deals in securities previously issued. In India the secondary market consists of recognized stock exchanges operating under the rules and regulations approved by the government. These stock exchanges are organized market where securities issued by state and central governments, public bodies and joint stock companies are traded. A stock exchange is defined under Section 2(3) of the Securities Contract (Regulation) Act, 1956, ‘ as anybody of individuals whether incorporated or not

, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities’.

Development of the Stock Market in India

The stock market in India came into existence at the end of the eighteenth century when long term negotiable instruments were first issued. The enactment of companies Act in 1850 which introduced the feature of limited liability, arouse the interest of investors in corporate securities. The first organised stock exchange formed in India was Bombay (now Mumbai) stock exchange started in 1875 and it stated to be the oldest in Asia. This was followed by the formation of the Ahmadabad stock exchange in the 1894 to facilitate dealings in the shares of textile mills established there. The Calcutta (now Kolkata) stock exchange was started in 1908 to provide the market for shares of Plantations and Jute mills. Then the Madras (now Chennai) was started in 1937. In order to promote the orderly development of the stock market, the government of India introduced a comprehensive legislation called the Securities Contract (Regulation) Act, 1956.

Till 1960, Calcutta stock exchange (CSE) was the largest stock exchange in India. In 1961, there were 1203 listed companies across the various stock exchanges of India. Of these, 576 were listed on the CSE, 297 listed on the BSE and rest on the other stock exchanges. During the later half of 1960 the relative importance of CSE declined while that of the BSE increased sharply.

Till the early 1990, the Indian stock market comprised regional stock exchanges with the BSE heading the list.

Post-Reforms Market Scenario

After the initiations of reforms in 1991, the Indian secondary market now has a four-tier form as follows.

- Regional Stock Exchanges
- The National Stock Exchanges (BSE and NSE)
- The Over the Counter Exchange of India (OTCEI)
- The Inter-Connected Stock Exchange of India (ISE)

There were 15 regional stock exchanges in India. The NSE came into existence in 1992 with the best global practices. The OTCEI was set up in 1992 as a stock exchange, providing small and medium sized companies the means to raise capital. ISE is the stock exchange of stock exchanges. The ISE commenced its trading operations in February 26, 1999.

As per the SEBI’s circular issued in 2008 the stock exchanges whose trading volume was less than Rs 1000 crore annually for two years they have to follow the exit route. So as of

now (Aug 2017) there are only 6 recognized stock exchanges in India. The list is given below.

List of Recognized Stock Exchanges

Sr. No.	Name	Valid Upto
1	Ahmedabad Stock Exchange Ltd.	PERMANENT
2	BSE Ltd.	PERMANENT
3	Calcutta Stock Exchange Ltd.	PERMANENT
4	Magadh Stock Exchange Ltd.	PERMANENT
5	Metropolitan Stock Exchange of India Ltd.	Sep 15, 2017
6	National Stock Exchange of India Ltd.	PERMANENT

Debt Market

Debt market refers to the securities market where investors buy and sell debt securities, mostly in the form of bonds. These markets are important sources of funds, especially in a developing economy like India's. India's debt market is one of the largest markets in Asia. The total size of the Indian debt market is currently estimated to be in the range of USD 150 billion to 200 billion. India's debt market accounts for approximately 30 percent of its GDP. The Indian debt market in terms of volume is larger than the equity market.

The most distinguishing features of the debt market instruments of Indian debt market are that the return is fixed. This means, returns are almost risk-free. This fixed return on the bond is often termed as the 'coupon rate' or the 'interest rate'. Therefore the buyer (of bond) is giving the seller a loan at a fixed interest rate, which equals the coupon rate.

Classification of Indian Debt Market

Indian debt market can be classified into following categories:

- Government Securities Market (G-Sec Market): The government securities market is at the core of financial markets. Activity in the government securities market

can affect the overall investment in the economy. It consists of central and state government securities. It means that loans are being taken by the central and state governments. The government securities market accounts for more than 90 percent of the turnover in the debt market. It constitutes the principal segment of the debt market.

- **Bond Market:** It consists of financial institutions bonds, corporate bonds and debentures and public sector units bonds. These bonds are issued to meet financial requirements at a fixed cost, and hence, remove uncertainty in financial costs. The Indian bond market, measured by the estimated value of the bonds outstanding, is next only to the Japanese and Korean bond markets in Asia.
- **Money Market:** While the G-Secs market generally caters to the investors with a long term investment horizon, the money market provides investment avenues of short term tenor. There are large numbers of participants in the money market: commercial banks, mutual funds, investment institutions, financial institutions and finally the Reserve bank of India. The Central bank occupies a strategic position in the money market. The money market can obtain funds from the central bank either by borrowing or through sale of securities. In addition, the money market is a wholesale market. The volumes are very large and generally transactions are settled on a daily basis. Trading in the money market is conducted over the telephone followed by written confirmation from both the borrowers and lenders.

Different types of Debt Instruments

The NSE Wholesale Debt Market Segment (WDM) has emerged as an active platform for trading in debt instruments. BSE also started trading in debt instruments. The different types of debt instruments available in the Indian debt market are the following.

Government Securities: It is the Reserve Bank of India that issues Government Securities or G-Secs on behalf of the Government of India. These securities have a maturity period of 1 to 30 years. G-Secs offer a fixed interest rate, where interests are paid semi-annually. As government security is a claim on the Government, it is an absolutely secured financial instrument which guarantees the certainty of both income and capital. It is, therefore, also called a 'gilt-edged' (which means of the best quality) security or stock.

Corporate Bonds: These bonds come from PSUs and Private corporations and are offered for an extensive range of tenure up to 15 years. Compared to government securities corporate bonds carry higher risk, which depend upon the corporation, the industry where the corporation is currently operating, the current market conditions, and the rating of the corporation. However, these bonds also give the higher returns than the G-Secs.

Certificate of Deposits: Certificates of deposits are being issued in India since 1989, by banks, either directly to the investors or through the dealers. CDs are documents of title

to time deposits with banks. They are interest bearing, maturity dated obligations of banks and are technically a part of bank deposits. They represent bank deposit accounts which are transferable. CDs are marketable or negotiable money market instruments in bearer form and are known as Negotiable Certificates of Deposit. Banks can issue CDs with maturity period of not less than 7 days and not more than one year, from the date of issue.

Commercial Papers: Commercial papers were introduced in January 1990, to enable highly-rated corporate borrowers to diversify their sources of short term borrowings and also provide an additional instrument to the investor. It is an unsecured money market instrument issued in the form of promissory note. These are issued with the maturity of 7 to 365 days. CPs are issued by corporate entities at a discount on face value.

Zero Coupon Bonds (ZCB): ZCBs are available at a discount on their face value. There is no interest paid on these instruments but on maturity the face value is redeemed from the RBI. A bond of face value 100 will be available at a discount say at Rs.80 and the date of maturity is after two years. This implies an interest rate on the instrument. When the bonds are redeemed, Rs 100 will be paid. The securities do not carry any coupon or interest rate that is unlike dated securities no interest is paid out every year.

Convertible Bond: In a convertible bond the holder of the bonds have the option to convert the bond into equity at a fixed conversion price.

Primary and Secondary Segments of the Debt Market

In the primary segment, new debt issues are floated either through public prospectus, right issue, or private placement. The private placement market is more attractive because the cost of raising a loan is only half of that of raising loans from the market. Under the current guidelines, corporates are required to report details of resources raised through private placements to the stock exchanges- BSE and NSE. This was aimed at giving investors a good idea of how the companies propose to use these funds and also gauge the risk return allowed. In mid-2006, the US private placement market was opened up for Indian Companies. Reliance Industries Limited was the first Indian companies which tap the US private placement market and raised \$300 million through a 10-12 year loan.

The debt instruments are traded on the OTCEI, the BSE, and the WDM segment of the NSE. The BSE is the first exchange in the country to provide an electronic trading platform for corporate and other non-government debt securities through the order-matching system. The clearing and settlement of the trades is undertaken through the clearing house of the exchange. The National Stock Exchange of India Ltd. set up a separate segment for trading in debt securities known as the Wholesale debt market segment of the exchange in June 1994. Prior to this separate segment of NSE, the only trading mechanism available in the debt market was the telephone. The NSE provided, for the first time in the country, an online, automated, screen-based system known as

NEAT (National Exchange for Automated Trading) across a wide range of debt instruments. NEAT supports an anonymous order-driven market and also provides on-line market information system.

Initially, government securities, T-bills, and bonds issued by public sector undertakings were made available for trading. Now this range has been widened to include non-traditional instruments, such as floating rate bonds, zero coupon bonds, index bonds, commercial papers, certificates of deposit, corporate debentures, state government loans, SLR and non-SLR bonds issued by financial institutions and local bodies, units of mutual funds and securitized debt.

Derivatives Market

The derivative is a financial instrument whose value is derived from the value of one or more underlying assets which can be commodities, interest rates, precious metals, currency, bonds, stocks, indices etc. The word 'derivative' comes from the verb 'to derive'. It indicates that it has no independent value. The emergence of the market for derivatives contracts originates from the desire of risk-averse economic units to guard themselves against uncertainties arising out of the fluctuations in assets price. Most common derivative instruments are Forwards, Futures, Options and Swaps. A derivative is a contract between two or more parties whose value is based on an agreed upon underlying financial asset, index or security. Derivatives are used for speculations and hedging purpose. Speculators seek to profit from changing prices in underlying assets, index or security. Derivatives have numerous uses as well as various risks. The market for financial derivatives has grown tremendously both in terms of variety of instruments and turnover. The value of the underlying assets of these derivatives is more than USD16 trillion (more than Rs.15 lakh crore), which is about three times the value of stock traded on the New York Stock Exchange (NYSE) and twice the size of the United States GDP. The derivatives market is the financial market for the derivatives.

Types of Financial Derivatives

Derivatives have become increasingly important in the field of finance in the recent years. Forwards, futures, options, swaps, warrant are the major types of financial derivatives which are used for hedging. Derivatives are off-balance sheet transactions and they cannot be put on the balance sheet unless the underlying assets are bought and paid for. For instance, if an investor buys an option to purchase shares, the balance sheet is unaffected until and unless the shares are bought and paid for. Following are the different types of financial derivatives.

Forward contracts: A forward contract is a customized contract between two parties, where settlement takes place on a specific date in future at a price agreed today. Forward contracts are bilateral contracts and hence exposed to counter party risk. Each contract is custom designed and hence is unique in terms of contract size, expiration date and the asset type and quality. The contract has to be settled by delivery of the asset on expiration date. A major drawback of the forward contract is the risk of default. To minimize the risk of default, another financial instrument is introduced, the futures.

Futures: Like a forward contract, a futures contract is an agreement between two parties to buy and sell an asset at a certain time in future at a certain price. Unlike forward contracts, future contracts are normally traded on an exchange. This means that the contract is traded just like a normal stock, where the supply and demand of similar futures determine the trading price of the contract.

To make trading possible, the exchange specifies certain standardized features of the contract. As the two parties of the contract do not necessarily know each other, the exchange also provides the mechanism that gives the two parties a guarantee that the contract will be honoured.

Futures prices are settled on a daily basis. For example, if the futures contract price is Rs.30 and the market price is Rs. 27, the difference has to be settled so that by the settlement date neither party will see a benefit in defaulting on the contract.

In both Forwards and Futures Contracts, once entered, the two parties cannot go back on it. In order to introduce some flexibility in this an Option is introduced.

Options: Options are contract where the holder of the instrument has the right to buy or sell the underlying asset at a predetermined price. A person who has an Option Contract need to execute the trade only if he wants to execute it. In other words he has the Option. An option can be a call option or put option. A call option gives the buyer a right to purchase an assets at a specified price on or before some specified expiration date. The specified price is called the Strike Price.

For example, a May 31 call option on Infosys stock with a strike price of Rs. 1550 entitles the owner of the Option to purchase the stock on or before the expiration date at Rs. 1550. The holder of the Option is not required to exercise the Option. Whatever is the price of Infosys stock on that day, the Option Holder can purchase the stock at Rs. 1550 till the expiration date. Normally the option is exercised if the price of the stock is above the Strike Price, If not exercised before the expiration date of the contract, a call option simply expires and has no value. If the market price of Infosys is Rs 1700 on a particular day during the life of the Option, the Option holder can exercise his option and buy the Infosys stock at Rs 1550. He can sell in the market and make a profit.

A put option gives the holder the right to sell the asset at a specified price on or before some specified expiration date. While call option is exercised when the price of the stock

is more than the Strike price, a Put Option is exercised when the price of the stock is less than the strike price. For example, the holder of the put option of the Infosys stock at a strike price of RS.1550 can sell the stock at Rs. 1550 irrespective of the price in the market.

It should be borne in mind that a person has to pay the price to buy a Call or Put Option. Purchasing call option is a bullish strategy because calls provide profits when the price of the stock goes up, while purchasing put is a bearish strategy.

Foreign Currency Options:

A currency option offers the right to buy or sell a quantity of foreign currency for a specified amount of domestic currency. Company that do large amount of business in foreign currency, reduce their risk by holding an Option that reduces their risk of holding foreign exchange.

Warrants: Warrants are long-term options with three to seven years of expiration. In contrast stock options have a maximum life of nine months. Warrants are issued by companies as a means of raising finance with no initial servicing costs, such as dividend or interest. They are like a call option on the stock of the issuing firm. A warrant is a security with a market price of its own that can be converted into a specific share at a predetermined price and date. If warrants are exercised, the issuing firm has to create a new share which results in the dilution of ownership. Warrants are sweeteners attached to bonds to make these bonds more attractive to the investor.

Swaps: Swaps are generally customized arrangements between counterparts to exchange one set of financial obligations for another as per the terms of agreement. The major types of swaps are currency swaps, and interest –rate swaps, bond swaps, coupon swaps, debt-equity swaps.

1.8 ROLE OF NSE AND BSE IN SECURITIES MARKET

National stock exchange (NSE) is set up in April 1993, situated at Mumbai as a demutualized electronic exchange with the objectives of (a) establishing a nationwide trading facility of equity, debentures and hybrids (b) provide a screen based trading system and transparency in the trading operations, (c) facilitating shorter settlement cycles and book entry settlements. (d) meeting the international benchmarks and standards. Within the shorter span of time NSE realized all the above objectives and come up as a change agent in transforming the Indian capital markets to its present

form. NSE has set up an infrastructure that serves as a role model for the securities market in terms of system, procedure and practices. The standards set by the NSE in terms of market practices, innovation in products and services and technology has become the industry benchmarks and is being replicated by other market participants.

NSE has been playing a vital role in reforming the Indian securities market. It is providing the screen based trading system with the high degree of transparency and equal access to investors irrespective of geographical location. The high level of information dissemination through on-line system has helped in integrating retail investors on a nation-wide basis. NSE is currently operating in four market segments i.e. Capital Market Segment, Wholesale Debt Market Segment, Futures and Options Segment and the Currency Derivative Segment.

Capital Market Segment (CMS) On November 3, 1994 NSE started trading in the capital market (CM) segment and within a year it established itself as the largest stock exchange in the country in terms of trading volumes. It offers a fully automated screen based trading system, known as the National Exchange for Automated Trading (NEAT) system. It facilitates the members from across the country to trade simultaneously with enormous ease and efficiency.

Wholesale Debt Market Segment (WDMS): The Exchange started its trading operations in

June 1994 by enabling the WDM segment of the Exchange. For trading of a wide range of debt securities including government securities, treasury bills, bonds issued by public sector undertakings (PSUs), floating rate bonds, zero coupon bonds, commercial papers, certificates of deposit, corporate debentures, state government loans, SLR and units of mutual funds etc a trading platform is being provided by WDM segment. Further to encourage the wider participation of all classes of investors, including the retail investors, the Retail Debt Market segment (RDM) was launched on January 16, 2003 to provide a nationwide, anonymous, order driven, screen-based trading system.

Derivative Segment (DS) On June 12, 2000 NSE commenced its trading in the derivatives and it “provides trading in futures and options based on benchmark index S&P CNX Nifty and CNXIT”. The turnover in the derivatives segment has witnessed considerable growth placing NSE on the map of global derivatives market. From the very beginning, NSE established itself as the sole market leader in this segment in the country

with more than 99% market share.” From August 29, 2008 NSEs currency derivative segment commenced to provide trading on currency future contracts on the USD-INR.

National stock exchange and Bombay stock exchange are the two significant Stock Exchange in India but NSE’s flagship index, the S&P CNX Nifty, is used extensively by investors in India and as well as from around the world to take exposure to the Indian equities market.

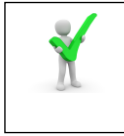
Bombay Stock Exchange (BSE): BSE is the oldest stock exchange of Asia. The extensiveness of the indigenous equity broking industry in India led to the formation of the Native Share Brokers Association in 1875, which later became Bombay Stock Exchange Limited (BSE). BSE is widely recognized due to its important and pre-eminent role in the growth of the Indian security market.

- In 1995, the trading system transformed from open outcry system to an online screen-based order-driven trading system.
- The exchange opened up for foreign ownership (foreign institutional investment).
- Allowed Indian companies to raise capital from abroad through ADRs and GDRs.
- Expanded the product range (equities/derivatives/debt)
- Introduced the book building process and brought in transparency in IPO issuance.
- Depositories for share custody (dematerialization of shares).

The world’s biggest stock exchanges based on market capitalization:

1. New York Stock Exchange
2. Nasdaq OMX
3. Japan Exchange Group of Tokyo
4. Euronext
5. Hong Kong Exchange

BSE has secured 10th position globally and another Indian stock exchange NSE has been placed at 11th position. Bombay stock exchange is the largest in the world in terms of number of listed companies.



Check Your Progress-B

Q1. What is the history of stock markets in India?

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Q2. What is an Initial Public Offerings (IPO)?

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Q3. What is Follow-on public offer (FPO)?

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Q4. What is the difference between right issues and public issues?

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Q5. What are the advantages to the issuer who raised funds through private placement?

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Q6. What are derivatives?

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4.11 SUMMARY

The securities market is a market in which securities are issued, purchased by investors, and subsequently transferred from one investor to another. The securities market has two interdependent and inseparable segments, viz., the primary market and secondary market. Primary market deals with the new securities, that is, securities which are not previously available and offered to the investors first time. Whereas secondary market is a market in which, existing securities are resold and bought among investors or traders usually on a stock exchange, over the counter or elsewhere. The risk in a security investment is transferred from one investor (seller) to another (buyer) in the secondary markets. The primary market creates financial assets, and the secondary market makes them marketable.



4.12 GLOSSARY

Primary Market- Primary market deals with the new securities, that is, securities which are not previously available and offered to the investors first time.

Secondary market- It is a market in which, existing securities are resold and bought among investors or traders usually on a stock exchange, over the counter or elsewhere.

Securities market- Number of markets in which securities are bought and sold.

Rights Issue- Right issue is the issue of new securities in which the existing shareholders are given the pre-emptive rights to subscribe to the new issue on a pro-rata basis.



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4.15 SUGGESTED READINGS

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4.15 TERMINAL QUESTIONS

1. What do you understand by securities market ? What are the different types of securities market discussed in this unit ?
2. Discuss the role of NSE and BSE in the Indian securities Market.
3. Briefly trace the history of stock markets in India.

UNIT 5 LISTING OF SECURITIES

5.1 Introduction

5.2 Objectives

5.3 Concept of Capital Market

5.4 Meaning of Security

5.5 Who is an Investor?

5.6 New Issue/ Primary Market

5.7 Secondary Market or Stock Markets

5.8 Summary

5.9 Glossary

5.10 Answers to Check Your Progress

5.11 References

5.12 Suggested Readings

5.13 Terminal Questions

5.1 INTRODUCTION

The markets of securities are classified into two: Primary and Secondary market. Primary market is the virtual market of securities where newly launched shares and financial instruments are traded like Initial Public Offer (IPOs) and New Fund Offer (NFOs). On the other hand, secondary market is the market which has a physical existence and where outstanding shares and securities of the companies are traded. Secondary markets are also called as stock markets or stock exchanges. In India there are two major stock exchanges Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). The most important benefit of a stock exchange is it offers liquidity and marketability to the securities thereby affecting the confidence of the investors favourably. However, not all the companies are allowed to issue their shares in the primary market, similarly not all the securities can get listed in the stock exchanges, there are certain requirements which are required to be fulfilled and there is a certain fee which is required to be paid for listing the securities in a given stock exchange.

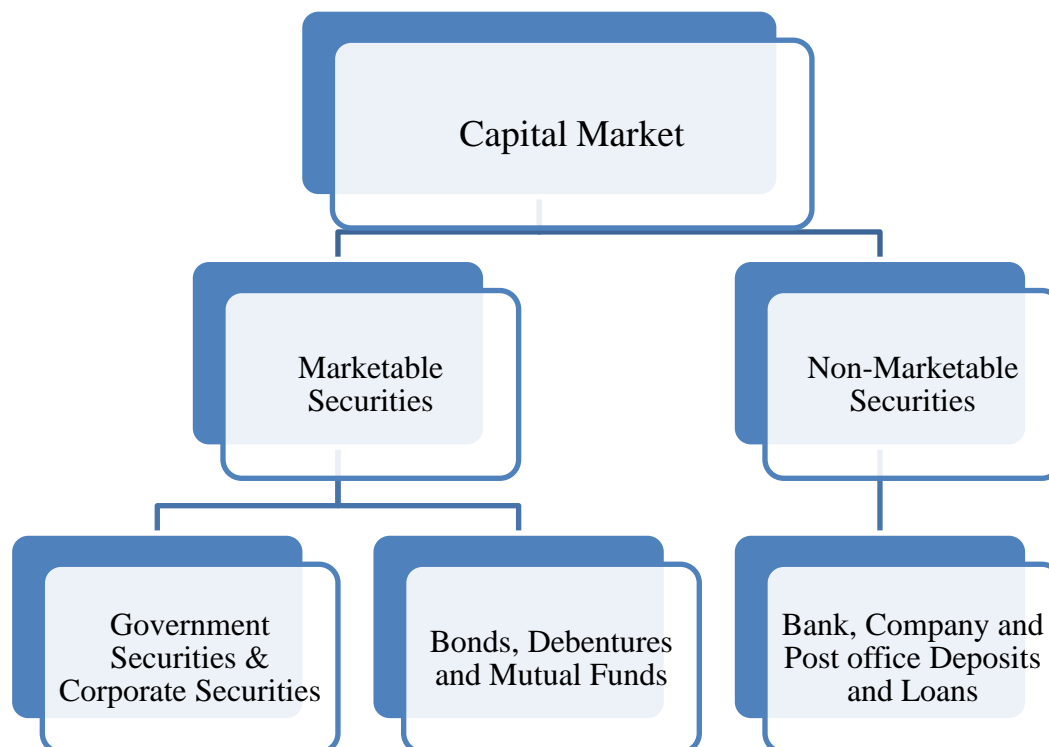
5.2 OBJECTIVES

The objectives of this unit are as follows:

- To describe in detail the concept of primary and secondary market.
- To elaborate upon the functioning of stock exchanges.
- To explain in detail various listing requirements which are required to be fulfilled in order to register the securities in a given stock exchange.

5.3 CONCEPT OF CAPITAL MARKET

Capital market is a market which performs the two-fold functions of making various investment alternatives available for the investors of securities and it also performs the function of making the funds available for the companies in the form of much needed capital. This market is regulated by various market regulators like Reserve Bank of India, Securities and Exchange Board of India, Insurance Regulatory and Development Authority and Company Law Board. The capital market deals in both kinds of securities that is marketable and non-marketable securities. Marketable securities can be both government and corporate securities. On the other hand, non-marketable securities deals with traditional investment options like term deposits in banks and post offices, long-term loans etc. The market of marketable securities can be further classified as New Issue Market and Secondary Market (stock exchange).

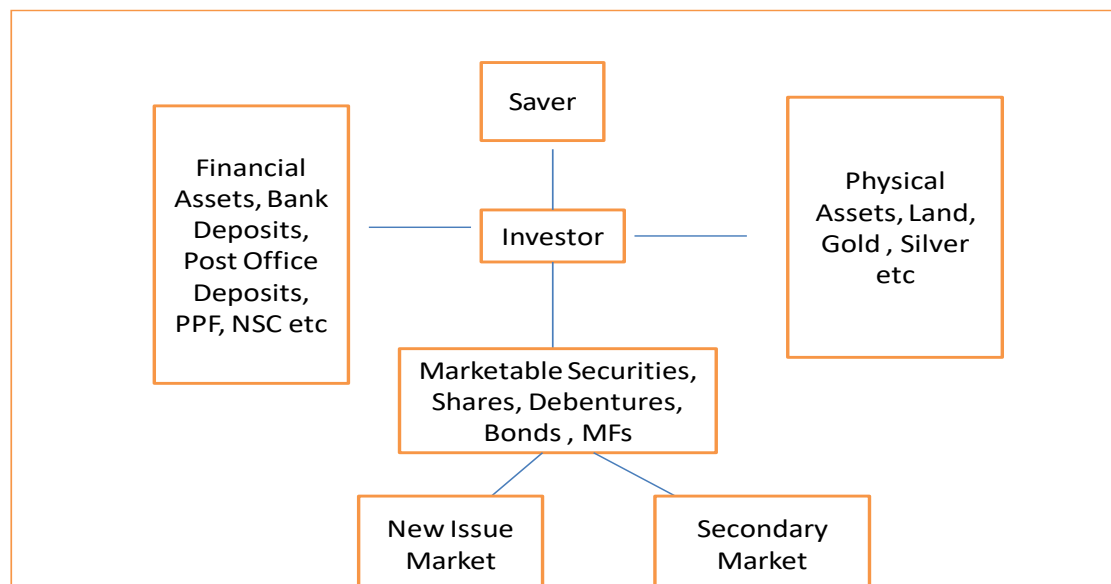


5.4 MEANING OF SECURITY

Security is an instrument the value of which is expressed in terms of money and in which investment is therefore allowed in monetary terms. It includes shares, stock, bonds, debentures or any other marketable investment option issued by a government, semi-government or non- government organization.

5.5 WHO IS AN INVESTOR?

Investor



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Thus, on the basis of the figure above we can conclude that first of all a person saves money from his earning and thereby he becomes a saver, the saver when decides to invest his savings into the various investment options available he becomes an investor. When this investor decides to invest into marketable securities there are two options available for him one is New Issue Market and the other is Secondary Market.

5.6 NEW ISSUE/ PRIMARY MARKET

It is the market where new securities i.e. the securities which are issued for the first time by the company are issued and traded unlike secondary market where outstanding securities are traded on the basis of their changing market prices.

For example: Initial Public Offer (IPOs) and New Fund Offer (NFOs)

5.6.1 Mechanism of Floating shares in Primary Market:

There are four distinct methods of floating shares in the primary market which are widely used by the organizations, they are as follows:

- Public Issue
- Rights Issue
- Private Placement
- Preferential Allotment
- Public Issue:

Public Issue means selling or offering the shares on sales to public at large through the help of various financial intermediaries. In India these issues are governed by Companies Act' 1956, SEBI guidelines for investor protection and listing agreements between issuing company and stock exchanges. One of the examples of such issue is Initial Public Offer (IPO).

- Various steps that are required in a public Issue:
- Approval of board of directors for the issue is mandatory.
- Approval of existing shareholders, as this step of the company is going to dilute the ownership structure of the company that is why it is required.
- Appointment of Lead Managers, they are the key person or institution managing each and every thing related to the issue in order to make it successful.
- Appointment of other intermediaries like advisors, underwriters, bankers, brokers, registrars, co-managers etc.
- Preparation of draft prospectus (at least 3 years financial results, name of promoters, information about products and future plans is required it serves as a source of detailed information for the prospective investor).
- Filing of draft prospectus with SEBI for its approval.
- Application for listing in stock exchanges (Rs 20,000 for BSE and Rs 2,00,000 annual for a company having net worth of 10 crores, it means only a company having a net worth of 10 crores or more may get itself registered on Bombay Stock Exchange (BSE), similarly a company with a paid up capital of 10 crores may also get itself registered at National Stock Exchange (NSE) but in case of NSE listing fee is Rs 50,000).
- Filing of prospectus with Registrar of Companies (with any modification if suggested by SEBI as indicated in the previous step).
- Promotion of the Issue through various financial intermediaries.
- Printing and distribution of applications for IPO through Banks and financial institutions which are appointed by the lead managers.

- Statutory announcement (in newspaper) at the opening of the issue and at the closing date of the issue so that awareness about the issue can be created.
- Collection & Processing of applications through collecting and coordinating banks and registrar of the issue.
- Determination of liability of underwriters (i.e the specialized agents who guarantee a minimum subscription of the issue and if they fail they themselves invest in the issue).
- Final allotment and Demat account credit (it is the account like savings account of banks which carry the shares in electronic form).
- Listing of the issue on the stock exchanges as per agreement and terms of listing.

5.6.2 Book Building Process:

This is the process of share allotment followed in actual practice by the body corporate as per the guidelines of SEBI.

- It is a process in which share price is not fixed in advance rather the price is depicted in the form of a price band like Rs 100-103 (fixed in consultation of experts).
- Where lower price is called the floor price and upper price is called the cap price however allotment is done on the basis of bids received from the investors.
- Investors are required to apply in lots.
- Once the application date closes then the lead managers decide the allotment price in consultation with the issuer.
- The entire allotment price may not be called up at the time of allotment however if the investor fails to pay the money in future the shares can be forfeited.
- The shares allotment percentage includes 25% to individuals, 15% to HNIs and 60% to QIBs (FIIs, FIs, banks etc)

An example of an IPO announcement in a newspaper:

- **Rights Issue:**

A rights issue involves selling securities in the primary market by issuing the rights to apply only to the existing shareholders. When a company issues equity capital it has to be offered in the first instance to the existing shareholders on a pro rata basis. This is required under Companies Act 1956, shareholders however may forfeit this right and then the company may opt for other methods of floating of new shares in the market or it may choose to go for public issue.

- **Private Placement:**

This means selling the shares to financial institutions like banks, mutual funds, venture capital firms etc. It is different from preferential allotment in the sense that in case of preferential allotment the identity of investors is already known when approval of shareholders for share allotment is taken whereas in case of private placement the identity is not known at the time of information memorandum, various financial institutions apply for the shareholding then it is only after a careful deliberation and discussion with the board of directors that it is selected which company should be allowed to invest.

- **Preferential Allotment:**

It means issue of shares to the selected investor at a price which may or may not relate to the market price which is currently prevailing in the market. In India Preferential allotment is done mainly to the promoters or friendly investors in order to reduce the risk of hostile takeover that is the takeovers which is possible if majority shareholding in a company is acquired. For example; Earlier Tata Sons were having a friendly stake in Bombay Dyeing, an organization that is owned by Wadias.

5.6.3 Participants of the Primary Market:

- **Merchant Bankers-** They are the lead managers and issue manager responsible to both the company and SEBI. Their primary task is ethical promotion of the issue and ensuring maximum possible subscription for the issue as desired by the company. They are the main intermediary involved in promotion of the issue. Generally, they are the financial institutions working in coordination of other institutions for getting maximum subscription under each category of investor defined.
- **Registrars of the Issue-** They are the next important intermediary in the process of a public issue. They are required to collect applications and cheques of the investors and maintain a record of the same. They are also responsible for allotment of shares. In case of over subscription, they make the allotment as per the norms of SEBI (pro rata basis) and stock exchange and in the presence of a public representative so that a transparency can be maintained. They dispatch letter of allotment and are also responsible for refund of money if no allotment is made to the applicant.
- **Collecting and coordinating bankers-** They work in coordination with the merchant bankers and registrars. They collect applications and cheques from investors and communicate regarding the status of application with the registrar and merchant bankers. They may be same or two different bodies. Generally, there are many collecting and coordinating financial bodies in various geographical parts of the nations established by lead managers in order to make it convenient for the investors to apply.
- **Underwriters and brokers-** Brokers motivate investors to apply in an issue they may also involve sub-brokers along with themselves however underwriters guarantee a minimum amount of subscription failing which they have to subscribe themselves the number of shares which they promised to be subscribed to the lead managers.

- **Venture Capital Funds-** It is a pool of capital which is essentially invested in equity shares or equity-linked instruments of unlisted companies. These organizations basically invest in the primary issue of the less known organizations thereby they undertake a lot of risk and in turn they expect an excellent listing price of the issue so that they can book profit early and gain maximum possible advantage.
- **Credit Rating Agencies-** A credit rating agency assigns ratings primarily to debt securities and IPOs etc. These rating serve the purpose of being a guide for the investor so that they can take the decision of investing or not to invest. Generally these rating are issued in the form of codes like AAA, BBB, or CCC and on the basis of this an idea about the creditability of the issue is given to the investors. Some of the credit rating agencies are, ICRA and CRISIL etc.



Check Your Progress-A

Q1. What is Rights Issue?

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Q2. What are Depositories?

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Q3. What is called as Book Building process?

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Q4. Which is the prime regulator of securities market and what are the functions that it performs?

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Q5. How did BSE facilitate payment of necessary fee?

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Q6. Mention few important conditions for listing in any Indian stock exchange.

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Q7. What is Private placement? How it can be differentiated with Preferential Allotment?

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5.7 SECONDARY MARKET OR STOCK MARKETS

It is an organized market place where securities are traded i.e bought and sold. Presently any organization with a paid-up capital of 10 crores can get itself registered in a stock exchange in India.

Various functions performed by stock exchange in India are:

- Providing a platform for share trading to buyers and sellers of securities.
- Providing quotations for selling securities at the justified price.
- Promoting Liquidity so that the investment can be converted into cash any time the investor likes.
- Promoting savings and investment habits among the people for the growth of the economy.

5.7.1 Major Stock Exchanges in India:

In India there are mainly two stock exchanges, Bombay Stock Exchange (BSE) and National Stock Exchange (NSE).

Bombay Stock Exchange (BSE) - Established in 1875, one of the oldest stock exchange in the world here jobbers are a primary players; they buy and sell on their own account i.e they provide their own bid and ask price. Investors generally transact via a jobber in BSE. Its sensitive index is called Sensex which comprises of 30 scrips which are revised on the basis of their performance. It ranks 12th in the world on the basis of M-cap (Market capitalization) and number of listed companies are 5163.

National Stock Exchange (NSE) - Established in 1994 it is the second most significant stock market of India. It is established as the most automated computerized exchange. Here buying and selling is done through trading members where for each order a separate trading number is generated. Its indices is National Index 50 i.e Nifty which includes 50 scrips. It ranks 13th in the world after BSE and listed companies are 1635.

5.7.2 Major participants of secondary market or stock exchanges:

- Brokers- These are the agents who offer expertise services like opening Demat accounts etc to the buyers and sellers and for these services they charge brokerage. For eg; India Bulls, Share Khan, Motilal Oswal.
- Jobbers- specialized agents operative in case of BSE they buy and sell shares on their own account.
- Floor Brokers- authorized brokers who are allowed to enter the premises of the stock market.
- Arbitrageurs- They are such traders who do inter market business i.e purchasing from one market and selling in the other market. For eg; purchasing some share from BSE and selling it in NSE.
- Depositories- It is an institution which dematerializes physical certificates (converting the physical share certificates into electronic form) and effect transfer of ownership by electronic book entries. Presently there are two depositories in India; National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL).
- Foreign Institutional Investors (FIIs) - these are institutional investors from abroad who are registered with SEBI to buy and sell in Indian securities markets. These are the major players and cause major changes in the stock market because they do bulk investments.

5.7.3 Securities and Exchange Board of India Regulations for Stock Exchanges

Securities and Exchange Board of India is the main regulator of the stock exchanges and it is the body which prepares the guidelines for functioning of the stock exchanges, in addition to it this body exercises a strict control on the activities of the corporate listed at stock exchanges and also works for investor's education so that to minimize the chances of frauds and financial losses to the investors.

It is the main regulator of the stock market its primary tasks are as follows: -

- Regulate the business in stock exchanges so that the stock markets may function smoothly and effectively.
- Register and regulate the working of various intermediaries like brokers, merchant bankers, FIIs etc so that only the registered bodies are allowed to participate in the business of stock exchanges thereby reducing the risk of frauds and mal practices on the part of intermediaries.
- Register and regulate the working of mutual funds so that only registered Asset Management Companies (AMCs) are operative in the stock market and also to keep an eye on their investment pattern in order to ensure whether they are working in the interest of the majority investors or not.
- Prohibit fraudulent and unfair trade practices in securities market to safeguard the investors from the clutches of those corporate houses in the stock exchanges who may mislead and thereby can cause financial losses to the investors.
- Promote investors' education and training of intermediaries so that a smooth relationship between the two parties can be ensured and there is lesser requirement of conflict management.
- Prohibit insider trading of securities so that nobody can get a significant gain in the business of stock trading due to availability of crucial or vital internal information which is not of public domain i.e about which not everyone is aware of. There are very strict punishment provisions for those who get involved in insider trading. Generally, these people are part of management of the organization or top level executives of the organizations.
- Regulate substantial acquisition of shares by a single body which may be done in order to misguide the investors about the prospects of an organization therefore the SEBI follows the mechanism of imposing circuits on the trading of such shares in case of which a substantial number of shares are being purchased or sold by anyone.

5.7.4 Listing requirement for securities at stock exchanges:

Listing means availability of securities on a recognized stock exchange, only those securities which are listed on any stock exchange is allowed to be traded on that stock exchange. It is the next step once security is issued to the public at large. Listing is important because it gives confidence to the investors that the shares are visible at a trading platform and thereby there is sufficient liquidity in those securities.

There are certain requirements for listing which are required to be fulfilled by the organizations which are seeking listing on any of the stock exchanges in India (either BSE or NSE). The organizations seeking listing have to apply for listing at the time of issuing the shares to the public large only.

Various terms and conditions which are required for being listed in an Indian stock exchange are:

- The companies which are seeking listing of their securities in any of the stock exchanges in India must ensure that they have a paid-up capital of 10 crores before the public issue.
- The company which is going for the public issue, the size of such issue must not be less than 10 crores.
- In case of a public issue post such issue the paid-up capital of the companies should not be less than 25 crores.
- If the company during any time of its existence has been referred to BIFR (Board for Industrial and Financial Reconstruction) then it has to give a prior intimation of this to stock exchange on which the exchange decides whether to allow or to reject listing of such companies.
- The company is also required to inform the stock exchange that whether a petition has been filed or not in any court for winding up of such company.
- If the company is listed at some stock exchange and it is also desirous of getting listed at the other stock exchange in the country, say for example the company is listed at BSE and is applying for a listing at NSE, then the company has to furnish to the stock 3 years financial results of the company in the form of audited financial statements and the company is also required to provide details of dividends paid by the company in at least 2 out of 3 financial years.
- The companies which are already listed at some of the stock exchange in the country are also required to provide a statement claiming that no disciplinary action has been taken against them by the stock exchange where they are listed.
- The company must also up rise the stock exchange where it is seeking listing of its securities with the methodology of investor grievance redressal that would be adopted by the company at the time such requirement arises.
- The company applying for listing is also required to furnish complete information with respect to the Directors of the company and also furnish their track record as Directors of the company.
- It is also the responsibility of the company which is going for the public issue to provide information with regards to utilization of the funds that is going to received with the help this issue.
- At the time of making an application for listing in any of the stock exchanges in India it is being made clear to the applicant that if any case the above conditions are not met then such application is not going to be considered.
- The listings conditions must also be communicated to the prospective investors of the company through a declaration in the prospectus that the listing is only possible if the above mentioned conditioned are satisfied by the company.

- The applicant, Group Company or any of the promoters of the applicant company must also not be in a position of default with respect to listing requirements in the past.
- It is also required for company to follow the regulations of SEBI with regards to listing requirements given under Issue of Capital & Disclosure requirement, 2009. Some of these requirements are already being discussed in the beginning of this chapter which calls for appointment of Lead managers, registrar of Issues, filing and preparation of draft prospectus and statutory announcement etc.

A part from the regulations of SEBI it is also mandatory for the applicant to comply to the following regulations;

1. Securities Contract Act (Regulations), 1956.
2. Securities Contract Act (Rules), 1957.
3. Securities and Exchange Board of India Act, 1992.
4. Companies Act, 1956.
5. Any other guidelines or regulations made mandatory by the government or regulatory bodies from time to time.

- Permission for using the name of BSE in prospectus:

It is made mandatory for the companies desirous of listing their securities in BSE/NSE to take prior approval of BSE/NSE before mentioning the name of BSE or NSE in its prospectus with regards to listing of its securities. The approval is granted by the stock exchange taking into consideration the board of directors, promoters, financial conditions and other important aspects mentioned in the draft prospectus. Once the approval is availed then only the name of the prospective stock exchange for the security is mentioned in the prospectus and it is issued for public issue.

- Delisted companies:

Those companies which are delisted by the stock exchanges once are required to once again repeat the process of seeking approval using the name of the stock exchange in the prospectus and apply a fresh for a new public issue then only it can get itself registered again.

- Filing of Application for listing:

Even before the prospectus of the public issue is filed to the registrar of the companies for consideration, the issuing company is required to file an application for listing at all the concerned stock exchanges where it wants its securities to be listed after allotment.

- Permission for trading of securities:

The company must comply strictly with each and every formality and guideline of SEBI with respect to the issue and allotment of the public issue otherwise it can be denied registration at the stock exchanges where it applied however the companies are required not to make allotment of shares unless and until it is able to receive a confirmation of listing at the stock exchange. Once the securities are approved for listing at the stock exchanges they became eligible for being traded at the respective stock exchange. Though, in case of rejection of application for listing also the company possesses a right to appeal to the stock exchange for reconsideration.

- Requirement of 1% security:

In case of a public issue the company is also required to deposit 1% of the issue amount at the stipulated stock exchange where the shares are going to be listed. This 1% amount is going to be used for payment of the requirement of the people if the company fails to comply with the norms with regards to allotment or refund of money. Thus, security amount may even be forfeited by the stock exchange.

- Payment of Listing and Annual fees:

Each of the company listed at the stock exchanges in India are required to pay a onetime listing fees and in addition to it an annual fees is also required to be paid by the stock exchanges:

S.No.	Details	Fees
1.	Initial listing fees	20,000
2.	Annual listing fees: Upto 30 crores	60,000
3.	30 crores to 100 crores	70,000 + Rs 2500 per 5 crores above 30 crores
4.	100 crores to 500 crores	125000 + Rs 2500 per 5 crore above 100 crores
5.	500 crores to 1000 crores	375000 + Rs 2500 per crore above 500 crores
6.	Above 1000 crores	625000 + Rs 2750 for every 5 crores above 1000

		crores
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- Delay in payment of stipulated fees:

This listing fee is required to be paid by all the companies irrespective of the fact whether the desired stock exchange is BSE or NSE. However, if any of the company fails to pay the stipulated fee on time it will attract an additional penalty in the form of interest rate chargeable @ 12% per annum.

- Compliance with listing agreement:

Once the approval for listing is granted to the companies it becomes mandatory for them to comply with the rules and regulations imposed by the stock exchanges in accordance with the norms established by the primary regulator of the market, SEBI. These norms include payment of annual listing charges on time without any delay, making the quarterly annual reports available to the stock exchange without fail so that investors may receive information about the financial performance of the company, providing timely information to the stock exchange about any change in the organization which may have a significant impact on the financial performance and share holding pattern of the organization and timely compliance of the corporate governance policies as suggested by SEBI, any non-compliance with each of the requirements which are mentioned above may lead to a penal action initiated by the stock exchange against the company.

- Payment of listing fee:

Many of the stock exchanges have entered into a contractual relationship with many of the banks like BSE has entered into such kind of relationship with HDFC Bank so at present the listing fee of BSE may be paid through more than 140 branches of HDFC bank across nation which are authorized to collect payment of listing fee on behalf of BSE. This is done in order to make the payment of listing fee more convenient for the companies.

5.8 SUMMARY

The market of securities is classified as Primary and Secondary. Primary market is the market where those securities which are still not listed are issued, whereas in case of secondary market outstanding securities of companies which are already listed are traded. Stock exchanges are the place which is treated as the markets where buyers and sellers of securities interact with each other for the purchase and sale of securities. Thus, the basic reason for existence of stock exchange is to provide liquidity and marketability to the financial securities. Due to this reason, it is mandatory for every company to get their securities listed in one stock exchange or other. However, listing of securities is not always very easy as it requires number of formalities to be completed by the applicant

organization. Some of the requirements are like the paid-up capital of a new company must not be less than 10 crores and in case of an existing company must not be less than 25 crores, the company has to furnish at the stock exchange the details of promoters and directors, the company is also required to give statement of last three years to the stock exchange and undertake the responsibility of furnishing the quarterly financial statements. The companies are also required to pay the necessary listing and annual fee which depends upon the size of the paid-up capital of the applicant company. The failure to furnish any detail as required by the stock exchange under compliance of the norms notified by the regulator can lead to delisting of the company or rejection of application of listing.



5.9 GLOSSARY

Security: is an instrument the value of which is expressed in terms of money and in which investment is therefore allowed in monetary terms.

New Issue Market: It is the market where new securities i.e the securities which are issued for the first time by the company are issued and traded unlike secondary market where outstanding securities are traded on the basis of their changing market prices.

Book Building Process: This is the process of share allotment followed in actual practice by the body corporate as per the guidelines of SEBI.

Delisting: The removal of a company's securities from an exchange, either voluntarily or due to failure to comply with listing requirements. Once delisted, the securities can no longer be traded on that exchange.

Public Issue: The process by which a company offers its securities to the general public for the first time through an IPO (Initial Public Offering) or subsequently through other methods like Follow-on Public Offer (FPO).



5.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

- **What is Rights Issue?**

A rights issue involves selling securities in the primary market by issuing the rights to apply only to the existing shareholders. When a company issues equity capital it has to be offered in the first instance to the existing shareholders on a pro rata basis. This is required under Companies Act 1956, shareholders however may forfeit this right and then the company may opt for other methods of floating of new shares in the market or it may choose to go for public issue.

Q2. Write short note on BSE.

Bombay Stock Exchange (BSE) - Established in 1875, one of the oldest stock exchange in the world here jobbers are a primary players; they buy and sell on their own account i.e they provide their own bid and ask price. Investors generally transact via a jobber in BSE. Its sensitive index is called Sensex which comprises of 30 scrips which are revised on the basis of their performance. It ranks 12th in the world on the basis of M-cap (Market capitalization) and number of listed companies are 5163.

Q3. What are Depositories?

It is an institution which dematerializes physical certificates (converting the physical share certificates into electronic form) and effect transfer of ownership by electronic book entries. Presently there are two depositories in India; National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL).

Q4. Which is the prime regulator of securities market and what are the functions that it performs?

Securities and Exchange Board of India is the main regulator of the stock exchanges and it is the body which prepares the guidelines for functioning of the stock exchanges, in addition to it this body exercises a strict control on the activities of the corporate listed at stock exchanges and also works for investor's education so that to minimize the chances of frauds and financial losses to the investors.

It is the main regulator of the stock market its primary tasks are as follows: -

- Regulate the business in stock exchanges so that the stock markets may function smoothly and effectively.
- Register and regulate the working of various intermediaries like brokers, merchant bankers, FIIs etc so that only the registered bodies are allowed to participate in the business of stock exchanges thereby reducing the risk of frauds and mal practices on the part of intermediaries.
- Register and regulate the working of mutual funds so that only registered Asset Management Companies (AMCs) are operative in the stock market and also to keep an eye on their investment pattern in order to ensure whether they are working in the interest of the majority investors or not.
- Prohibit fraudulent and unfair trade practices in securities market to safeguard the investors from the clutches of those corporate houses in the stock

exchanges who may mislead and thereby can cause financial losses to the investors.

- Promote investors' education and training of intermediaries so that a smooth relationship between the two parties can be ensured and there is lesser requirement of conflict management.
- Prohibit insider trading of securities so that nobody can get a significant gain in the business of stock trading due to availability of crucial or vital internal information which is not of public domain i.e about which not everyone is aware of. There are very strict punishment provisions for those who get involved in insider trading. Generally, these people are part of management of the organization or top-level executives of the organizations.
- Regulate substantial acquisition of shares by a single body which may be done in order to misguide the investors about the prospects of an organization therefore the SEBI follows the mechanism of imposing circuits on the trading of such shares in case of which a substantial number of shares are being purchased or sold by anyone.

Q5. How did BSE facilitate payment of necessary fee?

Many of the stock exchanges have entered into a contractual relationship with many of the banks like BSE has entered into such kind of relationship with HDFC Bank so at present the listing fee of BSE may be paid through more than 140 branches of HDFC bank across nation which are authorized to collect payment of listing fee on behalf of BSE. This is done in order to make the payment of listing fee more convenient for the companies.

Q6. Mention few important conditions for listing in any Indian stock exchange.

Various terms and conditions which are required for being listed in an Indian stock exchange are:

- The companies which are seeking listing of their securities in any of the stock exchanges in India must ensure that they have a paid-up capital of 10 crores before the public issue.
- The company which is going for the public issue, the size of such issue must not be less than 10 crores.
- In case of a public issue post such issue the paid-up capital of the companies should not be less than 25 crores.
- If the company during any time of its existence has been referred to BIFR (Board for Industrial and Financial Reconstruction) then it has to give a prior intimation of this to stock exchange on which the exchange decides whether to allow or to reject listing of such companies.
- The company is also required to inform the stock exchange that whether a petition has been filed or not in any court for winding up of such company.

Q7. What is Private placement? How it can be differentiated with Preferential Allotment?

This means selling the shares to financial institutions like banks, mutual funds, venture capital firms etc. It is different from preferential allotment in the sense that in case of preferential allotment the identity of investors is already known when approval of shareholders for share allotment is taken whereas in case of private placement the identity is not known at the time of information memorandum, various financial institutions apply for the shareholding then it is only after a careful deliberation and discussion with the board of directors that it is selected which company should be allowed to invest.

Q8. What is called as Book Building process?

- This is the process of share allotment followed in actual practice by the body corporate as per the guidelines of SEBI.
- It is a process in which share price is not fixed in advance rather the price is depicted in the form of a price band like Rs 100-103 (fixed in consultation of experts).
- Where lower price is called the floor price and upper price is called the cap price however allotment is done on the basis of bids received from the investors.
- Investors are required to apply in lots.
- Once the application date closes then the lead managers decide the allotment price in consultation with the issuer.
- The entire allotment price may not be called up at the time of allotment however if the investor fails to pay the money in future the shares can be forfeited.
- The shares allotment percentage includes 25% to individuals, 15% to HNIs and 60% to QIBs (FIIs, FIs, banks etc)



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4. Bhatt- Security Analysis and Portfolio Management (Wiley, 1st Edition)



5.12 SUGGESTED READINGS

1. Chandra P- Investment Analysis and Portfolio Management (Tata McGraw Hill, 5th Edition)
2. Bodie, Kane, Marcus and Mohanti- Investment and India Perspective (TMH, 10th Edition)
3. Pandian P- Security Analysis & Portfolio Management (Vikas, 1st Edition)



5.13 TERMINAL QUESTIONS

1. What is a secondary market? How it is different from primary market? What are the various functions performed by stock markets?
2. Discuss in brief various listing requirements for a new and an existing company.
3. Discuss in detail giving suitable example where necessary various participants of primary and secondary market.
4. What are various methods of floating shares in the primary market?

UNIT 6 STOCK EXCHANGES AND THEIR MECHANICS

6.1 Introduction

6.2 Objectives

6.3 Secondary Markets

6.4 Major Participants of the Secondary Market

6.5 Trading Mechanism

6.6 What is Auction Market or Limit Order Market?

6.7 What is a Dealer Market?

6.8 What is Breaking Down a Dealer Market?

6.9 What is Hybrid Market?

6.10 What is Brokered Market?

6.11 What is Short Selling?

6.12 What Is Market Transparency?

6.13 Evolution of Market Structure

6.14 Regulation of Stock Exchanges

6.15 Settlement Mechanism followed in Stock Exchanges

6.16 Competition Between Exchanges

6.17 Summary

6.18 Glossary

6.19 Answers to Check Your Progress

6.20 References

6.21 Suggested Readings

6.22 Terminal Questions

6.1 INTRODUCTION

Securities market is a platform where buyers and sellers are collectively allowed to trade. Securities market is also known as stock exchange. These are basically a place for buyers and sellers to meet and decide on a price to trade. Some exchanges are physical locations where transactions are carried out on a trading floor, but in the today's era there are mainly networks of computers where trades are made and recorded electronically. The markets of securities are classified into two categories primary and secondary. In primary market only those securities which are issued for the first time are traded for example, Initial Public Offer (IPO) and New Fund Offer (NFO). Stock markets are secondary market, where existing owners of shares can transact with potential buyers. It should be kept in mind that those corporations which are listed on stock exchanges do not buy and sell their own shares on regular basis. In standard treatment of asset pricing, such as Capital Asset Pricing model (CAPM) which is the trading mechanism is not laid out clearly on the assumption that it does not matter for securities prices but in reality, there are different types of trading mechanism and they are closely watched by the market participants. Changes in the rules of trading are time and again debated by the market organizers to carefully fine tune these rules to improve the competitiveness of their trading platform and this is because of the trading rules which affect the efficiency of market as mechanism to understand trading gains and find out asset values.

The first stock markets came in Europe in the 16th and 17th centuries, mainly at port cities or trading hub such as Antwerp, Amsterdam, and London.

In the late 18th century, we saw that stock market started emerging in America and most importantly in New York which is now known as New York Stock Exchange (NYSE), here equity shares are allowed to be traded. The first stock exchange in America was Philadelphia Stock Exchange (PHLX), which is still in existence.

In India there are mainly two stock exchanges, Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). Bombay Stock Exchange (BSE) - Established in 1875, one of the oldest stock exchanges in the world here jobbers are a primary players; they buy and sell on their own account i.e. they provide their own bid and ask price. Investors generally transact via a jobber in BSE. Its sensitive index is called Sensex which comprises of 30 scrips which are revised on the basis of their performance. It ranks 12th in the world on the basis of M-cap and number of listed companies are 5163.

National Stock Exchange (NSE) - Established in 1994 it is the second most significant stock market of India. It is established as the most automated computerized exchange. Here buying and selling is done through trading members where for each order a separate trading number is generated. Its indices is National Index 50 i.e. Nifty which includes 50 scrips. It ranks 13th in the world after BSE and listed companies are 1635 (2013).

6.2 OBJECTIVES

The unit as a part of the syllabus of Security Analysis and Portfolio Management aims at the following objectives;

- To provide information to the students about the market of securities and their regulation.
- To educate and update the students on the manner in which trading and settlement is done at the stock exchanges.
- To update the students of finance about the recent changes those are taking place in the securities market.

6.3 SECONDARY MARKETS

It is an organized market place where securities are traded i.e. bought and sold. Presently any organization with a paid up capital of 5 crores can get itself registered in a stock exchange in India (for BSE this requirement is 10 crores).

Various functions performed by stock exchange in India are:

- Providing a platform for share trading
- Providing quotations for selling securities.
- Promoting Liquidity
- Promoting savings and investment.

6.4 MAJOR PARTICIPANTS OF THE SECONDARY MARKET

The following are the major participants of the secondary market;

- Brokers- These are the agents who offer expertise services like opening Demat accounts etc to the buyers and sellers and for these services they charge brokerage. For e.g.; India Bulls, Share Khan, Motilal Oswal.
- Jobbers- specialized agents operative in case of BSE they buy and sell shares on their own account.
- Floor Brokers- authorized brokers who are allowed to enter the premises of the stock market.
- Arbitrageurs- They are such traders who do inter market business i.e. purchasing from one market and selling in the other market. For e.g.; purchasing some share from BSE and selling it in NSE.
- Depositories- It is an institution which dematerializes physical certificates (converting the physical share certificates into electronic form) and effect transfer of ownership by electronic book entries. Presently there are two depositories in

India; National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL).

- Foreign Institutional Investors (FIIs) - these are institutional investors from abroad who are registered with SEBI to buy and sell in Indian securities markets. These are the major players and cause major changes in the stock market because they do bulk investments.

6.5 TRADING MECHANISM

It is defined as ‘rules of playing’ that market players must know, it determines the action they can take. Each stock exchange has certain listed and permitted securities which are traded on it. Investors interested in buying and selling are requested to place their order with the authorized brokers of the exchange. There are two ways of organizing trading activities: -

- Open Outcry system: Under this system the traders i.e. buyers and sellers shout and resort to various signals on the trading floor.
- Screen-based system: It involves interaction between buyers and sellers through the virtual mode. This system was introduced for the first time in India in 1994 from National Stock Exchange. It has increased the efficiency of stock trading as more participants can interact with each other in real time. Now screen based system is followed even in BSE.
- Trading on both the exchanges is done through an open electronic limit order book, in which order matching is done by the trading computer. Huge amount of investors buy and sell stock on public exchanges on every business day. The following definitions are fundamental:
 - Bid: The price the buyer is willing to pay for the shares.
 - Ask offer: The price seller demands to sell shares.

There are two mechanisms of placing orders in Screen Based system: -

Limit order: This order pre-specifies the price limit. For e.g. Limit order to buy at a price of Rs 90 means the trader wants to buy at a price not greater than Rs 90. Limit order to sell at a price of Rs 95 means that the trader want to sell at a price not less than 95.

Market order: it is the order to buy or sell at the best prevailing price.

Stop Order: An order to sell shares at a specified price in order to prevent losses from exceeding the present amount.

As the possible rules can be put together in virtually boundless number of combination, real market structure feature great diversity and are constantly growing so attempt to complete classification is hopeless. It is more logical to focus on two major type of trading mechanism that is limit order market and dealer market.

As a general question is why in practice market is having different trading mechanism. The rules are determined by interaction between regulators, intermediaries, issuers, investors, and the managers of trading platform. The equilibrium between these stakeholders and the actual trading rules to a huge amount depends on the governance and ownership of the stock platform.

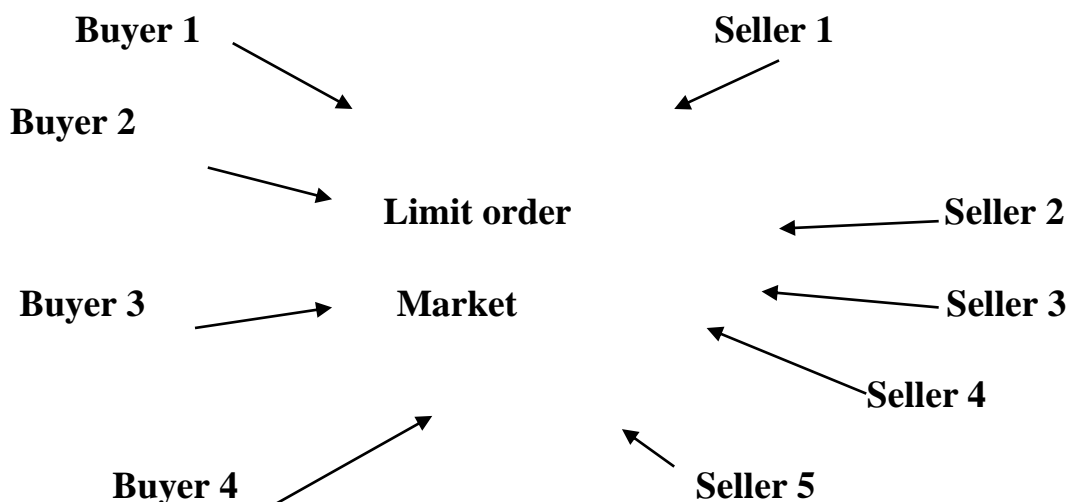
For example, the platform may be managed for profit or not, and the ownership shares of the various stakeholders' intermediaries, issuers, investors may change very much between platforms over time. And the design of trading platform must also take into account the possible threat from competing platforms. Distinctively, digital and communication technology has completely altered the trading process, leading to an increasingly lively debate on the impact of new technologies on market liquidity, price stability and economic effectiveness.

6.6 WHAT IS AUCTION MARKET OR LIMIT ORDER MARKET?

Auction market is a market where in the same time buyers enter competitive bids and seller enter competitive offers. The price at which a stock is traded represents the highest price that a buyer is willing to pay and the lowest price that a seller is willing to accept. These are centralized trading mechanism. Orders are executed and offers are paired by matching bids. Typical example of such electronic trading platform for equities as BATS in United States or Chi-X in Europe. The New York Stock Exchange is an example of an auction market. It is also known as double auction market. Trading is done by matching the buyer' and seller's asking price.

Auction market differs from counter market; here there is no direct negotiation between buyers and sellers as individuals rather it is done over the counter.

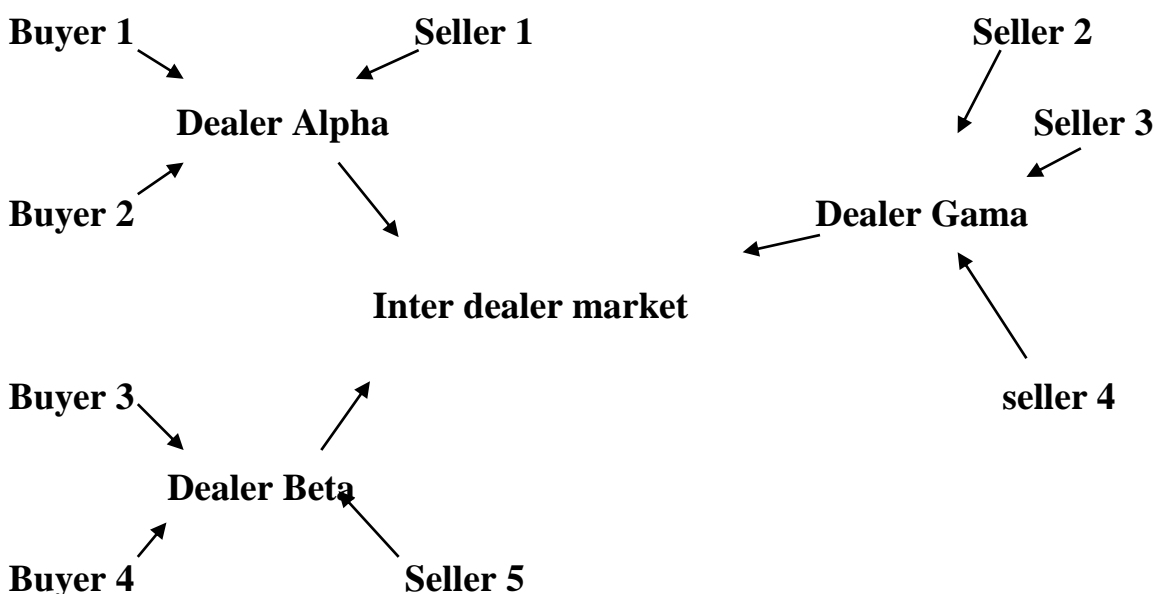
For example, there are four buyers who want to buy shares of X company and they made following bids: Rs 100, Rs 120, Rs 130 and Rs160. At the same time there are four sellers who want to sell the shares of X company. In this situation the highest bid that is Rs160 will be executed and the remaining bids will not be executed, and thus the current price of X company will become Rs160.



When presenting to continuous limit order market, investors can devise a different way depending on the trading needs. Mainly the basic choice which determines both speed and price execution is between limit and market orders.

6.7 WHAT IS A DEALER MARKET?

Here trade is not done directly by the investors with each other rather they need to contact a dealer, find out his price and trade at this price or else try another dealer. In dealer market there is a sharp distinction between liquidity suppliers (the dealers) and liquidity demanders (final investors), whereas in limit order market each participant chooses whether to provide or to demand liquidity. Bonds and foreign exchange trade primarily in dealer markets, while stock trading on the BSE is a prime example of an equity dealer market. In a dealer market it is not like limit order market that is price priority is not enforced.



This figure states the trading process in a dealer market. For example, the dealer 4 wants to sell sixty shares and that he first contacts dealer beta. Beta is willing to buy at certain price and sell at a profit of 3% and the seller 4 can decide whether to sell or find another seller who can give him better profit margin. Suppose beta fills seller 4 order by buying the security and adding it to his inventory. This exposes beta to the risk of sudden fall in prices of the security and hence loss on the value of inventories. To avoid this inventory risk beta can either rebalance his position by trading with customer who wants to buy security.

6.8 WHAT IS BREAKING DOWN A DEALER MARKET?

In the dealer market, market maker put their own capital to risk so that they can provide liquidity to investors. The primary mode of risk control for the market is therefore the use of the bid-ask spread. A bid-ask spread is the amount by which the ask price exceeds the bid price for an asset in the market.

For example, the bid price of the stock is Rs 100 and the ask price of the same stock is Rs 110, then the bid-ask spread for the stock in question is Rs 10. It can also be expressed in percentage terms. For the stock in the example above, the bid-ask spread in percentage terms would be calculated as Rs 10 divided by Rs110 to yield a bid-ask spread of 9.09% ($10/110 \times 100$). This spread would close if a potential buyer offered to purchase the stock at a higher price or if the potential seller offered to sell the stock at a lower price.

Dealer market differs from an auction market primarily on the basis of multiple market maker aspect.

6.9 WHAT IS HYBRID MARKET?

Many actual securities markets are hybrids comprising both a limit order platform and dealer segment, or have a design that mixes features of the two types of markets.

For example, the NYSE (New York Stock Exchange) has a mix of three different trading mechanisms that operate all together for each stock;

1. An open-outcry market where the floor brokers trading on behalf of other investors own account bargain on both the sides.
2. A dealer market with one market maker, the “specialist”, for each stock; there were seven specialist firms in 2009 operating at NYSE.
3. An electronic LOB for each stock that allows investors to avoid the specialists and floor traders.

NYSE’s priority rule ensures coordination of the prices in these trading mechanisms. When the specialist receives the market order, he is required to implement it against the limit orders in a book or else improve upon their prices. Other hybrid markets are traditional quote-driven markets-such as NASDAQ and LSE (London Stock Exchange) -

that have newly added a limit order trading facility so that orders can be routed to the LOB rather than to dealers.

MTS which is inter trading platform of European government is a dissimilar form of hybridization in which only few dealers who are mainly primary can post limit order and the other dealers can only submit market orders because price and time priority is used is used to implement limit order. But, in view of the fact that primary dealers can post limit orders, MTS in addition may be viewed as a dealer market. Furthermore, for each bond some primary dealers serve as selected market maker, that is they are gratified to post firm bid and ask prices constantly, for at least five hour per day, for minimum quantity and with maximum bid-ask spread that depends on the bond's maturity and liquidity.



Check Your Progress-A

Q1. Explain the concept of stock exchange with suitable examples.

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Q2. Compare and contrast the difference between market and limit order.

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Q3. What do you mean by rolling settlement?

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Q4. What do you mean by primary and secondary market?

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Q5. What do you mean by short selling?

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Q6. What is the difference between open outcry and screen based system of share trading?

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Q7. Who is an Arbitrageur and what he does?

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Q8. What are Depositories?

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6.10 WHAT IS BROKERED MARKET?

Brokers are the middle men who find counterparties for trade in this market structure. They act like an agent who work on behalf of their clients. Brokers fill an order on being asked by their client, then they will search their network for a suitable trading partner. Brokered markets are generally used for securities that have no public market, they are generally unique or illiquid securities and sometimes both. For large block trades in liquid bonds or illiquid stocks brokered market is commonly used.

For example, the real estate market is a best example of a brokered market. They have comparatively unique and illiquid assets. People who are common like us do not have much knowledge about the real estate market and because of this reason we require assistance to find buyers of our home. In these type of markets, a dealer would not be able to hold an account of the asset as in quote driven market, and the illiquidity and low frequency of transactions in the market would make an order driven market not practically easy.

6.11 WHAT IS SHORT SELLING?

Short selling is the sale of a security that is not owned by the seller, or that the seller has borrowed. Short selling is motivated by the belief that a security's price will decline, enabling it to be bought back at a lower price to make a profit. Short selling may be encouraged by speculation, or by the desire to hedge the downside risk of a long position in the same security, or a related one. Since the risk of loss on a short sale is theoretically infinite, short selling should only be used by experienced traders who are familiar with its risks.

6.12 WHAT IS MARKET TRANSPARENCY?

The amount of trading information which is available to the participants determines the level of transparency in the market. Estimates of investing in securities market can become more accurate with availability of information to the participants and thus better trading strategies can be formulated.

Transparency differs from market to market, it hardly matters whether it is a dealer market or limit order market. Intuitively, the demand for brokerage services and dealers' market power are greater in opaque market because it is harder for final investors to identify all trading opportunities.

When the information is available by the platforms they charge a considerable amount of price for that service and hence it is clear that transparency depends not only on the availability but also on the cost of information.

Electronic limit order markets are generally more transparent. Data on the best orders and their limit prices are displayed in real time and trades are directly executed by the system. The market may display only the best two limit prices or the best five or ten prices on LOB (Limit Order Book), the market may also show quantities and the ideas of the brokers placing the orders, traders may have the option of not entirely disclosing their trading intentions but may post hidden orders. The degree of transparency also varies by type of securities. The markets of major listed stocks are traditionally very transparent. Electronic communication technologies have facilitated the dispersal of trading across multiple venues, making it hard to collect exact and accurate view of overall market condition.

6.13 EVOLUTION OF MARKET STRUCTURE

There are wide varieties to ways in which trading platforms are organized. The trading mechanism differs largely because of rules of governance of trading platform. Globalization and the decline of economic and financial barriers at the regional and international levels, innovations in technology, new regulatory reforms and the evolution of investment decisions are some of the important issues faced by the people of the world which have increase the competition and ultimately affecting the market. Stock exchanges have merged with other regional and international stock exchanges reinforcing exchanges in both the U.S. and Europe.

For example, the Baltic and Nordic exchanges merged to form OMX. In the same way in 2001, Euro next was created as a result of merger stock exchanges in Paris, Amsterdam, Brussels and Lisbon then after a few years Euro next merged with NYSE and OMX merged with NASDAQ (USA).

The main role of stock exchange is to match buyers and sellers of securities and to provide a mechanism for discovering price information and for these exchanges improve

economic performances by offering companies the ability to raise capital at a lower cost and to reduce dependence on internal and bank financing. Technological innovation has totally transformed the trading of securities above all the factors and has also increased the competition.

6.14 REGULATION OF STOCK EXCHANGES

Stock exchanges are not just profit machining institutions but they also proceed the regulations of the companies that are listed in it. A stock exchange's responsibilities include keeping a close watch on market participants and ensuring that speedy risk management mechanism is in place. The design of trading rules is the outcome of interaction between government regulation and self regulation by the trading platforms, such as stock exchanges or trading networks.

For example, in the United States much of securities regulation is designed in broad outline by SEC (Securities and Exchange Commission), then implemented and specific in detail by the self regulating organizations that governs the market such as NYSE and NASDAQ.

The scope of self regulation and the way it has been used have changed over the period of time across different countries. For example the first modern stock exchange that is Amsterdam Stock Exchange came forward at the start of seventeenth century, when trading in the transferable shares of the Dutch East India Company and started immediately upon issue in 1602. Trading was first concentrated outdoors around the Nieuwe Brug in central Amsterdam.

Many continental European exchanges, however, were created at the initiative of government authorities and were generally managed and regulated by public agencies, such as local chambers of commerce. For example the Paris Stock Exchange was established by an order of the Royal Council of State in 1724.

6.15 SETTLEMENT MECHANISM FOLLOWED IN STOCK EXCHANGES

- Traditionally the shares once bought or sold are required to be physically transferred this involved a lot of work and involvement of transfer agents which often takes one to three months.
- This led to the requirement of dematerialization (virtual form) of shares and introduction of depositories.
- A depository is responsible for dematerialization of shares and transfer of ownership electronically.
- Presently there are two depositories in India National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL).

These depositories perform operation with the help of Depository Participants (DPs) which are many like ICICI, HDFC and Stock Holding Corporation Limited etc.

6.16.1 Rolling Settlement:

- For a very long period the transactions are settled on the basis of weekly period.
- SEBI introduced the system of rolling settlement which mean settlement of the transactions on T+2 basis.
- Where T means the day of trade
- T+1 confirmation from the custodial
- T+2 pay in and pay out

6.16 COMPETITION BETWEEN EXCHANGES

Increasing significance of technology have made stock exchange very much aggressive. The business operations and capital flows are becoming increasingly globalized as new centers of economic strength and modernization develop around the world. Also the future market-leading companies are emerging up in such places as China, India, Korea and Eastern Europe, in addition to the mature economies of the US, Europe and Japan. While the majority of companies ultimately choose to list on their domestic stock exchanges, more and more business leaders today are considering the pros and cons of accessing public capital in a foreign market.

The major stock exchanges like the Australian Securities Exchange, Deutsche Börse, Euro next, Hong Kong Stock Exchange, London Stock Exchange, NASDAQ, New York Stock Exchange, Singapore Stock Exchange and Tokyo Stock Exchange are making themselves more and more reliable so that the business leaders have a preference for them. These stock exchanges are redesigning themselves. These stock exchanges have their strategic focus on improving the types of exchange-listed companies and IPO activity, listing standards and fees, the process and timeline of going public and the regulatory environment. Even the disclosure norms and listing standards, fees and regulatory environment are also being changed to make them modern.

Even the stock exchanges modernized, go public and combine as equity capital markets become more and more global and more captivately, the world's leading exchanges are attempting to diversify, expand, evolve and become more efficient through denationalization and consolidation. Denationalization is the process by which member-owned, or "mutual," exchanges change to profit driven, dividend-yielding public companies. Powerful competition has also led exchanges to seek consolidation. In particular, the several top exchanges that now operate as public companies face increasing pressure to grow revenues and capture market share—and exchange consolidation is viewed as one way to achieve expansion and improve liquidity. In their efforts to consolidate, exchanges are actively seeking to sign strategic alliances, merge

and launch takeovers, modify prices and trading hours and sign cooperation and technological agreements. Increasing consolidation of equity markets is forecast to provide investors with a broader range of financial products and services at lower costs. At the same time, some analysts are worried that large-volume markets could sooner or later lead to inconsistent pricing power.

6.17 SUMMARY

Stock exchanges are the place where shares are bought and sold and they are also called as secondary market. In India, the two major stock exchanges are BSE (Bombay Stock Exchange) and NSE (National Stock Exchange). BSE is one of the oldest stock exchanges of Asia which was established in the year 1875. Earlier the method share trading used at these stock exchanges was Open Outcry System and now it has been changed to Screen Based System. At the time of placing of an order either it is placed as market order or limit order. Once the order is placed it is verified by the Depository Participants (DPs) and settled in the accounts of the buyer and seller on the parameters of T+2 bases which is also called as rolling settlement. The markets are regulated by a regulator which in case of Indian stock market is Securities and Exchange Board of India (SEBI) it ensure investors' education and protection, it also emphasizes on fair trade practice at the stock exchanges and ensures that there is strict control on the internal information being available to the traders so that nobody can be in a position of undue power and control and there by chances of insider trading can be avoided.



6.18 GLOSSARY

Stock Exchange: A marketplace where stocks, bonds, and other securities are bought and sold. It provides companies a platform to raise capital and investors a venue to trade securities.

IPO (Initial Public Offering): The process by which a private company offers shares to the public for the first time. It allows the company to raise funds from a wide pool of investors.

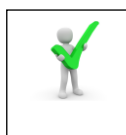
Index: A statistical measure representing the performance of a group of stocks, often used as a benchmark to assess the market's overall performance. Examples include the S&P 500, Nifty 50, or Dow Jones.

Market Capitalization: The total value of a company's outstanding shares, calculated by multiplying the current share price by the total number of shares. It indicates the size and worth of a company.

Liquidity: The ease with which securities can be bought or sold in the stock market without affecting the asset's price. High liquidity means quick transactions with minimal price changes.

Rolling Settlement: A process in stock exchanges where trades are settled incrementally, rather than all at once on a specific date. In a rolling settlement, transactions are completed and settled after a set period, usually on a T+1 or T+2 basis, meaning the trade is settled one or two business days after the transaction date.

Demat (Dematerialization): The process of converting physical share certificates into an electronic form, making them easier to handle and trade.



6.19 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q1. Explain the concept of stock exchange with suitable examples.

Securities market is also known as stock exchanges. These are basically a place for buyers and sellers to meet and decide on a price to trade. Some exchanges are physical locations where transactions are carried out on a trading floor, but in the today's era there are mainly networks of computers where trades are made and recorded electronically. In India there are mainly two stock exchanges, Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). Bombay Stock Exchange (BSE) - Established in 1875, one of the oldest stock exchange in the world. National Stock Exchange (NSE) - Established in 1994 it is the second most significant stock market of India. It is established as the most automated computerized exchange.

Q2. Compare and contrast the difference between market and limit order.

There are two mechanism of placing orders in Screen Based system:-

Limit order: This order pre-specifies the price limit. For eg. Limit order to buy at a price of Rs 90 means the trader wants to buy at a price not greater than Rs 90. Limit order to sell at a price of Rs 95 means that the trader want to sell at a price not less than 95.

Market order: it is the order to buy or sell at the best prevailing price.

Q3. What do you mean by rolling settlement?

For a very long period the transactions are settled on the basis of weekly period. SEBI introduced the system of rolling settlement which means settlement of the transactions on

T+2 bases. Where T means the day of trade, T+1 confirmation from the custodial, T+2 pay in and pay out.

Q4. What do you mean by primary and secondary market?

The markets of securities are classified into two categories primary and secondary. In primary market only those securities which are issued for the first time are traded for example, Initial Public Offer (IPOs) and New Fund Offer (NFO). Stock markets are secondary market, where existing owners of shares can transact with potential buyers. It should be kept in mind that those corporations which are listed on stock exchanges do not buy and sell their own shares on regular basis.

Q5. What do you mean by short selling?

Short selling is the sale of a security that is not owned by the seller, or that the seller has borrowed. Short selling is motivated by the belief that a security's price will decline, enabling it to be bought back at a lower price to make a profit. Short selling may be encouraged by speculation, or by the desire to hedge the downside risk of a long position in the same security or a related one.

Q6. What is the difference between open outcry and screen-based system of share trading?

Investors interested in buying and selling are requested to place their order with the authorized brokers of the exchange. There are two ways of organizing trading activities:-

Open Outcry system: Under this system the traders i.e buyers and sellers shout and resort to various signals on the trading floor.

Screen-based system: It involves interaction between buyers and sellers through the virtual mode. This system was introduced for the first time in India in 1994 from National Stock Exchange. It has increased the efficiency of stock trading as more participants can interact with each other in real time. Now screen based system is followed even in BSE.

Q7. Who is an Arbitrageur and what he does?

Arbitrageurs- They are such traders who do inter market business i.e purchasing from one market and selling in the other market.

Q8. Why can Jobber be called as a specialized form of broker?

Jobbers- specialized agents operative in case of BSE they buy and sell shares on their own account.

Q9. What are Depositories?

It is an institution which dematerializes physical certificates (converting the physical share certificates into electronic form) and effect transfer of ownership by electronic

book entries. Presently there are two depositories in India; National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL).



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6.22 TERMINAL QUESTIONS

- Q1. What do you mean by Stock market? What are the different functions performed by a stock market?
- Q2. Explain the process of trading and settlement in detail.
- Q3. Discuss and describe various participants of secondary market in detail.
- Q4. Elaborate upon SEBI as the prime regulator of securities market.
- Q5. Explain the concept of Auction or Limit order market.
- Q6. Differentiate between primary and secondary market and explain BSE and NSE as major stock exchanges of India.
- Q7. What do you mean by a dealer market? How can a dealer market be broken?
- Q8. What is a Hybrid market? Explain with suitable examples.

UNIT 7 THE SECURITIES AND EXCHANGE BOARD OF INDIA

7.1 Introduction

7.2 Objectives

7.3 What is SEBI?

7.4 Organisational Structure of SEBI

7.5 Functions and Responsibilities of SEBI

7.6 Powers of SEBI

7.7 Objectives of SEBI

7.8 Regulatory Aspects of SEBI

7.9 Guidelines of SEBI for Various Securities

7.10 Steps Taken by SEBI Towards Investors Protection

7.11 Evaluation of Role of SEBI

7.12 Summary

7.13 Glossary

7.14 Answers to Check Your Progress

7.15 References

7.16 Suggested Readings

7.17 Terminal Questions

7.1 INTRODUCTION

The market of security in India is a large market which pools and invests huge amount of funds from general public. It is a platform which acts as link between borrowers and lenders. The operations of such market are spread worldwide and it becomes essential to regulate their functions for general welfare. In context to different conflicts and scams that takes place in financial consideration, it becomes the need of hour to keep a check on such funding platform. The era of 1990 has proved an urgent requirement of a governing body which may provide security to both investors as well as to intermediaries. The scam of 1992 was an alarming event by which the does and don'ts of financial players were

well recognised. It was by early 1990 that government felt the need of development of regulatory agency. In this unit we shall learn about the need and objectives of SEBI. The organisational structure of SEBI and its mechanism has also been explained here. The regulatory functions of SEBI concerning intermediaries in investors and investing companies have also been explain in the unit.

One of the important roles of securities market is to circulate funds from one sector to other. Therefore, there is an immense need of regulating such market, in order to control the quantum of flow of funds. In order to fulfil such objective various regulatory bodies have been established to ensure a fair play in the securities market. The security and exchange Board of India along with stock exchange in India are performing various tasks so as to save the interest of investors in the securities market. In this chapter unit we shall focus on the role of SEBI in regulation and development of stock exchange in India.

Stock exchange is a form of secondary market in which all the existing securities are being exchanged and traded for both short- and long-term requirements. This market basically deals with long term securities which are transferable from one investor to the other. This market plays a vital role in channelization of funds and helps in capital formation. Therefore, it becomes essential that an economy should have a well-developed stock market by which funds can be easily raised. The working of a stock exchange is not independent in nature, but it involves a large number of players dealing in it. Not only company but emergent banker, intermediaries, investors, SEBI, all is actively working for the growth and development of a stock exchange. The modern aspect of this stock exchange is to make trading in securities smoother and more feasible for the investors. Therefore, the modern functions of dematerialisation and de- mutualisation are being introduced in the stock exchanges. The large amounts of funds are traded in National Stock Exchanges, whereas for small amounts OTCEI, have been developed which are regional and deals with retail investors.

The exchange is considered to be a virtual market which helps to execute the dealing in stock and securities. It is an interactive platform for brokers, agents, investors, institutes etc. where the objectives of buying and selling of securities can be undertaken. The largest stock exchange in India is Bombay stock exchange, whereas there are 21 stocks exchanges in country. The prices of various securities are decided in the market by the interactive forces of demand and supply. So, these securities market fulfil the objectives of price determination of securities. Only listed companies are allowed to trade in these security exchanges, therefore it is secure to invest funds in the listed securities of any exchange. Also, these exchanges are regulated by the guidelines of government and concerning authorities, so the interest of investors is totally secured.

7.2 OBJECTIVES

The objectives of this unit maybe summed up as under-

- To understand the regulatory function of financial market.

- To know about the incorporation of SEBI and its role in redressal of grievances concerning financial market.
- To understand the limits of Companies investors and intermediaries.
- To know about the organisational structure of SEBI and its different functions.
- To understand about various forms of securities and their regulation.

7.3 WHAT IS SEBI?

The growth in Indian capital market has shown a dramatic change in past few decades. By the implementation of liberalisation in India, a large number of investors have been attracted to the capital market. So, it becomes essential to maintain the trust of these investors in the capital market.

Also, it becomes the responsibility of government to protect their interest. Therefore a rule was framed in 1943, under the defence of India Act 1959, with regard to protect and regulate the flow of funds. An administrative body was established as SEBI on 12th April 1988. It is statutory body which is provided a complete control on security and security market by issue of an ordinance on 31st January 1992. A bill for SEBI was passed in Parliament on 1st April 1992 and therefore SEBI became an operational functioning body from April 1992.

Under Section 4 of SEBI Act following provisions are provided-

- (1) Formation of Board- The board of SEBI consist of nine members, including a chairman nominated by government, two officials of Central Government who have a knowledge of law and Finance, one member from RBI and at least three members who should be whole time members nominated by central government. The head office of SEBI is in Mumbai.
- (2) Term of office- The office term and service conditions of members is decided by central government and the services can be terminated by giving a three month notice to any of the members.
- (3) Removal of members-The members can be removed, if they are declared insolvent, if they are declared of unsound mind by the court or they are found to be guilty of any moral turpitude.

The functions of a stock exchange are as under-

- (1) Highly liquid- The stock exchange shall provide the facility of maintaining high liquidity to its investors. It provides a readymade market in which funds can be converted into security and again back into cash. Investors find it comfortable to deal in a well-structured and organised market, where all the essential norms and regulations are being followed. The market helps to maintain both long as well as short term liquidity of their investor, as it deals in both long- and short-term securities.

(2) Market ability- For the investors, the exchange provides a facility of readymade market in which security can easily be purchased and sold. The market forces of demand and supply are responsible for determination of prices of securities that may either be at par, premium or discount. Evaluation of security is also being done by the exchanges on the basis of net worth or profit earning ability of Companies.

(3) Growth of economy- The stock exchanges are considered to be an index on the basis of which the performance of an economy can be valued. These exchanges shall demonstrate the security of those listed companies, which are highly profitable and shall add up to the GDP of country.

(4) Determination of price- The prices of securities have been determined on the basis of demand and supply. So, the existence of stock exchanges is essential, so as the prices of securities may be fixed and can easily be traded.

(5) Safety in transactions- The trading in stock exchange is done by both online and offline mode. So, certain legitimacy is maintained by which the transactions are transparent and secure. The dealings are governed by the regulations formed by the Security Board of India, so there are nominal chances of fraud.

(6) Awareness about equity- In the exchange also plays a very vital role in creating awareness about the importance and benefits of investing in equity securities. Equity being a risky security is not so widely used, but the exchange takes it responsibility to attract potential investors for taking risk and earning greater returns through equity.

(7) Speculations- The forecast about market and projected prices of security in the stock exchange creates an environment for speculation, by which various intermediaries, brokers' agents and dealers could earn extraordinary reward from securities. This speculation is prior calculated and is done under the surveillance of government authorities.

(8) Capital formation- Another important function of stock exchange is to contribute in formation of capital by adding up small savings of individuals and converting into large amount of funds, being utilised as capital. The largest size of stock exchange ensures large amount of capital being formed in the economy, which further serves to increase in economic growth rate.

(9) Encouragement to savings- The concept of savings and investment is interrelated to each other as more amount of savings results in more amount of investments, which further generate higher income being reinvested, therefore, the on-going process of Savings and investment is the basis of functioning of stock exchange.

7.4 ORGANISATIONAL STRUCTURE OF SEBI

In order to achieve the objectives of regulation of security market the organisational setup of SEBI follow the following structure;

- (1) Primary Market Department- This department is concerned with laying down policies and rules concerning control on primary market, registration and regulation of intermediaries in the primary market, redressal of grievances of the investors, regulations for investment Consultants as well as underwriters. It also regulates and registers debenture trustees and keeps a control over self-regulatory organisations. It provides guidelines to investors and makes registration of association of investors mandatory.
- (2) Issue Management and Intermediaries Department- This department deals with the following to keep a control and check on new issue offers, prospectus and offer letter for public to regulate public and right issue.
 - Provide advice to the parties concerned with issue of securities and make them aware about the changes in situation.
 - Frame rules about issue of securities and to monitor them.
 - To take necessary step about appropriate allotment of securities.
 - Also to register and regulate the intermediaries in the security market.
- (3) Secondary Market Department- This department deals with-
 - (a) Registration of the function of this department is members in the stock market.
 - (b) To look after policy formulation and implementation in the secondary market.
 - (c) To keep an eye on stock exchange indexes.
 - (d) To keep complete control on insider trading.
 - (e) Collection and assimilation of data and providing them to various beneficiaries
- (4) Stock exchange management department- The functions of this department are -
 - (a) Registration of brokers and sub brokers.
 - (b) To keep a check on dealings of stock exchange and issue various managerial directions.
 - (c) Audit and inspection of stock exchanges.
- (5) Institutional investment department- This department deals with-
 - (a) Regulate and register foreign institutional investors.
 - (b) To understand the functioning of foreign stock exchanges and coordinate them with countries stock dealings.
 - (c) Conduct research about dealings in stock exchange and publish the findings.
 - (d) To keep a check on venture capital, mutual funds and collective investment schemes.
- (6) Legal department- This department looks after legal considerations required to control the exchange and issue of securities. It looks after the laws required for securities and to implement them. It also undertakes legal actions for not following legal provisions and rules.

- (7) Investigation department- The function of this department is to keep a check on the workings of stock exchange. Also to keep a control on intermediaries and on unlisted securities of primary market, reduce fraudulent transactions and to prevent their recurrence.

7.5 FUNCTIONS AND RESPONSIBILITIES OF SEBI

SEBI is the prime agency formulated by government, so as to keep a control on the dealings of stock exchange. The major functions of SEBI can be summed up as-

- (a) To protect the interest of investors and develop a security market
- (b) To regulate the business of stock market
- (c) To look after registration and regulation of brokers sub broker share transfer agents portfolio managers trustees merchant bankers and underwriters
- (d) To regulate and register the collective investment schemes such as mutual funds
- (e) The most important function of SEBI is to promote self-regulatory organisation and to eliminate unfair trade practices in securities market
- (f) It also looks after monitors the activities of various Stock Exchange functionaries
- (g) SEBI also looks after the education and Awareness of investors and their training programs for better connectivity with stock exchange se
- (h) It also under takes to perform reserved and development activities

After the disclosure of scam concerning shares in 1992, SEBI started monitoring the activities of capital market in India very closely. A code of conduct was established for stock brokers, sub brokers and for insider trading from January 1993. The working of merchant bankers was brought under the preview of SEBI. Not only these bankers but SEBI also looks after framing the working strategy of portfolio managers. Janki Ram committee and their third report indicated about the misuse of portfolio management scheme by the foreign banks. So the registration of merchant bankers was made mandatory under SEBI

The responsibilities of SEBI can be listed as-

7.5.1 Responsibilities of SEBI and primary market- For a primary market, SEBI are concerned with new issue and it plays an important role for saving the interest of retail investors. It undertakes the following activities-

- (a) Modifies format of prospectus- SEBI looks after a transparent prospectus to be drafted by the companies so as sufficient information must be provided to the investors. A format of prospectus has been framed by SEBI.

(b) Disclosure of risk factor at the time of new issue- It is mandatory for every company to disclose the risk factor associated with the interest of investors directly or indirectly. The company must provide critical evaluation of project and the expected delays in the completion of project. It shall also outline the difficulties concerning procurement of raw material and marketing.

(c) Allotment of shares- It is essential that the listing of Companies and allotment of shares must be done within a specific period of time. SEBI makes it compulsory for the companies to deposit certain percentage of the ratio with stock exchange. In case of any mistake or error in allotment of shares, the amount deposited shall be forfeited.

(d) Registration of merchant bankers- The responsibility of SEBI is towards the registration of merchant bankers and to help them manage new issue.

(e) Registration of prime institutions- The provisions of SEBI also undertakes the registration of certain institutions. In the primary market like issue manager bankers underwriters etc. It becomes the responsibility of SEBI to look after a fair issue of security.

(f) Redressal of investor's grievances- The complaints and difficulties of investors are also being sorted out by SEBI, so as to make a healthy trading environment for both companies and investors.

(g) Registration for investors Union- SEBI has also started with the registration of investors

Union, so that their problems can be removed in the best way and the investors could be made aware about their rights.

(h) Training to the investors- For the protection of interest on investors, SEBI also looks after publishing useful information. It under takes to educate investors and provide them all the essential information required for best investment strategies.

(i) Transparency in dealing- In order to generate better confidence in investors' SEBI also tries to create a transparency in various dealings and trading in the securities market.

Various guidelines have been issued from time to time by which companies are bound to publish all the details of their trading affairs.

7.5.2 Responsibility of SEBI in secondary market- In secondary market both qualitative as well as quantitative improvement has been implemented by SEBI by the following-

(a) Establishment of a network of stock exchange-In order to establish a better network of stock exchanges throughout the country, 8 new exchanges have been set up and at present excluding NSE 23 stock exchanges are operating. These include OTCEI for small companies and retail investors.

(b) Establishment of stock exchange- SEBI issues different guidelines for framing a governing body for the stock exchange. Such governing body shall consist of five elected

members, which includes maximum 3 members who are government officials or nominated by SEBI and maximum 3 representatives of public with an executive director.

(c) Drafting an Advisory Committee- Such committee is meant for both Primaries as well as for secondary market. This committee is constituted for the benefits of investors and to resolve their problems.

(d) Research and Publication- a variety of research has been conducted by SEBI in the field of innovation, market efficiency and professionalism concerning trading in securities. The findings of these researches are being published for general public.

(e) Registration of brokers- The registration of stock brokers and sub brokers has been made a mandatory by SEBI. The qualifications and basic requirement for the registration has been issued by SEBI. None of the brokers without being registered are allowed to trade in security market.

(f) Inspection of stock exchanges- A continuous and frequent inspection of stock exchanges have been conducted by SEBI, so as to ensure transparency in dealings and enhancement of fair-trade practices.

(g) Regulation of insider trading and mutual funds- Under the preview of SEBI, insider trading has been considered to be a criminal offence. The people held liable shall face the provisions of Indian penal code. Also, the registration of mutual funds is compulsory and a code of conduct is declared for the advertisement of mutual funds. The risk associated with mutual funds must be declared to the investors.

7.6 POWERS OF SEBI

The power of SEBI can be and listed as under-

(1) Power of inspection- The board of SEBI has a power to conduct an inspection to check the books, register, documents or any record of Companies, who are listed in a stock exchange. It may also conduct an audit of stock exchange to ensure fair trading of securities.

(2) Powers of court- The board of SEBI has same powers as the powers of a Civil Court. For civil procedures, this includes inspection of books of accounts, registers and documents of any individual, at any place, to issue commissions for examining a witness or forcing the attendance of an individual.

(3) Powers in the interest of security market- The board of SEBI may also take a measure to suspend trading of security to restrain any person from access of security market, to suspend any bearer's office from security market or to retain the proceeding of any transaction under investigation.

(4) Issue directions- SEBI may also issue directions for the interest of investors to prevent any unfair or fraud full trade activity and also it ensures optimum management of funds in securities market.

(5) Investigatory power- On reasonable grounds, the board of SEBI may conduct investigation of various transactions in security, in order to ensure transparency and fairness in the deals.

(6) Power of proceedings- SEBI may also conduct proceedings or detain an individual from proceeding issue or sale of securities.

7.7 OBJECTIVES OF SEBI

In order to meet the requirements of various rights and responsibility of SEBI, the following objectives have been laid down-

7.7.1 Protective objectives- These objectives include all the activities performed by SEBI in order to protect the interest of investors and to create a safety of Investments. Under protective objectives, following functions are undertaken-

(1) **Check price rigging-** The term price rigging means manipulating the prices of security with the purpose of inflating or deflating the prices of securities. Such practices are prohibited by SEBI and they are considered as fraud or cheating on investors.

(2) **Prohibits insider trading-** An insider is considered to be a person connected with company such as a director or a promoter. These insiders could propagate sensitive information which could affect the prices of security. The information is provided to a selective group of privileged investors who have an objective of earning huge profits by using such information. SEBI keeps a check on such insider trading and takes quick action against such activities.

(3) **Prohibition on fraud and unfair trade practices-** SEBI shall not allow a company to get involved in misleading statements for sale or purchase of securities. It undertakes various steps for education of investors and evaluates most profitable security for general public affair, practice and code of conduct. Is also promotes safeguard of debenture holders by issuing guidelines for debentures. SEBI takes various steps for empowerment of investors and make them aware about inside trading and preferential allotment of shares.

7.7.2 Development objectives- These objectives are performed to promote and develop various trading activities in a stock exchange. The promotion and training of intermediaries in a security market is considered as an important developmental activity. SEBI also emphasizes on promoting flexible and most feasible approach for welfare of investors, which includes internet trading and using electronic means of transaction. The use of underwriters is optional source to reduce the issue cost of security and it is mandatory to get permission from stock exchange for IPO in primary market.

7.7.3 Regulatory objectives- These objectives include formulation of rules and policies so as to control different activities of trading in a securities market. SEBI has framed rules and regulations for intermediaries like merchant bankers, underwriters, brokers etc. The private placement of security has been made more restrictive in nature. SEBI also under takes to register and regulate different parties associated with stock exchange with direct or indirect interest. The working of mutual funds has also been controlled directly by SEBI. Regulations are made towards takeover of Companies and SEBI conducts audit of various Stock Exchanges.

7.8 REGULATORY ASPECTS OF SEBI

As per SEBI regulations 2014, SEBI may consider the nature, Gravity and impact of default on any SEBI laws and civil proceedings to initiate and take necessary action for settlement of proceedings. Regulations of SEBI are notified in 2014, which include settlement of all grievances which maybe criminal in nature. The terms of settlement include both monetary as well as non-monitory terms. The non-monetary terms include voluntary suspension of certification of registration, closure of a business for a specific period, removal of individuals from management, lock or cancellation of security, debarment of certain individuals from acting as a partner or director or intermediate. All the necessary guidelines are provided concerning internal audit and reporting requirements.

7.9 GUIDELINES OF SEBI FOR VARIOUS SECURITIES

(1) Guidelines for issue of shares for new companies- For a manufacturing company, it is essential that dividend must be paid over past 3 years and the company should have a good track record for 3 years out of previous 5 years, when its net worth should not be less than 1 crore. If the company could not maintain a good record then it can issue shares through book building and 60% of the issue can be offered to institutional buyers. The IT companies are allowed to issue 10% of initial public offers but this offer should be at least 50 crore and 20

lakh securities. The companies concerning media entertainment and Telecom are allowed to issue their 10% of total shares to public but the offer must not be less than 5 crore. The infrastructure companies are exempted from the above and they can issue 25% of shares for public subscription.

(2) Guidelines for issue of shares for existing companies-The existing companies are also free to raise their capital by issue of shares in the security market and they can fix the share price freely, but after consulting lead managers. SEBI has a right for inspection of prospectus and to check the declaration of company. In case of issue, if the holding offer for investors exceeds more than 51% of the total value of issue then the company must

follow the provisions given under Companies Act 2013 and should take a permission either from RBI or from Government of India.

(3) Guidelines for issue of right shares- Any company listed in a stock exchange can issue right shares under Section 62 of the Companies Act. The regulations for new issue are not implied on the issue of right shares. If the offer does not exceed 50 lakh the offer letter must be filed with SEBI through a merchant banker at least 30 days prior to the issue. But before right issue the partly paid up shares must be converted into fully paid up shares and then after following forfeiture of unpaid shares. The right issue must be executed. Non listed company is free to fix up the price of a right share but a right issue cannot be made unless arrangements of finances are made through very fable means and it must be disclosed in books of accounts. A company cannot withdraw right issue once it is being announced and the issue must be kept open for at least 15 days but not more than 30 days of declaration.

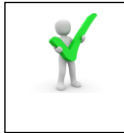
(4) Guidelines for issue of Bonus shares- The bonus shares can be issued only if the company maintains free reserve or if the amount of premium is collected in cash. The Reserve created out of revaluation of assets is not considered to be registered but an investment allowance reserve and development discount reserve are considered to be free reserve which can be employed towards issue. The shares cannot be issued if it causes any decrease in the right of fully or partly paid-up convertible debentures. After obtaining an approval for the issue of Bonus shares, the directors may imply it within a period of 6 months.

(5) Guidelines for stock options- In India the employees stock option program is a system which motivates employees to participate in the management of a company, particularly for those companies which depend upon the qualification of their employees. Company can offer the security to its employees, following the conditions that the issue must not be more than 5% of paid-up capital of a company in any year. Under this scheme a company cannot issue its shares to the promoters or directors but they are exclusively meant for the employees. Any company is free to adopt ESOP scheme. The prices of these shares depend on the preference of employees to subscribe for the shares. The company is required to submit a certificate mentioning that shares have been issued only to permanent employees.

(6) Guidelines for mutual funds- In order to regulate and Control Mutual Funds, SEBI has issued directions and a code of conduct has been issued from the year 1993. It becomes essential for issue of mutual funds to disclose all its essential information to the investor and provide an offer document which includes the factor of risk, nature of scheme, provisions and records of fund manager policy of loan raising, buy back of shares, rights of investors etc. It becomes essential for a mutual fund to create a trust that should manage the flow of funds and assets. Mutual Funds shall invest their money only in transferable security and could not be used by any of the unlisted company. 90% of the profit earned should be distributed as dividend among the shareholders.

(7) Guidelines of SEBI for inside trading- The trend of earning profit through insider trading has prevailed in the securities market for quite a long period of time. The

transactions carried out through insider trading involve confidential information which is being provided by the insiders, who are closely related to the management of companies. The investors do not have an idea about the prevailing insider information, so it becomes essential for the investors to know all the financial information about the company, prior to investment and to predict dividend declaration. Also to know about issue of Bonus and right shares, to know about expansion plan of the company, to know about merger acquisition or liquidation of company.



Check Your Progress-A

Q1. State True or False.

- i. Issue Management and Intermediaries Department- This department deals with the following to keep a control and check on new issue offers, prospectus and offer letter for public to regulate public and right issue.
- ii. In order to regulate and Control Mutual Funds, SEBI has issued directions and a code of conduct has been issued from the year 1993
- iii. As per SEBI regulations 2014, SEBI may consider the nature, Gravity and impact of default on any SEBI laws and civil proceedings to initiate and take necessary action for settlement of proceedings.

Q2. Multiple choice questions

- i. What is the primary function of SEBI?
 - a) To regulate mutual funds
 - b) To oversee the functioning of the Indian stock markets
 - c) To manage the Indian currency
 - d) To control inflation
- ii. SEBI has the power to regulate the working of:
 - a) Brokers
 - b) Mutual funds
 - c) Stock exchanges
 - d) All of the above
- iii. Which act empowers SEBI to regulate the securities market in India?
 - a) The Companies Act, 1956
 - b) The Banking Regulation Act, 1949
 - c) The SEBI Act, 1992

- d) The Competition Act, 2002
- iv. SEBI was given statutory powers through which act?
- a) Securities Contracts (Regulation) Act, 1956
 - b) SEBI Act, 1992
 - c) Banking Regulation Act, 1949
 - d) Companies Act, 1956
- v. SEBI was established in which year?
- a) 1980
 - b) 1992
 - c) 1988
 - d) 2000

7.10 STEPS TAKEN BY SEBI TOWARDS INVESTORS PROTECTION

In order to maintain the protection of investors, who are dealing in the security market SEBI has under taken various steps in the forms of rules and regulations, so as to safeguard the interest of investors. SEBI has empowered the investors to register their complaints and approach for redressal of their grievances on time. SEBI has provided various forms of lodging complaints of different nature in its website that also provides facility to the investor to file a complaint against company, broker, registrar, share transfer agent or any other kind of intermediary, who is involved in fraud or misconduct. The complaints of investors are either personally visited or they are being respondent to the relevant areas of stock exchange which is involved in the grievance of investor. SEBI has also under taken to create a separate investors information Centre and surveillance department, which looks after the problems faced by the investor. These departments keep a close watch on the manipulative and fraud activities which are being done in the securities market so the surveillance department works on the philosophy that prevention is better than cure. There after it is better to avoid any unproductive activity in the security market. Not only resolution to the problems SEBI also look after the education and awareness of investors, so as they may be protected from any kind of fraud in the transactions.

7.11 EVALUATION OF ROLE OF SEBI

SEBI acts as a watchdog for the protection and development of investors dealing in a securities market. Such market is the prime source of flow of funds in an economy, which involves large number of players dealing in it. So it becomes essential to create an ecosystem for better functioning of all its members. The role of SEBI becomes more prominent for companies who raise amount of funds from general public and employs them towards their profitability. It also becomes essential to maintain a transparency in the dealings of securities, by which SEBI maintains control the supply of money in the market, not only for the companies but for bankers, brokers and different forms of mediators. SEBI has formed a code of conduct by which a fair dealing can be executed. It also works for maintaining the faith and believe of investors in the security.

7.12 SUMMARY

In this unit, we have learnt about the importance and functions of SEBI towards regulation of securities. Also, we have learnt about the role of SEBI in protection of interest of investors. SEBI is also creating a transparent system for better investment avenues.



7.13 GLOSSARY

SEBI- The body which looks after regulation and control of financial dealings in securities market.

Insider Trading- The practice of using sensitive information of company to temper the prices of securities.



7.14 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q1.

- i) True
- ii) True
- iii) True

Q2.

- i. b
- ii. d
- iii. c
- iv. b
- v. c



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7.16 SUGGESTED READINGS

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7.17 TERMINAL QUESTIONS

- Q1. What do you mean by SEBI? Explain its various functions?
- Q2. Explain the organisational structure of SEBI?
- Q3. What are the powers of SEBI? Also explain its responsibilities?
- Q4. Discuss various objectives of SEBI?
- Q5. “SEBI is a regulatory body for the stock exchange” explain?
- Q6. Explain guidelines of SEBI issued for different securities traded in the market?
- Q7. What is the role of SEBI in protection of Investors? Discuss in brief.
- Q8. Evaluate the role of SEBI as a watchdog of financial transactions?

Block II
Security Analysis

UNIT 8 MARKET INDEXES

8.1. Introduction

8.2. Objectives

8.3 Uses of market indexes

8.4 Origin of market Indexes

8.5 Index definition and calculation of value and return

8.6 Index Construction and Management

8.7 Index based investment products

8.8 A Spectrum of indexes

8.9 Composite stock bond indexes

8.10 Summary

8.11 Glossary

8.12 References

8.13 Terminal & Model Questions

8.1 INTRODUCTION

Gathering information about the stock market on a continual basis is a very cumbersome and time-consuming process for the investors. So, investors oftenly use a single measure that contains the information about the market and reflects the performance of an entire stock market. Market indexes were first introduced as a simple measure to reflect the performance of U.S market. So basically, an index is used to give information about the price movements of products in financial, commodities or any other markets. Portfolios are composed of many different individual stocks. If an investor owns more than a few stocks or bonds, it is very difficult for him to follow each stock or bond individually to determine the composite performance of the portfolio. So, to supply investors with a composite report on market performance, some financial publications or investment firms have created and maintain stock-market indexes. An index is created by selecting a number of securities that are representative of the whole market or a particular sector or segment of the market. So in this unit we will discuss the several ways investors use security market indexes. An awareness of these significant functions should provide an incentive for becoming familiar with these indexes. In this unit we will also discuss how

indexes are created and what decisions are taken by the index constructors before and after constructing the index and also further how they manage the index.

8.2 OBJECTIVES

The objectives of this unit are to;

- Describe a security market index.
- Calculate and interpret the value, price return, and total return of an index.
- Discuss the index construction and management.
- Discuss rebalancing and reconstitution.
- Discuss different types of indexes

8.3 USES OF MARKET INDEXES

Indexes were initially created to know about how a particular security market performed on a given day. With the development of modern financial theory, their uses in investment management have expanded significantly. Some of the major uses of indexes include:

- Gauges of market sentiment.
- Proxies for measuring and modelling returns, systematic risk, and risk-adjusted performance.
- Proxies for asset classes in asset allocation models.
- Performance Benchmarks for actively managed portfolios.
- Model portfolios for such investment products as index funds and exchange-traded funds (ETFs).

8.3.1. Gauges of Market Sentiment

The original purpose of stock market indexes was to provide a gauge of investor confidence or market sentiment. As indicators of the collective opinion of market participants, indexes reflect investor attitudes and behavior. The Dow Jones Industrial Average has a long history, is frequently quoted in the media, and remains a popular gauge of market sentiment. It may not accurately reflect the overall attitude of investors or the “market,” however, because the index consists of only 30 of the thousands of U.S. stocks traded each day.

8.3.2. Proxies for Measuring and Modelling Returns, Systematic Risk, and Risk-Adjusted Performance

The capital asset pricing model (CAPM) defines beta as the systematic risk of a security with respect to the entire market. The market portfolio in the CAPM consists of all risky securities. To represent the performance of the market portfolio, investors use a broad

index. For example, the Tokyo Stock Price Index (TOPIX) and the S&P 500 often serve as proxies for the market portfolio in Japan and the United States, respectively, and are used for measuring and modelling systematic risk and market returns.

Security market indexes also serve as market proxies when measuring risk-adjusted performance. The beta of an actively managed portfolio allows investors to form a passive alternative with the same level of systematic risk. For example, if the beta of an actively managed portfolio of global stocks is 0.95 with respect to the MSCI World Index, investors can create a passive portfolio with the same systematic risk by investing 95 percent of their portfolio in a MSCI World Index fund and holding the remaining 5 percent in cash. Alpha, the difference between the return of the actively managed portfolio and the return of the passive portfolio, is a measure of risk-adjusted return or investment performance. Alpha can be the result of manager skill (or lack thereof), transaction costs, and fees.

8.3.3. Proxies for Asset Classes in Asset Allocation Models

Because indexes exhibit the risk and return profiles of select groups of securities, they play a critical role as proxies for asset classes in asset allocation models. They provide the historical data used to model the risks and returns of different asset classes.

8.3.4. Performance Benchmarks for Actively Managed Portfolios

Investors often use indexes as benchmarks to evaluate the performance of active portfolio managers. The index selected as the benchmark should reflect the investment strategy used by the manager. For example, an active manager investing in global small-capitalization stocks should be evaluated using a benchmark index, such as the FTSE Global Small Cap Index, which includes 4,600 small-capitalization stocks across 48 countries.

The choice of an index to use as a benchmark is important because an inappropriate index could lead to incorrect conclusions regarding an active manager's investment performance. Suppose that the small-cap manager underperformed the small-cap index but outperformed a broad equity market index. If investors use the broad market index as a benchmark, they might conclude that the small-cap manager is earning his or her fees and should be retained or given additional assets to invest. Using the small-cap index as a benchmark might lead to a very different conclusion.

8.3.5. Model Portfolios for Investment Products

Indexes also serve as the basis for the development of new investment products. Using indexes as benchmarks for actively managed portfolios has led some investors to conclude that they should invest in the benchmarks instead. Based on the CAPM's conclusion that investors should hold the market portfolio, broad market index funds have been developed to function as proxies for the market portfolio.

Investment management firms initially developed and managed index portfolios for institutional investors. Eventually, mutual fund companies introduced index funds for

individual investors. Subsequently, investment management firms introduced exchange-traded funds, which are managed the same way as index mutual funds but trade like stocks.

The first ETFs were based on existing indexes. As the popularity of ETFs increased, index providers created new indexes for the specific purpose of forming ETFs, leading to the creation of numerous narrowly defined indexes with corresponding ETFs. The Market Vectors Vietnam ETF, for example, allows investors to invest in the equity market of Vietnam.

The choice of indexes to meet the needs of investors is extensive. Index providers are constantly looking for opportunities to develop indexes to meet the needs of investors.

8.4 ORIGIN OF MARKET INDEXES

Investors access publish data of securities prices in London as early as 1698, but after 200 years they started accessing the simple indicator to reflect security market information. To make investors know that how security market performs on a given day, publishers Charles H. Dow and Edward D. Jones introduced the Dow Jones Average, the world's first security market index, in 1884. The index is composed of nine railroads and two industries companies. It eventually became the Dow Jones Transportation Average.

Dow and Jones introduced a second index in May 1896- the Dow Jones Industrial Average (DJIA) consisted of 12 stocks from major U.S industries. Today investors can choose from among thousands of indexes to measure and monitor different security markets and assets classes. In this unit we will defines a security market index and explains how to calculate the price returns and total return of an index for a single period and over multiple period. Also how indexes are constructed and managed.

8.5 INDEX DEFINITION AND CALCULATION OF VALUE AND RETURN

A security market index represents a given security market, market segment or asset class. Most indexes are constructed as portfolio of marketable securities. For Example ETFs, Index Funds are composed of same securities as an index represent. The value of an index is calculated regularly on the basis of actual prices or the estimated prices of the individual securities, known as constituent securities, within the index.

For each stock index, investors may encounter the two version of the same index. One version is based on the price return and other version is based on the total return. The price return index reflects the prices of the constituent securities within the index on the other hand total return index reflect not only the prices but also the reinvestments of dividends since inception. Initially, the values of the price and total return versions of an

index are equal. As the time passes, the value of total return index, which includes the reinvestment of all dividends and or interest received, will exceed the value of the price return index by an increasing amount. How the value of each index is calculated over multiple periods are illustrated below;

The value of price return index is calculated as;

$$V_{PRI} = \frac{\sum_{i=1}^N n_i P_i}{D}$$

Where;

V_{PRI} = the value of price return index

n_i = the number of units of constituent security i held in the index portfolio.

P_i = unit price of constituent security

D = the value of the divisor

At inception, the value of divisor is chosen is such that the price of index has a convenient initial value, such as 1000. The index provider then adjust the value of the divisor as necessary to avoid changes in the index value that are unrelated to changes in the prices of constituent securities. For example, when changing the index constituents, the index provider may adjust the divisor so that the value of the index with new constituents equals the value of the index prior to the changes.

Index returns calculations; encompass price return or total return. Price return measures only price appreciation or percentage change in the price of constituents (securities) whereas total return measures price appreciation plus interest, dividends, and other distributions.

8.5.1. Calculation of Single-Period Returns

For the market index, price return can be calculated in two ways: either the percentage change in value of the price return index, or the weighted average of price returns of the constituent securities.

The price return of an index can be expressed as:

$$PR_t = \frac{V_{PRI1} - V_{PRI0}}{V_{PRI0}}$$

Where:

PRI = the price return of the index portfolio (as a decimal number, i.e., 12 percent is 0.12)

V_{PRI1} = the value of the price return index at the end of the period

V_{PRI0} = the value of the price return index at the beginning of the period

Similarly, the price return of each constituent security can be expressed as:

$$PR_i = \frac{P_{i1} - P_{i0}}{P_{i0}}$$

Where:

PR_i = the price return of constituent security i (as a decimal number).

P_{i1} = the price of constituent security i at the end of the period.

P_{i0} = the price of constituent security i at the beginning of the period.

Total return measures price appreciation due to stock movements plus dividends receipt from constituent index stocks. Thus, the total return of an index is the price appreciation, or change in the value of the price return index, plus income over the period, expressed as a percentage of the beginning value of the price return index. The total return of an index can be expressed as:

$$TR_I = \frac{V_{PRI1} - V_{PRI0} + Inc_I}{V_{PRI0}}$$

where

TR_I = the total return of the index portfolio.

V_{PRI1} = the value of the price return index at the end of the period.

V_{PRI0} = the value of the price return index at the beginning of the period.

Inc_I = the total income (indexed dividend) from all securities in the index held over the period.

The total return of an index can also be calculated as the weighted average of total returns of the constituent securities. The total return of each constituent security in the index is calculated as:

$$TR_i = \frac{P_{1i} - P_{0i} + Inc_i}{P_{0i}}$$

Where:

TR_i = the total return of constituent security i .

P_{1i} = the price of constituent security i at the end of the period.

P_{0i} = the price of constituent security i at the beginning of the period.

Inc_i = the total income (dividend) from security i over the period.

8.5.2. Calculation of Index Values over Multiple Time Periods

The calculation of index values over multiple time periods requires geometrically linking the series of index returns. With a series of price returns for an index, we can calculate the value of the price return index with the following equation:

$$V_{PRIT} = V_{PRIO} (1+PR_{I1}) (1+ PR_{I2}) \dots\dots\dots (1+PR_{IT})$$

Where:

V_{PRIO} = the value of the price return index at inception.

V_{PRIT} = the value of the price return index at time t .

PR_{IT} = the price return (as a decimal number) on the index over period t , $t = 1, 2, \dots, T$

Similarly, the series of total returns for an index is used to calculate the value of the total return index with the following equation:

$$V_{TRIT} = V_{TRIO} (1+TR_{I1}) (1+ TR_{I2}) \dots\dots\dots (1+TR_{IT})$$

Where:

V_{TRIO} = the value of the index at inception.

V_{TRIT} = the value of the total return index at time t .

TR_{IT} = the total return (as a decimal number) on the index over period t , $t = 1, 2, \dots, T$.

8.6 INDEX CONSTRUCTION AND MANAGEMENT

Construction and management of stock index is similar to the construction and management of the securities in a portfolio. Before constructing the index the index providers have to take the following decisions;

- What will be the target market and how securities will be selected in the index?
- How much weight will be allocated to each security in the index?
- When the index should be rebalanced and re-examined?

8.6.1 Target Market and Security Selection:

The first decision in index construction is to identify the target market, market segment, sector or asset class that the index is intended to represent. The target market may be defined very broadly or narrowly. It may be based on asset class (e.g., equities, debts, fixed income, commodities, hedge funds); sectors (e.g., Health Care sector, Banking Sector, Construction etc), the exchange on which the securities are traded (e.g., NYSE, London Stock Exchange, Japan). The target market determines the investment universe and the number of securities and types of securities to be included in the index. Some Equity Indexes, such as Nifty 50 and FTSE 100 fix the number of securities included in the index and also indicate this number in the name of the index. Other indexes allow the number of securities to vary to reflect in the target market or to maintain a certain percentage of the target market. For example, the Tokyo Stock Price Index (TOPIX) composed of all the largest stocks, known as the First Section, listed on the Tokyo Stock Exchange. To be included in the First Section—and thus the TOPIX—stocks must meet certain criteria, such as the number of shares outstanding, the number of shareholders, and market capitalization. Stocks that no longer meet the criteria are removed from the First Section and also the TOPIX. The Sensex of Bombay and the S&P 500, for example, use a selection committee and more subjective decision-making rules to determine constituent securities.

8.6.2 Index Weighting

The weighting decision determines how much of each security to be included in the index so that it has a substantial impact on an index's value. There are different schemes to weight the constituent securities in the market indexes. They are the price-weighted Index, market-value weighted Index, equal weighted index and fundamental weighted index. We will discuss each of these in detail and consider examples of them.

Price- Weighted Index

A price-weighted index is the arithmetic mean of current stock prices, which means that the movement of index is influenced by the differential prices of the securities. This is the simplest method to weight an index and the one used by Charles Dow to construct the Dow Jones Industrial Average (DJIA). This is the oldest and certainly the most popular market index. The DJIA is a price-weighted average of 30 large, well known industrial stocks that are leaders in their industry. The DJIA is constructed by totaling the market prices of the 30 stocks and dividing the sum by a divisor that has been adjusted to take account of stock splits and changes in the sample over time. The divisor is adjusted so that the index value remains same before and after the split. So, in the price-weighting method, the weight on each constituent security is determined by dividing its price by the sum of all the prices of the constituent securities. The weight is calculated using the following formula.

$$DJIA_t = \sum_{i=1}^{30} \frac{P_{it}}{D_{adj}}$$

Where;

$DJIA_t$ = the value of the DJIA on day t

P_{it} = the closing price of stock I on day t

D_{adj} = the adjusted divisor on day t

In table -1, we employ three stocks to demonstrate the procedure used to derive a new divisor for the index when the stock splits. When stocks split, the divisor becomes smaller, as shown. The adjusted divisor ensures that the new value of the index is the same as it would have been before the split.

Table-1 Example of change in DJIA divisor when sample stock splits

Table-1 Example of change in DJIA divisor when sample stock splits

Stock	Before SPLIT	After split of stock Z
X	30	10
Y	20	20
Z	10	10

$$\frac{60}{3} = 20 \qquad \frac{40}{x} = 20 \qquad x = 2 \text{ (new divisor)}$$

So in the above case the before split index value was 20. Therefore, after the split, given the new sum of prices, the divisor is adjusted downward to maintain this value of 20. The value of divisor is also changed when there is a change in the sample makeup of the index. In the price-weighted index method high- priced stock carries more weight than a low priced stock.

Because the index is price weighted, so the high-prices stocks carries more weight than low priced stock. As shown in table given below a 10% change in Rs 100 stock will cause a larger change in the index than a 10% change in a Rs 30 stock. For case A, when the Rs 100 stock is increased to Rs110, the averages rises by 5.5%; for Case B, when the Rs 30 stock increases by Rs 33, the average rises by only 1.7%.

Table -2 Impact of differently priced shares on Price-weighted index

Stock	Period T	Period T+1	
		Case A	Case B
X	100	110	100
Y	50	50	50
Z	30	30	33
Sum	180	190	183
Divisor	3	3	3
Average	60	63.3	61
Percentage change		5.5%	1.7%

This price-weight scheme is criticized because when the large companies have a stock split, their prices decline and therefore their weight in the index is reduced- even though they may be large and growing.

Value -Weighted Index

A capitalization-weighted Index is also called the value -weighted index whose constituent securities are weighted according to the market value of the securities. The market capitalization uses the total market value company's outstanding shares. The outstanding shares are multiplied with the current market price of the shares. The outstanding shares are those which are owned by the individual shareholders, institutional block holdings, and company's insider holdings. The shares with high market price carry the high weighted in the index and the shares with low market price carry the low weighted in the index. Prior to 2004, the tradition was to include the all outstanding shares. In mid-2004, S&Ps began only considering "freely floating shares" that exclude the shares held by insiders. This initial figure is typically established as the base and assigned an index value (typically the beginning index value is 100, but it can vary –say, 10,50). Subsequently, a new market value is computed for all securities in the index, and the current market value is compared to the initial "base" market value to determine the percentage change, which in turn is applied to the beginning index value.

$$\text{Index}_t = \frac{\sum P_t Q_t}{\sum P_b Q_b} \times \text{Beginning index value}$$

Where;

Index t = Index value in day t

Pt = ending prices for stock on day t

Qt = number of outstanding or freely floating shares on day t

Pb = ending price for stocks on base day

Qb = number of outstanding or freely floating shares on base day

Table-3 Computation of a Value-Weighted Index

Stock	Share Price	Number of Shares	Market Value
December 31, 2018			
A	10	1,000,000	10,000,000
B	15	6,000,000	90,000,000
C	20	5,000,000	100,000,000
Total			200,000,000
Base value equal to an index of 100			
December 31, 2019			
A	12	1,000,000	12,000,000
B	10	12,000,000	120,000,000
C	20	5,500,000	110,000,000
Total			242,000,000

$$\begin{aligned}
 \text{New Index Value} &= \frac{\text{Current Market Value}}{\text{Base Value}} \times \text{Beginning Index Value} \\
 &= \frac{242,000,000}{200,000,000} \times 100 \\
 &= 1.21 \times 100 \\
 &= 121
 \end{aligned}$$

so the table 3 exhibit that there is automatic adjustments for stock splits and other capital changes with a value-weighted index because the decrease in the stock price is offset by an increase in the number of share outstanding. In a value-weighted index, the importance of individual stocks in the sample depends on the market capitalization of the

stocks. Therefore, a specified percentage change in the value of a large company has a greater impact than comparable percentage change for a small company.

As shown in table -4 if we assume that only change is 20% increase in value of stock A, whose beginning value is 10,000,000, the ending index value would be Rs. 202,000,000, or an index value 101. In contrast, if only stock C increase by 20% from 100,000,000, the ending value will be 220,000,000, or an index value of 110. The point is, price changes for large market value stocks in a value-weighted index will dominate changes in the index over time. Therefore, it is important to be aware of the large-value stocks in the index.

Table-4 Impact of different values on a market-value-weighted stock index

December 31, 2018				December 31, 2019			
Stock	No. of Shares	Price	Value	Case A Price	Value	Case B Price	Value
A	1,000,000	10	10,000,000	12	12,000,000	10	10,000,000
B	6,000,000	15	90,000,000	15	90,000,000	15	90,000,000
C	5,000,000	20	100,000,000	20	100,000,000	24	120,000,000
			200,000,000		202,000,000		220,000,000
	INDEX VALUE		100		101		110

Equal Weighted Index

Another simple index weighting method is equal weighting. In this method an equal weight is assigned to each constituent security regardless of their price or market value. A 20 Rs. Stock is as important as Rs.40 stock and the total market value of the company is unimportant. Such an index can be used by individuals who randomly select stocks for their portfolio or put same value in each stock. One way to visualize the equal weighted index is to assume that same amount are invested in each stock of the portfolio (for example, Rs. 1000 has been invested in each stock would work out to 100 shares of Rs.10 stock, 50 shares of Rs.20 stock, and 10 shares of Rs100 stock . In fact, the actual movements in the stock index are based on the arithmetic mean of the percentage change in the price or value for the stocks in the index. The use of percentage price changes means that price change of the stock and the total value change of the stock does not make a difference- each percentage has equal weight. The table-3 exhibit the computation of an equal weighted index using the average of the percent changes for each of the three stocks. There is also a comparison of the index value if the market

value weight method has been used. As shown in the table-3 given below the equal weighting result gives higher value because of the large percent increase in value for the stock with the smallest market value (the small-cap stock). In contrast, the market value weighted index did not do as well because the large-cap stock (that has a large weight) experienced the poorest performance.

Table-3 Computation of Index value Assuming equal weights for stocks

December 31,2015				December 31, 2016		
Stocks	No. of shares	Price	Value	Price	Value	Percent change
A	100,000	20	2,000,000	25	2,500,000	25%
B	400,000	15	6,000,000	16	6,40,0000	7%
C	800,000	30	24,000,000	33	26,400,000	10%
			32,000,000	35,300,000		42/3=12%
Equal weighted Index : $100 \times 1.12 = 112$						
Market value weighted Index : $\frac{35,300,000}{32,000,000} \times 100 = 110.312$						

Fundamental Weighted Index

One of the rationales for using market-value weighting is that the market value of a firm is an obvious measure of its economic importance. In contrast, some observers argue that this weighting scheme results in overweighting overvalued stocks and under-weighting undervalued stocks over time. A main example is what transpired during the technology booming the 1998–2000 periods when technology stocks shoot up in price and, as a result, were clearly overvalued—selling for 60-70-100 times earnings. The high valuations of technology shares caused in the increase in the weight of the technology sector in the indexes , and this result was because of the overweight in overvalued stocks. You can imagine an opposite example for undervalued stocks. In response to this implicit problem with market-value weighting, some observers have suggested different measures of a company’s economic footprint. The leading advocates of an approach that weights firms based on company fundamentals are individuals involved with Research Affiliates, Inc. Their approach to creating a Fundamental Index is an example of employing some widely used fundamental factors. Specifically, they proposed four broad fundamental measures of size: (1) sales, (2) profits (cash flow), (3) net assets (book value), and (4) dividends. Given these variables for a large sample of firms, they created an index of 1,000 of the largest firms and computed the percent of each firm’s sales, cash flow, book value, and dividends to the total for the sample and determined a company’s

relative size (weight) by averaging the weights of the four size metrics across the trailing five years (to avoid the impact of cyclicity). The authors contend that this index (entitled Research Associates Fundamental Index [RAFI]) is representative, but also ensures high liquidity, high capacity, and low turnover. Some other firms and authors have created indexes with single variables or a different set of fundamental variables to determine the weights.

8.6.3. Index Management: Rebalancing and Reconstitution

As of now, we have discussed about the index construction. Index management encompasses the two remaining questions:

- When should the index be rebalanced?
- When should the security selection and weighting decisions be reexamined?

Rebalancing

Rebalancing refers to adjusting the weights of the constituent securities in the index. To maintain the weight of each security consistent with the index's weighting method, the index provider rebalances the index by adjusting the weights of the constituent securities on a regularly scheduled basis (rebalancing dates)—usually quarterly. Rebalancing is necessary because the weights of the constituent securities change as their market prices change.

For example, that the weights of the securities in Index are given in the following proportion

Security A	20%
Security B	20%
Security C	20%
Security D	20%
Security E	20%

At the end of the period are no longer equal (i.e., 20 percent):

Security A	19.93%
Security B	15.94
Security C	11.60
Security D	25.36
Security E	27.17

In rebalancing the index, the weights of Securities D and E (which had the highest returns) would be decreased and the weights of Securities A, B, and C (which had the lowest returns) would be increased. Thus, rebalancing creates turnover within an index.

Reconstitution

Reconstitution is the process of changing the constituent securities in an index. It is similar to a portfolio manager deciding to change the securities in his or her portfolio. Reconstitution is part of the rebalancing. The reconstitution date is the date on which index providers review the constituent securities, reapply the initial criteria for inclusion in the index, and select which securities to retain, remove, or add. Constituent securities that no longer meet the criteria are replaced with securities that do meet the criteria. Once the revised list of constituent securities is determined, the weighting method is reapplied. Indexes are reconstituted to reflect changes in the target market (bankruptcies, delistings, mergers, acquisitions, etc.) and/or to reflect the judgment of the selection committee. When one security is removed and another is added, the index provider has to change the weights of the other securities in order to maintain the market-capitalization weighting of the index.



Check Your Progress-A

Q1- What are the uses of stock market indexes?

Q2- What major factors must be considered when constructing a market index?

Q3- Explain how a market index is price weighted. In such a case, would you expect Rs 100 stock to be more important than a Rs 25 stock? Give an example.

Q4- Explain how to compute a value-weighted index.

Q5- Explain how price –weighted index and value-weighted index is adjust for stock splits ?

8.7 INDEX –BASED INVESTMENTS PRODUCTS

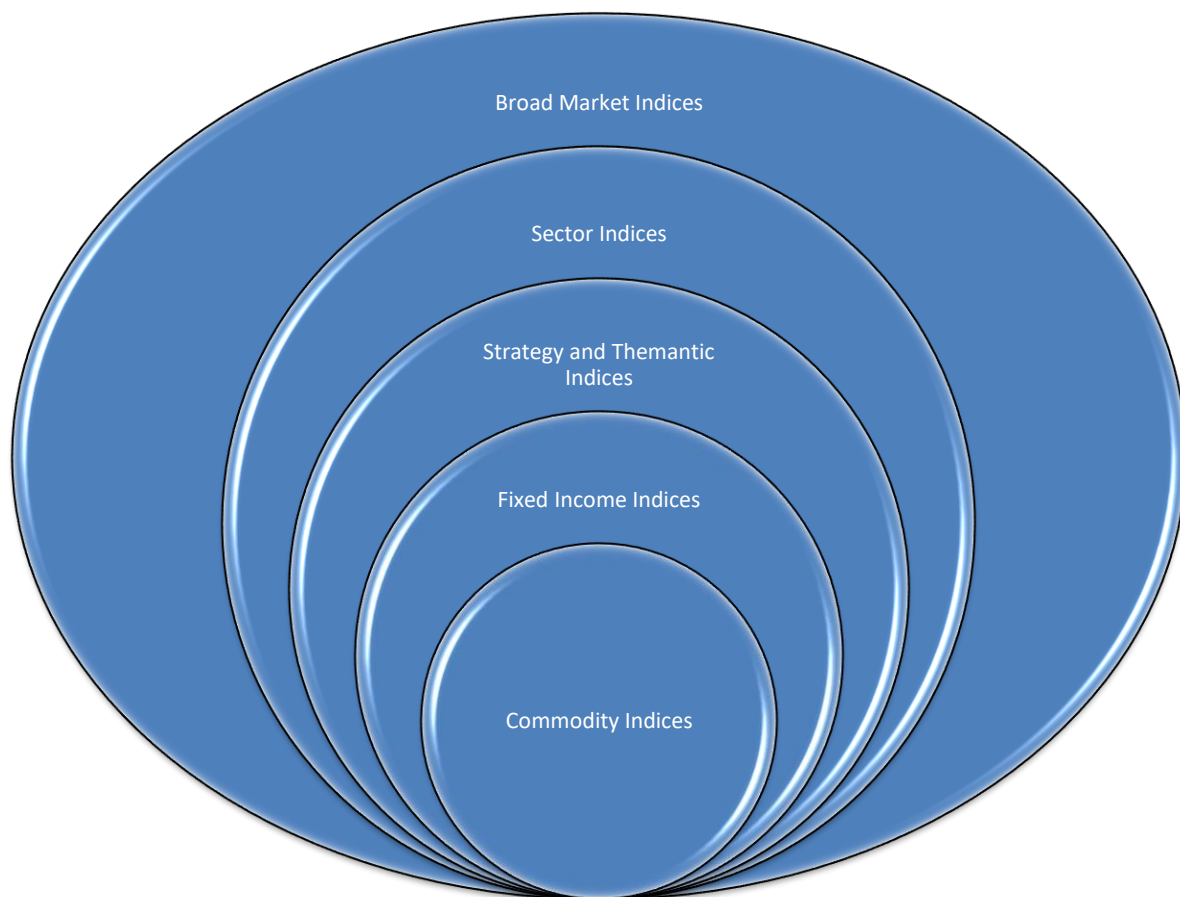
The numbers of indexes are growing because there is growing appetite for new ways to invest in the capital market through index-linked products such as ETFs. It is important to know the difference between the index and index linked investment products that track (benchmark) them.

- An index is created by an index provider such as NSE Indexes Ltd. to track the performance of a market, market segment, investment strategy. Investors can not directly invest in the index, but they invest through the index-linked products.
- An index linked investment product is created by a financial institution such as asset Management Company, bank, exchange or other regulated third party as an investable vehicle that is designed to replicate the performance of underlying index as their benchmark, before deduction of management fees. Before offering the index linked products to the investors the issued institution comes into license agreement with the index provider.
- Index-linked mutual funds and ETFs are among the best known index-linked investment products but there are many more index-linked products are available. Other types of products that use the indexes for investment objective, settlement value or other pricing mechanism include future contracts, options, swaps, life insurance instruments, CDs, structured products.
 - The index must have the constituents that meet the liquidity requirements. In other words, they can be readily bought and sold in the markets where they traded.
 - An investment products have all or representative sampling of the securities of that index which they are following or set as a benchmark to track its performance.

Alternatively, an investment product can replicate the index through the purchase of derivative instruments such as options, swaps based on that index.

8.8 A SPECTRUM OF INDEXES

There is an index for nearly every corner of the market. Indexes typically fit into one of a few broad categories that can be segmented and even cross-segmented into much narrower niches.



Broad Market Indexes: Broad Market Indexes consists of the large, liquid stocks listed on the Exchange. They represent more than 90% of securities of the selected market. For example, the Shanghai Stock Exchange Composite Index (SSE) is a market-capitalization-weighted index of all shares traded on the Shanghai Stock Exchange. The Wilshire 5000 Total Market Index is a market-capitalization-weighted index includes more than 6,000 equity securities and is designed to represent the entire U.S. equity market. The Russell 3000, consisting of the largest 3,000 stocks by market capitalization,

represents 99 percent of the U.S. equity market. They also serve as a benchmark for measuring the performance of the stocks or portfolios such as mutual fund investments.

Sector Indexes: Sector indexes give benchmarking data for different economic sectors—such as finance, health care sector, and technology – on national, regional, or global basis. Because different sectors of the economy behave differently over the course of the business cycle, some investors may seek to include or exclude some of the securities of the particular sectors on the basis of their performance. Sector indexes also play an important role in performance analysis because they provide a means to determine whether a portfolio manager is more successful at stock selection or sector allocation. Sector indexes also serve as model portfolios for sector-specific ETFs and other investment products.

Strategy and Thematic indexes: Strategy and Thematic indexes have gained popularity over the past decade. They are designed to mimic an investment strategy, or capture a specialized segment of the market. Thematic indexes often represent market niches or specialized themes such as infrastructure, clean energy, or biotech stocks. Strategy indexes often apply alternative methodologies or play on fundamentals or other factors such as high dividends or low volatility, for instance

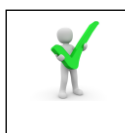
Fixed Income (bond) Indexes: A wide variety of fixed-income indexes exists, but the nature of the fixed-income markets and fixed-income securities leads to some very important challenges to fixed-income index construction and replication. These challenges are the number of securities in the fixed-income universe, the availability of pricing data, and the liquidity of the securities. The fixed-income universe includes securities issued by governments, government agencies, and corporations. Each of these entities may issue a variety of fixed-income securities with different characteristics. As a result, the number of fixed-income securities is many times larger than the number of equity securities. To represent a specific fixed-income market or segment, indexes may include thousands of different securities. Over time, these fixed-income securities mature, and issuers offer new securities to meet their financing needs, leading to turnover in fixed-income indexes.

Commodity Indexes: Commodity indexes consist of futures contracts on one or more commodities, such as agricultural products (rice, wheat, sugar), livestock (cattle, hogs), precious and common metals (gold, silver, copper), and energy commodities (crude oil, natural gas). Although some commodity indexes may include the same commodities, the returns of these indexes may differ because each index may use a different weighting method. Because commodity indexes do not have an obvious weighting mechanism, such as market capitalization, commodity index providers create their own weighting methods. Some indexes, such as the Commodity Research Bureau (CRB) Index, contain a fixed number of commodities that are weighted equally.

8.8 COMPOSITE STOCK BOND INDEXES

Along with separate equity indexes and bond indexes for countries, another step is the development of composite stock bond index that measure the performance of all the securities in a given country. With a composite index investors can examine the benefits of diversifying with a combination of asset classes such as stocks, bonds in addition to diversifying within the class of stocks or bonds. There are two such indexes are available.

First, a market –value- weighted index called Merrill Lynch-Wilshire Capital Market Index (ML-WCMI) measures the total return performance of the combined U.S. taxable fixed income and equity markets. This index tracks more than 10,000 U.S stocks and bonds. The second composite index is the Brinson Partner Global Security Market Index (GSMI), which contains U.S. stocks and bonds as well as non-U.S equities and non-dollar bonds. The GSMI contains both U.S. and international stocks and bonds; it is the most diversified benchmark available weighting scheme that approaches market values.



Check Your Progress-B

Q1. State True or False.

- i. Issue Management and Intermediaries Department- This department deals with the following to keep a control and check on new issue offers, prospectus and offer letter for public to regulate public and right issue.
- ii. In order to regulate and Control Mutual Funds, SEBI has issued directions and a code of conduct has been issued from the year 1993
- iii. As per SEBI regulations 2014, SEBI may consider the nature, Gravity and impact of default on any SEBI laws and civil proceedings to initiate and take necessary action for settlement of proceedings.

Q2. Multiple choice questions

- i. What is the primary function of SEBI?
 - a) To regulate mutual funds
 - b) To oversee the functioning of the Indian stock markets
 - c) To manage the Indian currency
 - d) To control inflation
- ii. SEBI has the power to regulate the working of:
 - a) Brokers

- b) Mutual funds
 - c) Stock exchanges
 - d) All of the above
- iii. Which act empowers SEBI to regulate the securities market in India?
- a) The Companies Act, 1956
 - b) The Banking Regulation Act, 1949
 - c) The SEBI Act, 1992
 - d) The Competition Act, 2002
- iv. SEBI was given statutory powers through which act?
- a) Securities Contracts (Regulation) Act, 1956
 - b) SEBI Act, 1992
 - c) Banking Regulation Act, 1949
 - d) Companies Act, 1956
- v. SEBI was established in which year?
- a) 1980
 - b) 1992
 - c) 1988
 - d) 2000

8.9 SUMMARY

In this unit we have learned that an index reflect the overall movements of a group of securities. Market professionals use index as the basis for evaluating the market behavior and trends. This unit also explained the construction, management, and uses of security market indexes. Different schemes or methods discussed to weight the securities in the index. We also discussed various types of indexes. Security market indexes are invaluable tools for investors used to track the performance of various security markets, estimate return and risk, evaluate the performance of investment managers and also for research and analysis. They also form the basis of index linked investment products.



8.10 GLOSSARY

Price-weighted index- An index calculated as an arithmetic mean of the current prices of the sampled securities.

Stock market index- An index created as a statistical measure of the performance of an entire market or segment of a market based on a sample of securities from the market or the segment of market.

Value-weighted index – An index calculated as the total market of securities in the sample. Market value is equal to the number of shares outstanding multiplied with the market price of shares.

Total return- A return objective in which the investor wants to increase the portfolio value to meet a future need by both capital gains and current income reinvestment.



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8.13 TERMINAL QUESTIONS

Q1. You are given the following information regarding prices for a sample of stocks.

Stock	Number of shares	Price	
		T	T+1
X	50,000	60	80
Y	500,000	20	35
Z	1,50,00000	18	25

- a. Construct a price-weighted index for these three stocks, and compute the percentage change in the index for the period from T to $T+1$.
- b. Construct a value-weighted index for these three stocks, and compute the percentage change in the index for the period from T to $T+1$.
- c. Briefly discuss the difference in the results for the two indexes.

UNIT 9 ECONOMIC ANALYSIS

9.1 Introduction

9.2 Objectives

9.3 Overview of Economic Analysis

9.4 Fundamental Analysis

9.5 Technical Analysis

9.6 Fundamental Analysis and Efficient Markets

9.7 Efficient Market Hypothesis (EMH)

9.8 The Balanced Perspective

9.9 Economy-Industry-Company (EIC) Framework

9.10 Two Main Approaches to Valuation

9.11 Measures of Economic Activity and Their Importance

9.12 Summary

9.13 Glossary

9.14 Answers to Check Your Progress

9.15 References

9.16 Suggested Readings

9.17 Terminal Questions

9.1 INTRODUCTION

Making wise investment decisions requires an awareness of and assessment of economic performance. This is particularly crucial when attempting to balance investments between the more volatile stock market and the generally steady government securities. This course will examine how financial markets and economic factors interact and how this information can inform wise investment choices. In this unit, you will understand the relationship between economic conditions and the performance of stock markets and explore the key economic indicators that influence investment decisions.

9.2 OBJECTIVES

The unit as a part of the syllabus of Security Analysis and Portfolio Management aims at the following objectives;

- Understand the relationship between economic conditions and the performance of stock markets.
- Gain insight into fundamental analysis (evaluating a company's financial health) and technical analysis (using price patterns and trends) to make informed investment choices.
- Develop the skills to make informed decisions based on economic trends, ensuring a well-diversified and risk-mitigated portfolio.

9.3 OVERVIEW OF ECONOMIC ANALYSIS

Investing in stocks and other securities carries inherent risk, which is heavily impacted by the state of the economy as a whole. Global stock markets are susceptible to notable declines when economic conditions are predicted to be unfavorable, as was the case with the COVID-19 pandemic. This recession can impede economic growth in general in addition to having an effect on stock values. Thus, it is essential to comprehend and evaluate economic performance in order to make well-informed investing decisions, especially when determining how much money to allocate between government securities and stocks. A degree of price stability is provided by government securities and schemes, which makes them appealing in unstable economic times. In order to assess future economic performance, investors need to utilize a variety of methods in order to manage these difficulties. The fundamental analytical framework, which offers an organized method of comprehending the economic, industry, and firm-specific aspects that influence investment decisions, will be the first of these methods covered in this unit. Making decisions about investments is a constant process that needs to be approached methodically to be successful. Typically, investors base their choices on two main approaches:

1. Fundamental Analysis and;
2. Technical Analysis.
3. Investors can make better decisions if they are aware of both approaches since, they offer distinct perspectives for evaluating potential investments.

9.4 FUNDAMENTAL ANALYSIS

Examining the fundamental elements that impact a security's risk and return characteristics is known as fundamental analysis. This method is predicated on the idea that a security's intrinsic worth may be ascertained by the examination of multiple

fundamental factors, including the state of the issuing company's finances, the general state of the economy, and conditions unique to the industry.

9.4.1 Key Components of Fundamental Analysis:

- **Economy Analysis:** To comprehend the general state of the economy, one must examine macroeconomic indicators like GDP growth rates, inflation rates, and employment statistics. The performance of individual securities can be strongly impacted by a robust or weak economy.
- **Industry Analysis:** Investors evaluate conditions and developments in the industry, such as changes in technology, competition, market demand, and regulatory framework. Comprehending these variables facilitates evaluating a company's potential performance in comparison to its industry counterparts.
- **Company Analysis:** The foundation of fundamental analysis is this. It comprises a thorough assessment of the business model, competitive positioning, management caliber, and financial statements (income statement, balance sheet, and cash flow statement) of an organization. To determine the intrinsic value of a company, important indicators including return on equity (ROE), price-to-earnings (P/E) ratio, and earnings per share (EPS) are examined.

9.4.2 Investment Decision-Making:

- Finding differences between the market price and inherent value of a securities is the primary objective of fundamental analysis. The market price of a security is its current trading price on the stock market, but the intrinsic value is the price that represents the asset's true worth based on its fundamental characteristics.
- **overpriced Securities:** A security is deemed overpriced if its market price exceeds its inherent value. Fundamental analysis principles dictate that a security like this ought to be sold. The theory is that this overvaluation will eventually be corrected by the market, bringing the price down to reflect its true value. An investor can lock in profits prior to this correction by selling the overvalued security.
- **Undervalued Securities:** On the other hand, a security is deemed undervalued if its market price is less than its inherent value. The investor ought to think about purchasing the securities in this situation. It is anticipated that the market will identify the undervaluation and raise the price to reflect the true value. Purchasing inexpensive stocks may result in profits if and when the market corrects the price.

9.5 TECHNICAL ANALYSIS

On the other hand, technical analysis forecasts future price patterns by examining price fluctuations and trading volumes. Technical analysis is based on past price data and market movements, as opposed to fundamental research, which examines underlying economic and financial variables.

9.5.1 Key Components of Technical Analysis:

Price Trends: In order to spot patterns and trends that point to potential future price changes, technical analysts examine price charts. In addition to formations like head and shoulders or double tops/bottoms, these patterns can involve trends like upward (bullish) or downward (bearish) movements.

Volume Analysis: Price changes and patterns can be verified by examining trading volume analysis. In contrast to a price increase with low trading volume, one that is accompanied by a high trading volume is typically regarded as more significant.

Technical Indicators: Price trends and market momentum are examined using a variety of statistical methods and indicators, including moving averages, Bollinger Bands, and the Relative Strength Index (RSI). Making decisions on short-term trading is aided by these indicators.

Technical analysis focuses on the actual price movement and operates under the assumption that all available information has already been represented in the stock's price. It is more focused in recognizing and profiting from market movements than it is on the security's inherent value.

Buy Signals: Technical analysts seek for trends or indications that point to a possible price increase. An investor may purchase a security in response to these indications in the hopes of making money down the road.

Sell Signals: On the other hand, patterns or indicators pointing to a possible drop in price would prompt a sell recommendation. These indications are used by technical analysts to limit losses or lock in profits before the price declines further.

9.6 FUNDAMENTAL ANALYSIS AND EFFICIENT MARKETS

Although fundamental analysis is an essential tool for investors seeking to assess the real worth of stocks, there are some who disagree with it, especially when it comes to the Efficient Market Hypothesis (EMH). According to the Efficient Market Hypothesis, stock prices always take into account all relevant information. This argument states that if the market is truly efficient, then stock prices already take into account all available

information about the economy, industry, and individual companies. Therefore, it is thought that a stock's price at any one time represents its inherent value, rendering fundamental analysis—as well as possibly any other type of analysis—superfluous.

9.7 EFFICIENT MARKET HYPOTHESIS (EMH)

The expectation-maximization hypothesis (EMH) asserts that investors cannot continuously generate returns above the market average because stock prices always take into account and represent all relevant information. Three forms comprise the theory:

Weak Form Efficiency: asserts that stock prices already take into account all historical transaction information. As a result, technical analysis, which is predicated on historical trading volumes and price fluctuations, is unable to reliably forecast future price movements.

Semi-Strong Form Efficiency: asserts that stock prices already account for all information that is readily available to the public, such as news, financial statements, and economic data. This suggests that obtaining abnormal returns would not be facilitated by fundamental analysis, which looks at financial and economic data to assess a stock's value.

Strong Form Efficiency: states that stock prices represent all information, including public and private. As a result, an investor would not benefit from insider knowledge. The Efficient Market Hypothesis (EMH) states that if markets are efficient, then it would be impossible to beat the market using fundamental analysis or other techniques. Since the efficiency of the stock market implies that stock prices are always at their fair value, it is improbable that any investor will profit excessively from analysis because the market would have taken advantage of any such possibilities long ago.

9.7.1 Criticism and Practical Implications

Notwithstanding the EMH's theoretical foundations, there is a great deal of disagreement and criticism about its practicality:

Market Inefficiencies: Empirical data and research indicate that markets are not entirely efficient. Information can take longer to reflect in stock prices on real-world stock markets due to structural flaws and operational inefficiencies. Investors who are able to spot and take advantage of these inefficiencies before the market corrects itself may find opportunities, for instance, in the form of delays in processing new information or market oddities.

Behavioral Factors: Several studies in behavioral finance demonstrate that irrational behavior and investor psychology can cause anomalies and inefficiencies in the market. It is possible for investors to respond inconsistently to information, or for prices to deviate from their intrinsic values due to herd behavior.

Short-Term vs. Long-Term Efficiency: Short-term inefficiencies are widespread, even though markets may be efficient in the long run—that is, when prices gradually change to reflect underlying values. Even with the market's partial correction, fundamental research can still be useful in pointing out cheap or overvalued equities.

Realistic Investor Goals: Many investors prefer regular returns that are appropriate with the risk they are taking, rather than necessarily excessive returns. These investors still find that knowing the fundamentals is crucial since it allows them to create their portfolios and manage their risks in an informed manner.

9.8 THE BALANCED PERSPECTIVE

The debate over the applicability of fundamental analysis and market efficiency typically resides in the middle of complete inefficiency and perfect efficiency. In actuality, markets are not totally efficient, but they are rather efficient. In a situation like this, fundamental analysis is still valuable since it guides investors through times of market inefficiencies. For example:

Identifying Mispriced Securities: There may be short-term mispricing even in cases when markets are long-term efficient. Investors that use fundamental analysis to identify these disparities may be able to take advantage of them before the market corrects itself.

Investment Strategy: Even though market prices don't always instantly reflect this worth, fundamental analysis helps investors in understanding the underlying value of assets and helps them make more intelligent investment selections.



Check Your Progress-A

Q1. Explain the concept of stock exchange with suitable examples.

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Q2. Compare and contrast the difference between market and limit order.

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Q3. What do you mean by rolling settlement?

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Q4. What do you mean by primary and secondary market?

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Q5. What do you mean by short selling?

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Q6. What is the difference between open outcry and screen based system of share trading?

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Q7. Who is an Arbitrageur and what he does?

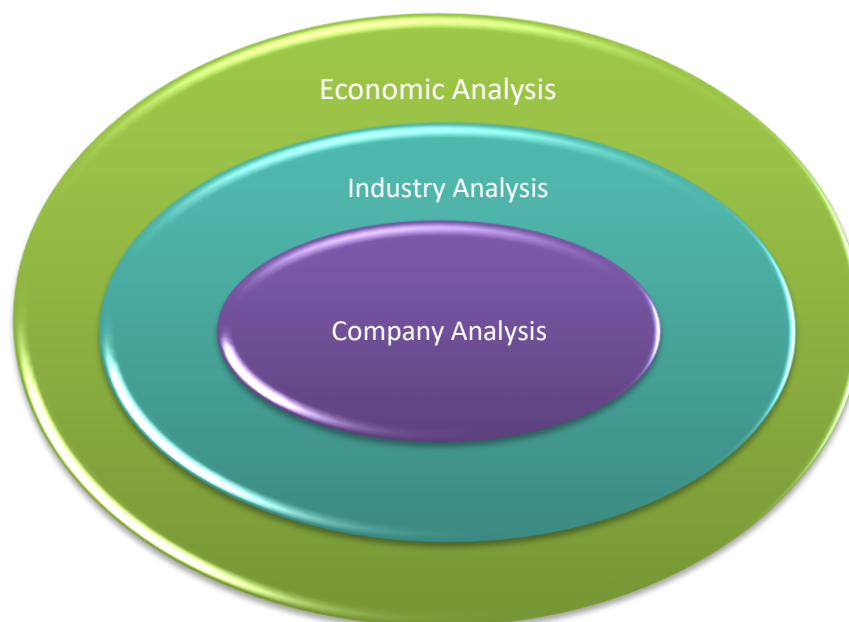
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Q8. What are Depositories?

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9.9 ECONOMY-INDUSTRY-COMPANY (EIC) FRAMEWORK

Investors utilize fundamental analysis, a methodical process, to assess a security's intrinsic worth by looking at a variety of variables, such as the state of the economy, the dynamics of the industry, and the performance of specific companies. This method uses a systematic procedure that is frequently shown as a series of concentric circles, each of which stands for an important stage in the decision-making process for an investment: the company, the industry, and the economy. Making wise and strategic investment decisions requires an understanding of and analysis of each of these phases. This book will go into great detail about each step and go over the two primary techniques to valuation, which are top-down and bottom-up, as well as their real-world uses.



9.9.1 Economy Analysis: The Macro Perspective

Every step of fundamental analysis that follows has its basic context provided by an analysis of the economy. This macroeconomic analysis lays the groundwork for comprehending how more general economic variables may impact industry performance and, eventually, the performance of individual businesses.

Fiscal Policy: Fiscal policy refers to the decisions made by the government regarding expenditures and taxation. Economic activity can be significantly impacted by changes in tax rates or government spending. A decrease in income taxes, for instance, may raise disposable income and encourage more investment in businesses and consumer purchasing. On the other hand, a tax rise may result in lower expenditure and slower economic expansion. Similar to this, government spending on infrastructure projects—such public buildings or highways—can increase demand through a multiplier effect in adjacent businesses, including manufacturing and construction. This higher demand may boost employment and economic activity, which would contribute to economic expansion.

Monetary Policy: The money supply and interest rates are under the management of central banks through monetary policy. By lowering borrowing costs and promoting investment, an expansionary monetary policy, which is marked by lower interest rates and an increase in the money supply, can boost the economy. By raising borrowing costs and decreasing liquidity, on the other hand, a restrictive monetary policy, characterized by higher interest rates and a smaller money supply, can impede economic growth. Additionally impacting both internal and global economic conditions, monetary policy also has an impact on currency rates and inflation.

Global Factors: International factors are important in determining economic performance in addition to domestic policies. The domestic economy can be impacted by trade policy, currency rate volatility, political unpredictability, and world economic conditions. Trade wars and geopolitical conflicts have the potential to disrupt supply chains and have an impact on international trade. Additionally, fluctuations in currency rates may have an impact on import costs and export competitiveness.

Impact on Investment Decisions:

Investors can more efficiently allocate their capital when they have a solid understanding of the economy. Investors may choose to concentrate on areas of the economy that are anticipated to gain from rising consumer and corporate spending. However, investors may favor defensive industries like utilities or healthcare during recessions since they are less susceptible to fluctuations in the economy. In an effort to maintain capital and find stability, investors may also start concentrating on fixed-income instruments, including government bonds.

9.9.2 Industry Analysis: Evaluating Sector Performance

Industry analysis evaluates various sectors to determine which, in light of the state of the economy, have the most potential for expansion or stability. Every industry has its own distinct traits and reacts to changes in the economy in a distinctive way.

Industry Sensitivity: The degree to which different industries are sensitive to economic cycles varies. Construction, steel, and automobile are examples of cyclical industries that

often do well in economic expansions but poorly in recessions. Non-cyclical businesses, like food manufacturing and medicines, are more resilient to changes in the economy and frequently offer consistent profits.

Industry Trends: Performance is influenced by particular trends and dynamics within each industry. Innovations in technology, modifications to laws and regulations, and changes in consumer tastes, for instance, might affect the operation of an industry. Innovations in the technology industry, such as renewable energy and artificial intelligence, have the potential to spur investment possibilities and growth. On the other hand, certain industries may face difficulties due to changes in regulations or pressure from competitors.

Timing and Performance: The stage of the economic cycle can also have an impact on an industry's performance. For example, the building sector may perform less well than the overall economy, but the equipment manufacturing industry may enjoy a spike in demand when companies make capital investments during a period of economic expansion.

Impact on Investment Decisions:

Industry analysis assists investors in determining which industries, given the state of the economy both now and in the future, are most likely to perform well. Investors may increase their chances of obtaining positive returns by concentrating on industries that show promise and allocating their cash to sectors that have great growth potential or stability. In order to make wise investment decisions, this stage also entails evaluating industry-specific elements including the regulatory environment, technology advancements, and competitive dynamics.

9.9.3 Company Analysis: Identifying Specific Investment Opportunities

The final phase of fundamental analysis is an in-depth examination of particular companies within the selected sectors. This phase is dedicated to assessing the financial stability, competitive standing, and future growth potential of a company.

Company Performance: Analyzing a company's past performance reveals information about its operational effectiveness and financial stability. Important financial indicators that are used to assess a company's profitability and financial health include revenue growth, profit margins, return on equity (ROE), and earnings per share (EPS). A thorough understanding of a company's financial situation can be obtained by analyzing financial statements, such as the cash flow, income, and balance sheets.

Valuation: A company's stock is valued by calculating its intrinsic worth and contrasting it with the going rate on the market. The price-to-earnings (P/E), price-to-book (P/B), and discounted cash flow (DCF) analysis ratios are common techniques used in valuation. Finding inexpensive stocks with room to grow or expensive stocks with room to grow but risking a value decline is the aim.

Stock Selection: Not every company in a thriving industry will provide attractive investment opportunities. Investors are attracted to stocks that have the potential for capital gains and are inexpensive relative to their actual value. This may include looking for companies with strong growth potential, competitive advantages, or assets that are undervalued.

Impact on Investment Decisions:

By identifying specific stocks that correspond with their investing goals, company analysis enables investors to make focused investment selections. Investment portfolio performance can be improved and better returns can be obtained by investors concentrating on companies with solid fundamentals and growth potential. During this phase, firm performance is continuously monitored and reevaluated to make sure it is in line with investment objectives.

9.10 TWO MAIN APPROACHES TO VALUATION

I. Top-Down Approach:

Three-Step Process: The approach known as top-down begins with a macroeconomic analysis, moves on to an industry analysis, and ends with a corporate analysis. This approach focuses on how specific companies are impacted by industry and economic situations. Investors can discover industries and firms that are expected to perform well by having a thorough understanding of the larger economic and industry background.

Valuation Sequence: Using this approach, investors may prioritize companies and industries according to market trends and industry conditions. By taking into account how outside variables affect a company's success, it offers an organized framework for making investment decisions.

II. Bottom-Up Approach:

Stock Picking Focus: The bottom-up approach concentrates on assessing individual stocks regardless of the overall industry or economic environment. It begins with a thorough examination of the company, after which the industry and economy are taken into account. Identifying premium equities with solid fundamentals and room to develop is the main focus of this approach.

Company Analysis First: By prioritizing undervalued or high-potential equities according to their financial performance and fundamental worth, investors employ this approach. Following their selection of stocks that show promise, they evaluate the overall state of the economy and the industry to identify risks and opportunities.

Practical Application

To make well-informed investment decisions, investors typically combine the top-down and bottom-up approaches. An extensive framework for assessing investment

opportunities is provided by the fundamental analysis method, which consists of economic, industry, and company study. Investors can make strategic decisions that support their investing goals by evaluating industry dynamics, examining particular companies, and comprehending the macroeconomic environment.

Even though the Efficient Market Hypothesis (EMH) contends that stock prices always accurately reflect the information available, actual data and real-world experience show that markets are rarely totally efficient. Therefore, fundamental analysis is still a useful tool for navigating financial markets and choosing wisely when making investments. Investors can increase their chances of making profitable investments and effectively managing risk by using a strict and methodical approach when examining securities.

9.10.1 ECONOMIC ANALYSIS

The economic environment of a nation, which fluctuates through different stages of prosperity and collapse, has a significant impact on investment decisions. An investigation of the variables influencing economic cycles, as well as the effects of external pressures and policy, is necessary to comprehend why an economy is unable to sustain everlasting prosperity.

Why Does Economic Prosperity Not Last Forever?

Periods of strong growth, high employment, and elevated consumer confidence are frequently indicative of economic prosperity. However, there are a number of intrinsic reasons why maintaining this degree of wealth indefinitely is difficult:

1. **Overinvestment and Excess Capacity:** Businesses are more inclined to make significant investments in new projects and expand during highly profitable times. This may result in an excess of products and services even though it initially boosts economic growth. Reduced profits, job losses, and ultimately a decrease in economic activity are the outcomes of a saturated market where demand cannot keep up with the increased supply.
2. **Government Policies:** Government policies and actions have significant effects on economic performance. Economic stability can be adversely affected by poor policy choices, such as implementing unfavourable trade policies, mismanaging public resources, or failing to handle budget deficits. For instance, a government may make economic downturns worse if it mismanages budgetary measures or fails to accomplish its disinvestment goals.
3. **External Pressures:** External pressures and global events can potentially destabilise the economy. For example, supply chain delays and higher oil prices might result from geopolitical conflicts like the war in Ukraine or disputes with nearby nations. These outside shocks can impede the growth of the local economy and put pressure on inflation.

9.10.2 The Business Cycle

Unlike the seasonal patterns, economic prosperity and decline do not follow a predictable or ordered sequence. Rather, there are oscillations in the economy that are referred to as the business cycle, which consists of multiple phases:

1. **Expansion:** Growing employment, increased economic output, and rising consumer confidence characterise this phase. Companies are investing more, people are spending more, and economic metrics like the GDP are growing positively. Optimism and strong economic activity define the expansion phase.
2. **Peak:** The economy reaches its highest level of activity at the cycle's peak. Growing economies tend to reach their maximum potential at a slower rate. When demand exceeds supply, prices for businesses may increase and inflation may start to rise.
3. **Recession:** The economy experiences a recession after peaking, which is characterised by a decline in economic activity. Businesses reduce investment, consumer spending declines, and unemployment increases during a recession. The economy shrinks, and growth metrics go south.
4. **Trough:** The lowest point of the economic cycle is symbolised by the trough. Businesses may have overcapacity and decreased consumer demand during this period of sluggish economic activity. However, as new economic conditions provide up prospects for growth, this period lays the groundwork for a rebound.
5. **Recovery:** The economy starts to recover after hitting its worst point. Growth starts up again, albeit slowly at first. Economic indicators start to improve, businesses start to invest once more, and consumer confidence rises. This stage progressively returns to expansion.

9.10.3 The Dynamics of the Business Cycle

The business cycle does not follow a strict or expected pattern. Numerous factors, including as alterations in consumer behaviour, government actions, and external economic shocks, can significantly affect the timing and duration of each phase. In an effort to control these swings, policymakers and economic organisations put policies into place that lengthen expansionary stretches and lessen the impact of recessions. For example, during recessions, governments may boost public spending or central banks may modify interest rates to promote growth.

The business cycle does not ensure a uniform or consistent experience, even though it does characterise the main movement of economic activity. A complex web of both local and foreign forces interact to shape economic conditions, and the length of one economic cycle's phases might vary or overlap with another.



Check Your Progress-A

A. Multiple Choice Questions

1. Which of the following best describes the duration for short-term economic forecasting?
 - a. More than ten years
 - b. Up to three years
 - c. Three to five years
 - d. Five to ten years

2. What is the main focus of anticipatory surveys in economic forecasting?
 - a. Predicting long-term economic trends
 - b. Gathering expert opinions on future economic conditions
 - c. Analyzing historical economic data
 - d. Measuring actual economic performance

3. Which category of indicators reaches its peaks and troughs at approximately the same time as the economy?
 - a. Leading Indicators
 - b. Lagging Indicators
 - c. Roughly Coincidental Indicators
 - d. Anticipatory Indicators

4. What is a key limitation of using leading indicators in economic forecasting?
 - a. They do not provide timely data
 - b. They do not predict the direction of economic change
 - c. They may give conflicting signals and are subject to data delays
 - d. They only focus on historical economic performance

5. In econometric model building, which component is NOT typically forecasted?
 - a. Consumption expenditure
 - b. Gross private domestic investment
 - c. Interest rates
 - d. Government purchases of goods and services

B. Fill in the Blanks

1. Short-term economic forecasting typically refers to a period up to _____ years.
2. Anticipatory surveys rely on the opinions of experts from fields such as government, business, trade, and _____.
3. Leading indicators are those that reach their high and low points _____ the economic activity.
4. The approach that uses various types of indicators to gauge the direction of economic activity is known as the _____ approach.
5. Econometric model building involves using mathematical and statistical techniques to determine the relationship between _____ and independent variables.

9.11 MEASURES OF ECONOMIC ACTIVITY AND THEIR IMPORTANCE

Accurately predicting the direction of economic activity is essential for investors to make prudent decisions about investments. They rely on a range of economic indicators to assist predict the state and trajectory of the economy in order to do this. Making wise investing decisions requires an understanding of these metrics. We'll talk about some important economic indicators here, along with how they affect our ability to predict economic activity.

I. Gross Domestic Product (GDP)

One of the indicators of economic activity that is most frequently cited is the gross domestic product, or GDP. It is the total worth of all finished goods and services produced inside the boundaries of a nation over a given time frame. The economic output produced by domestic factors of production is captured by this metric. Autos produced domestically, for instance, add to the GDP.

Implications for Investment:

Growth Indication: An expanding and healthy economy is generally indicated by a rising GDP growth rate. It implies that there is a strong level of general economic activity, firms are generating more, and consumers are spending more. This frequently results in more investor confidence and maybe larger investment returns.

Income and Investment: Increased disposable income from higher GDP growth can be used by people to invest their surplus funds. Additionally, there is typically an improvement in corporate earnings, which results in more alluring investment options.

Historical Context:

Many countries had initial spikes in GDP growth following their post-1992 economic reforms. Nevertheless, GDP growth fell off significantly in 2020 as a result of the COVID-19 epidemic. Investors can anticipate recovery trends and make wise investment selections by being aware of these variations.

II. Gross National Product (GNP)

Regardless of the location of production, a nation's gross national product (GNP) represents the entire value of all finished goods and services generated by its citizens. Money earned by citizens overseas is included, whereas money obtained by foreigners domestically is not.

Implications for Investment:

Economic Health: GNP growth, like GDP, is a sign of a healthy economy and investment potential. An increasing GNP can improve investment opportunities by indicating that the country's citizens are earning more money both domestically and abroad.

International Influence: The impact of global economic conditions on the nation's economy is also reflected in the GNP. An increase in revenue from foreign enterprises or investments, for example, can raise the GNP and create new investment opportunities.

III. Measures of Consumer Confidence

Consumer confidence indices, including the Consumer Sentiment Index and the Consumer Confidence Index (CCI), measure how optimistic consumers are overall about their financial circumstances and the status of the economy. These metrics offer perceptions into potential future trends in consumer purchasing.

Implications for Investment:

Spending and Profitability: Consumer spending typically rises in response to higher consumer confidence. Spending like this increases business earnings, especially for companies that market consumer goods and services. Investing in companies that exhibit significant consumer confidence is frequently regarded as a favourable indication by investors.

Economic Direction: A considerable change in consumer confidence may indicate changes in the direction of the economy, allowing investors to modify their planning.

IV. Inflation and Consumer Price Index (CPI)

The rate at which prices for goods and services are generally rising is known as inflation. Indexes like the Wholesale Price Index (WPI) and the Consumer Price Index (CPI) are

frequently used to measure it. WPI concentrates on the wholesale level, whereas CPI monitors changes in the price of a basket of consumer goods and services.

Implications for Investment:

Inflation and Growth: Generally speaking, moderate inflation during times of economic expansion is acceptable and even advantageous as it frequently coincides with growing disposable incomes and business profits. On the other hand, excessive inflation can reduce buying power and affect investment returns.

Interest Rates and Stock Prices: Interest rates are impacted by inflation because central banks may raise rates to counteract excessive inflation. Elevated interest rates can have a detrimental effect on stock values by making borrowing more expensive for corporations and decreasing their profitability. On the other hand, reduced inflation may result in lowered interest rates, which may improve stock market performance.

Central Bank Actions: Monetary policies are used by central banks, like the Reserve Bank of India (RBI), to control inflation. To reduce inflation and stabilise the economy, they may modify the money supply by altering the Statutory Liquidity Ratio (SLR) or Cash Reserve Ratio (CRR).

V. Interest Rates

Interest rates are a crucial component of macroeconomic analysis since they indicate the cost of borrowing money. They impact the cost of capital for enterprises and the returns on different financial instruments, which has an impact on investment decisions.

Implications for Investment:

Investment Decisions: Interest rate projections are a source of information for investors when allocating their assets. For instance, fixed-income investments may lose appeal in comparison to stocks if an increase in interest rates is anticipated.

Economic Factors: The supply of funds from savers, demand for funds from businesses, monetary policy, and expected inflation are all factors that affect interest rates. A key component of investment strategy is interest rate forecasting because of the intricate interactions between these variables.

VI. Government Policy

Both supply-side and demand-side measures are ways in which government policies can affect economic activity. Taxation and expenditure by the government are examples of demand-side policies; on the other hand, supply-side policies concentrate on raising economic efficiency and production.

Implications for Investment:

Demand-Side Policies: Fiscal and tax policies of the government have a direct impact on economic demand. For example, tax cuts can raise disposable income and consumer spending, while higher government spending can stimulate the economy and open up investment opportunities.

Supply-Side Policies: The objective of these policies is to foster more favourable business circumstances and increase productivity in order to promote sustainable economic growth. Opportunities for investment and sustained economic growth can result from spending on innovation, infrastructure, and education.

VII. Fiscal and Monetary Policies:

Fiscal Policy: involves measures taken by the government with relation to taxing and spending. It can immediately affect market circumstances and economic demand.

Monetary Policy: In order to stabilise the economy, central banks are in charge of managing the money supply and interest rates. To affect economic activity and investment conditions, central banks employ instruments such as CRR, SLR, and interest rate modifications.

9.11.1 Economic Forecasting

Economic forecasting is an essential element of economic analysis because it helps decision-makers anticipate future economic performance. To forecast the direction of the economy across short-, intermediate-, and long-term time frames, forecasters analyse a variety of economic variables and apply a range of approaches. To handle economic uncertainty and optimise their strategy, firms, politicians, and investors must have a thorough understanding of these techniques. This extensive manual dives into the subtleties of economic forecasting, examining its techniques, uses, benefits, and drawbacks.

Understanding Economic Forecasting

Economic forecasting is the process of estimating the future condition of the economy using a variety of prediction models and historical data. The main goal is to shed light on the trends in economic indicators including employment, inflation, GDP, and interest rates. Making strategic decisions, reducing risks, and seizing new possibilities are all aided by accurate forecasting for investors and governments.

Forecasting can be categorized based on the time horizon:

Short-Term Forecasting: Usually spans a maximum of three years. This could involve making monthly or quarterly projections that concentrate on current business cycles and economic trends.

Intermediate-Term Forecasting: spans a period of three to five years, allowing for the capture of structural and medium-term economic shifts.

Long-Term Forecasting: includes time periods longer than five years, up to ten years or longer, with an emphasis on long-term patterns and structural changes.

Short-Term Forecasting Techniques

Predicting economic situations over comparatively short time spans is known as short-term forecasting. Timely investment decisions and strategic company plan adjustments depend heavily on this kind of forecasting. For short-term forecasting, several methods are used:

I. Anticipatory Surveys

One easy way to get expert opinions on future economic conditions is through anticipatory surveys. These polls usually include opinions from well-known figures in commerce, trade, government, and industry. Expectations about construction activity, machinery and plant costs, inventory levels, and consumer spending plans are the main topics of discussion.

Expert Opinions: Experts are surveyed to get their predictions based on their expertise and experience. This approach is useful for estimating attitudes and expectations regarding economic activity.

Consumer Spending Plans: Surveys conducted in advance also reveal the spending intentions of consumers, which can impact the state of the economy as a whole.

II. Barometric or Indicator Approach

The barometer or indicator approach forecasts future economic performance by examining a range of economic variables. Three sorts of indicators can be distinguished:

Leading Indicators: These indicators adjust ahead of the overall economy. They offer preliminary indications of economic patterns. Indexes of consumer confidence, capacity utilisation, and bank credit growth are a few examples.

Lagging Indicators: These indicators adjust subsequent to an already-occurring shift in the economy. Instead than predicting trends, they validate them. The unemployment rate and GDP are two examples.

Coincident Indicators: These indicators have concurrent peaks and troughs in line with the state of the economy. Short-term interest rates and manufacturing activity are two examples.

Application and Challenges:

Utility: The indicator approach provides insights into future trends and aids in determining the direction of economic developments. Predicting economic turning points is a particularly valuable application of leading indicators.

Challenges: Because of possible data gathering delays and contradicting signals, relying only on leading indications can be dangerous. Data accessibility frequently lags, and interpretation might be difficult.

Diffusion Index and Composite Index:

The diffusion index or composite index approach combines many indicators into a single metric to alleviate the shortcomings of individual indicators. Using this method makes it easier to assess the general strength or weakness of economic trends.

III. Money and Stock Price Analysis

In economic forecasting, the relationship between the money supply and stock prices is a crucial topic of investigation. Money supply fluctuations have an impact on a number of economic indicators, including GDP, corporate earnings, interest rates, and stock prices.

Monetary Influence: Increasing the money supply, particularly in times of inflation, can boost economic growth and raise stock prices.

Investment Hedge: One common perception of stocks is as an inflation hedge. A rise in the money supply can raise stock prices during periods of inflation.

9.11.2 Intermediate-Term Forecasting Techniques

Three to five year economic patterns are the main focus of intermediate-term forecasting. Understanding medium-term economic movements and structural changes requires this kind of forecasting.

I. Econometric Model Building Approach

The relationships between dependent and independent variables are established by econometric models through the application of statistical and mathematical methods. This method looks at past data and establishes clear correlations in order to forecast economic variables with accuracy.

Mathematical and Statistical Analysis: By integrating mathematical and statistical techniques with economic theory, econometrics offers a methodical approach to predicting.

Historical Data: The reliability of underlying assumptions and the quality of past data determine how accurate econometric projections are.

Methodology:

Hypothesis and Estimation: In econometric models, components including consumption expenditure, net exports, government spending, and private domestic investment are estimated along with the overall economic demand hypothesis.

Forecasting and Validation: To get the overall forecast for the Gross National Product (GNP), analysts add up the projections of each component separately. Next, in order to verify coherence, the entire forecast is examined for internal consistency.

II. Opportunistic Model Building or Sectional Analysis

Sectional analysis or opportunistic model construction is an adaptable strategy that incorporates components from many forecasting techniques. To make short-term projections, it makes advantage of national accounting frameworks.

Scenario Analysis: To estimate total demand, analysts hypothesise circumstances including political unpredictability, shifting economic conditions, and rates of inflation.

Component Forecasting: Forecasts are provided for each of the GNP's components, such as net exports, government spending, private domestic investment, and consumption expenditure.

Methodology:

Forecasting Components: To get the overall projection, analysts forecast each of the GNP's components and add them together.

Internal Consistency: To make sure that the total and its constituent parts are coherent, the forecast is examined for internal consistency.

9.11.3 Long-Term Forecasting Techniques

Forecasting for the long term is concerned with estimating the state of the economy after five years. Understanding long-term trends and structural changes requires this kind of forecasting.

I. Structural Models

Structural models examine the relationships and underlying economic structure to analyse long-term economic patterns. These models concentrate on variables like changes in the population, policy effects, and technology breakthroughs.

Economic Structure: The fundamental aspects of the economy, such as patterns of investment, consumption, and output, are examined using structural models.

Long-Term Trends: They give insights into long-term patterns and structural modifications that could affect the functioning of the economy.

II. Simulation Models

Computer simulations are used by simulation models to examine long-term economic situations and trends. In order to forecast future economic situations, these models take into account a number of variables and presumptions.

Computer Simulations: Utilising a variety of inputs and scenarios, computer algorithms are used in simulation models to replicate economic conditions.

Scenario Analysis: They make it possible to analyse various scenarios and their possible effects on the economy.

9.12 SUMMARY

Economic forecasts, which fall into three categories—short-, intermediate-, and long-term—are essential for assessing how the economy will function in the future. Long-term projections span three years, and occasionally much shorter timeframes, such as quarters. Long-term projections go beyond five years, possibly spanning a decade or longer, whereas intermediate estimates cover three to five years. In order to predict economic trends, anticipatory surveys are one method of short-term forecasting that collects expert opinions on variables like consumer spending and construction activity. These polls can be unreliable because they offer views rather than precise predictions and don't always match actual results.

The Barometric or Indicator Approach is an additional method for forecasting economic changes. It divides indicators into three groups: leading, coincident, and lagging. While coincident and trailing indicators move in lockstep with the economy, leading indicators, like consumption of durable goods and bank loan growth, anticipate changes before they happen. The indicator strategy has drawbacks despite its value, including potential contradicting signals and delays in data collection. Although they have drawbacks of their own, composite or diffusion indices can be used to overcome these problems. Another strategy is to define exact correlations between variables through the use of statistical and mathematical approaches in econometric model construction, which improves the accuracy of economic trend forecasting.



9.14 GLOSSARY

Forecasting - Prediction

Indicators - Signals

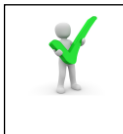
Anticipatory Surveys - Expert Opinions

Econometric Models - Statistical Analysis

Leading Indicators - Preceding Signals

Lagging Indicators - Subsequent Signals

Composite Index - Combined Measure



9.15 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Part- A

1. (B) Up to three years
2. (B) Gathering expert opinions on future economic conditions
3. (C) Roughly Coincidental Indicators
4. (C) They may give conflicting signals and are subject to data delays
5. (C) Interest rates

Part- B

Answer: (I) three, (II) industry, (III) before, (IV) Barometric, (V) dependent



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9.18 TERMINAL QUESTIONS

1. What are the three main time horizons for economic forecasting?
2. How is short-term forecasting typically defined in terms of duration?
3. What is the primary focus of anticipatory surveys in economic forecasting?
4. Name the three categories of indicators used in the barometric approach to forecasting.
5. What is the key limitation of using anticipatory surveys as a forecasting tool?
6. How do leading indicators differ from lagging indicators in the context of economic forecasting?
7. In econometric model building, what are the primary components of GNP that are forecasted?

UNIT 10 INDUSTRY ANALYSIS

10.1 Introduction

10.2 Objectives

10.3 Classification of Industry

10.4 Industry Analysis

10.5 The Business Cycle and Industry Sectors

10.6 The Industry life cycle

10.7 Industry Competition

10.8 SWOT Analysis

10.9 Summary

10.10 Glossary

10.11 Answers to Check Your Progress

10.12 References

10.13 Suggested Readings

10.14 Terminal Questions

10.1 INTRODUCTION

This unit focuses on the integration of industry analysis into the broader framework of security analysis, a critical approach for making informed investment decisions.

Next to modern economics, the true dynamic of history is to be found in the area generally regarded as industry. Under the umbrella word of "industry", one must include the production of scarce goods designed to satisfy human wants. It is varied and intricate: one can produce goods that are designed either for personal satisfaction (i.e., which we can directly consume); or for indirect consumption, defined as capital goods. Goods for personal satisfaction may equally well be of an agricultural nature (fruits, vegetables, flowers, etc.) or be mineral or other products, like coal or wine; they may be transformed by complex industrial operations into hydro turbines or manufacturing systems, facilitating other production processes. In all cases, the satisfaction of human wants is the rule of the game. Summarizing, the industrial society is a society that has to produce, distribute and consume materials or immaterial items designed to give satisfaction to the most various wants human being feel.

From a theoretical standpoint, a business enterprise is an establishment that achieves an income, based on a production function and on price expectations. The characteristics that differentiate empirical phenomena - of production, pricing, distribution and organization of businessmen - were expounded by classical authors. Classical theory was dominated by an analysis of industrial problems which required solutions that need to be compatible with each other: theory and policy. Classical authors could hope that the analysis of particular problems and their specific solutions, obtained by accumulating evidence, could be reduced to a few general principles. The term "economics", used by Adam Smith and after him, was more restricted in scope than that now in use. Today, economics is the science of human behavior that deals with the satisfaction of human desires. According to the classical view, the science of economics consists of three main divisions. Firstly, it deals with the theory of production and exchange; secondly, it deals with mechanisms that equate production to consumption; and lastly, it looks at managerial administration of economies with the occupation of businessmen in an enterprise.

Irving Fisher defined industry to mean "the production of goods either for use or for resale". But production or manufacture alone is not industry unless the commodity is produced for the purpose of trade or exchange. All trades, too, are not industry. L. R. McFadden stated that there are two varieties of industry, that which creates utility by providing or transferring substance and that which creates utility by providing or transferring service. These definitions are attractive due to their demarcation of the fields of industry and commerce on the ground of the nature of the acquisition of wealth, the one being productive and the other distributive.

10.2 OBJECTIVES

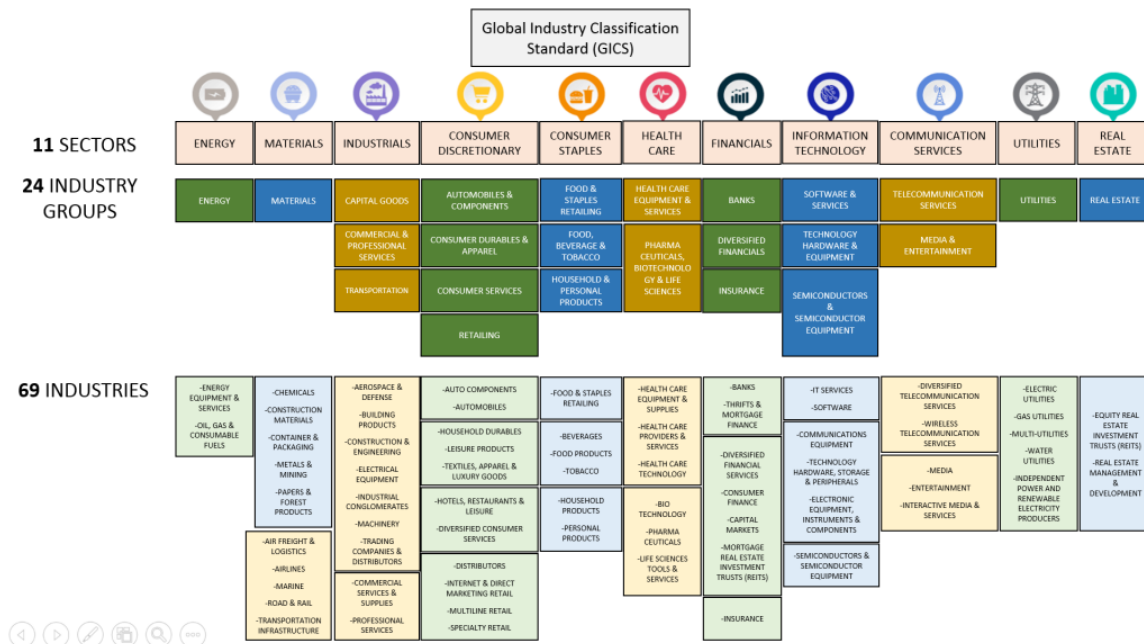
After studying this unit, you will be able to understand the critical role of industry analysis within security analysis, and how industry trends, competitive dynamics, and sector-specific risks affect the valuation and performance of individual securities.

10.3 CLASSIFICATION OF INDUSTRY

The term 'industry' is derived from the Latin word 'industria', which implies the application of skill to something. But it is important for us to understand that industry is not limited to the production of goods through physical terms; rather, it extends to include any kind of productive activity through mental or manual labor. Thus, industry exists in a wide range of human and social activities from business, commerce, journalism, art, literature, fashion to furniture making, food processing, and the manufacture of home appliances. When Adam Smith defined production plus sale, exchange, or purchase of material goods as the characteristic trait of industry, he paved

the way for the inclusion of commerce in it. As such, the rise of modern industry necessitated the understanding of the interlinkages between production and commerce.

In the context of fundamental analysis, however, the word "industry" has a rather specific connotation. The profession that a firm works in is, at the most fundamental level, its industry. Fundamental analysts provide more specific information about industry classification, for example, that Ford is a part of the automotive business. The Global Industry Classification Standard, or GICS, is the classification standard that most fundamental analysts use to assign companies to their respective industry categories.



All industries are categorised by GICS into sectors, industry groups, industries, and sub-industries. Standard & Poor's and MSCI Barra, two businesses that specialise in developing methods of categorising firms, collaborated to produce GICS.

10.4 INDUSTRY ANALYSIS

In the fast-paced and competitive business world, understanding the dynamics of the industry in which a company operates is crucial for success. Industry analysis provides valuable insights into market trends, competitor strategies, and potential opportunities and threats. By conducting a thorough industry analysis, businesses can make informed decisions and gain a competitive edge. Industries have ups and downs in the same way as the economic cycle causes the economy to grow and decline. For example, businesses in several sectors typically experience ups and downs in the economy. These businesses, are referred to as cyclical corporations. Then there are those industries that are generally noncyclical, which means that the direction of the economy has little impact on how well they do. One industry that is typically not cyclical is the health care sector.

Industry analysis is a tool used by certain fundamental analysts to determine the stage of the business cycle that the economy is in. Industry analysis is the process of examining the various factors that impact an industry's performance. It involves evaluating the competitive landscape, market trends, regulatory environment, and other external factors that can influence the success of businesses operating within that industry. By conducting a thorough industry analysis, companies can gain a deeper understanding of their market and make informed decisions to drive growth and profitability. Conducting industry analysis is essential for businesses to stay competitive and adapt to changing market conditions.

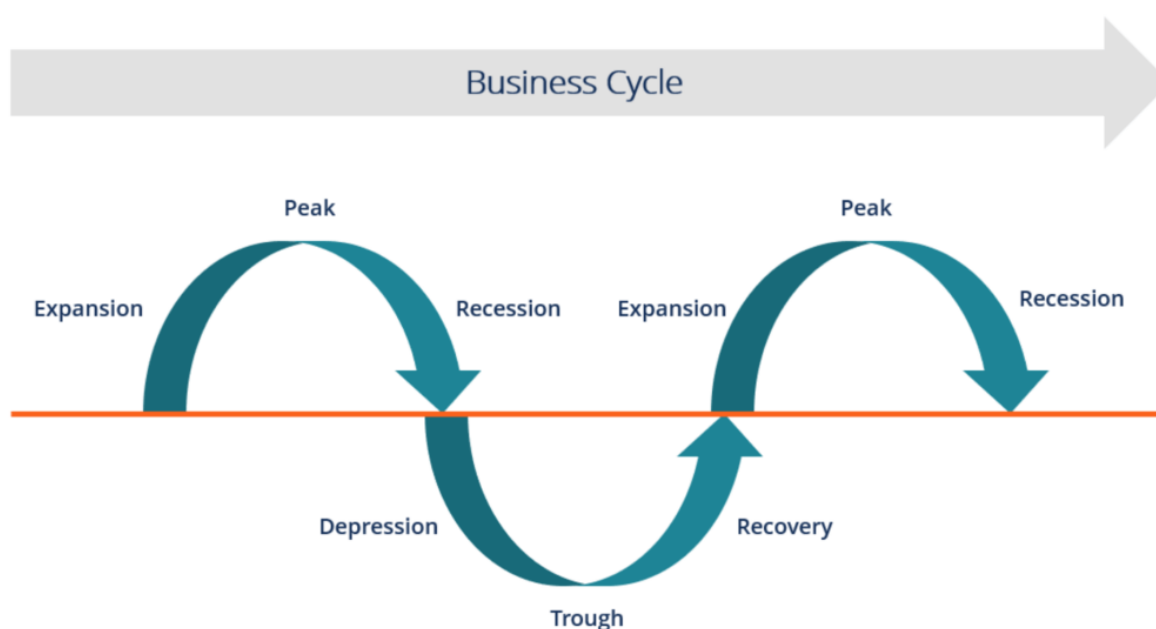
How to organise your industry analysis is a crucial question? There are two linked reasons why it is important to look at the macroeconomy in our examination of the economy and the overall equity market. First, we are aware that the securities markets signal the health of the economy in order to make progress ahead of the overall economy. Second, the majority of the factors influencing the value of the securities markets are macroeconomic factors like interest rates, GDP and business profits. Consequently, our examination of the overall equity market comprises of two parts: a macro-level component addressing factors like monetary policy and leading indicators, and a micro-level component focusing on particular characteristics that impact market value. The key thing to remember is that the steps involved in industry analysis are comparable. First, a macroanalysis of the industry is conducted to ascertain its relationship to the business cycle and the economic factors that influence it. When we use the various macroanalyses, the microvaluation will be simpler. The industry macroanalysis will simplify and improve the accuracy of the estimation of the two primary valuation inputs: a discount rate and the anticipated growth of cash flows and earnings.

10.5 THE BUSINESS CYCLE AND INDUSTRY SECTORS

In the world of business and economics, cycles play a significant role in shaping the landscape of industries and markets. Business and economic cycles refer to the fluctuations in economic activity that occur over time. Understanding these cycles is crucial for businesses to adapt, thrive, and survive in a dynamic environment. Business and economic cycles are the recurring patterns of expansion and contraction in economic activity. These cycles are characterized by periods of growth, peak, decline, and trough. Understanding the dynamics of these cycles is essential for businesses to make informed decisions and navigate through changing market conditions effectively. Our goal is to keep an eye on the economy and assess the potential effects of any fresh information on our forecast on the short- and long-term valuation of our sector. Remember that to outperform the market our projections must be different from the market consensus on a risk-adjusted basis.

There are two main types of economic trends: structural changes that happen when the economy is going through a significant shift in its structure, and cyclical changes that result from the ups and downs of the business cycle. For instance, there can be surplus labour or money in some sectors, while there are shortages of money and labour elsewhere. Industry analysts need to consider how fundamental economic changes may affect the industry they are analysing. Although the economic cycle stage and industry performance are related, the true difficulty is that each business cycle is unique and that those who just consider the past fail to see the changing patterns that will shape the performance of markets and industries in the future.

Investors should keep an eye on changes in industry features and economic trends in order to identify which industry groups stand to gain from the next phase of the business cycle. Business cycles are characterized by distinct phases that reflect the fluctuations in economic activity. Understanding these phases is essential for businesses to adapt their strategies and operations accordingly. The four primary phases of a business cycle are:



Expansion: The expansion phase marks a period of economic growth and increasing business activity. During this phase, businesses experience rising demand, increased production, higher employment levels, and expanding investment. Consumer confidence is typically high, leading to robust spending and overall economic prosperity.

Peak: The peak phase represents the highest point of the business cycle, where economic activity reaches its peak levels. At this stage, the economy is operating at full capacity, and businesses are thriving. However, signs of overheating, such as inflationary pressures and asset bubbles, may start to emerge. Peak phases are characterized by optimism and high levels of economic activity.

Recession: The contraction phase, also known as a recession, is a period of economic decline following the peak. During this phase, economic activity contracts, leading to reduced production, declining consumer spending, rising unemployment, and falling business investment. Businesses may face challenges such as decreased demand, lower revenues, and financial strain. The contraction phase is typically characterized by pessimism and economic downturn.

Trough: The trough phase represents the lowest point of the business cycle, where economic activity reaches its lowest levels. At this stage, the economy is in a state of recession, with high unemployment, low consumer confidence, and reduced business activity. Businesses may face significant challenges during the trough phase, such as declining revenues, financial instability, and the need to cut costs. However, the trough phase also sets the stage for recovery and the beginning of a new expansion cycle.

Factors Influencing Business Cycles

Recall that the efficient market has already factored recent economic news into the price of securities, so you shouldn't base your investment decisions only on the state of the economy. Rather, you have to predict key economic factors and make investments based on those forecasts. Several factors influence the fluctuations in business and economic cycles. Understanding these factors can help businesses anticipate changes and adjust their strategies accordingly. Some of the key factors include:

Gross Domestic Product (GDP): GDP measures the total value of goods and services produced within a country's borders. It serves as a broad indicator of economic performance and growth. The size and performance of an economy are indicated by GDP. Real GDP's growth rate is commonly used as a measure of the overall economic health. Generally, an increase in real GDP is seen as a positive sign for the economy. Strong growth in real GDP is typically associated with increasing employment as companies expand their workforce and individuals have more disposable income. The limitations of GDP should also be considered. GDP does not provide a complete picture of a country's overall standard of living or the well-being of its people. While GDP per capita is commonly used to gauge the average citizen's economic status, it fails to account for factors that are essential to general well-being.

Unemployment Rate: The unemployment rate reflects the percentage of the labor force that is currently unemployed and actively seeking employment. High unemployment rates can indicate economic weakness, reduced consumer spending, and lower overall economic activity. Businesses often monitor the unemployment rate to assess labor market conditions and potential changes in consumer behavior.

Inflation Increased inflation hurts companies that can't absorb cost increases and raises market interest rates, which in turn increases uncertainty about future prices and expenses and is generally bad for equities. While most people do experience these negative consequences, Certain industries are among those that profit from inflation. Natural resource industries stand to gain since their produce will probably sell for more money if

their production costs do not increase in line with inflation. High operating leverage industries profit from the fact that many of their expenses are constant in nominal (current dollar) terms, but their revenues rise in response to inflation. High financial leverage industries stand to benefit as well if their obligations are paid off with cheaper dollars.

Interest Rates Higher rates usually have a negative effect on financial institutions, especially banks, as they make it harder for them to pass these higher rates on to clients (i.e., lagged adjustment). Although they may be advantageous, high borrowing rates obviously hurt the housing and construction industries. Retirees whose income depends on interest income also profit from high interest rates. A 2007 study by Reilly, Wright, and Johnson looks at how sensitive a wide range of businesses and stocks are to interest rates.

International Economics Events International Economics Events on the domestic and international fronts impact the US dollar's value. A declining value of the US dollar benefits American businesses by making their exports more affordable in global markets while driving up the cost of items from abroad rivals. A more powerful Dollar has the opposite impact. Industries with a significant presence in various regions benefit from economic growth in those countries or in specific regions of the world. Free trade zones, like the North American Free Trade Zone and the European Community, help businesses who manufacture commodities and services that were previously subject to tariffs or restrictions in partner nations.

Customer Attitude Spending on consumption has a significant effect on the economy since it accounts for around two thirds of GDP. Buyers who are optimistic are more likely to borrow and spend money on costly items like furniture, vehicles, homes, and new clothes. Thus, the execution of Consumer attitude shifts as well as consumer willingness and ability to borrow and spend money will have an impact on consumer cyclical industries.

Monetary Policy: Central banks play a crucial role in influencing business cycles through monetary policy measures such as interest rate adjustments and money supply management. Changes in monetary policy can impact borrowing costs, investment decisions, and overall economic activity.

Fiscal Policy: Government policies related to taxation, spending, and regulation also influence business cycles. Fiscal stimulus measures during economic downturns can boost demand and stimulate growth, while austerity measures during periods of expansion aim to prevent overheating and inflation.

Consumer Confidence: Consumer sentiment and confidence levels play a significant role in driving economic activity. High consumer confidence typically leads to increased spending, investment, and economic growth, while low confidence can result in reduced consumption and economic slowdown.

Technological Changes: Advances in technology can have a profound impact on business cycles. Innovation and technological disruptions can create new industries, drive productivity gains, and reshape market dynamics, influencing the overall economic cycle.

Impact of Business Cycles on Businesses

Business cycles have a significant impact on businesses across industries and sectors. The fluctuations in economic activity can influence various aspects of business operations, including:

1. **Planning and Strategy:** Businesses need to adapt their strategic plans and operational tactics in response to the changing phases of the business cycle. During expansion phases, businesses may focus on growth strategies, expansion opportunities, and investment in new initiatives. In contrast, during contraction phases, businesses may prioritize cost-cutting measures, efficiency improvements, and risk mitigation strategies to compensate the economic downturn.
2. **Investment Decisions:** Business cycles can impact investment decisions, as uncertainty and fluctuations in economic conditions can influence the feasibility and timing of investments. During expansion phases, businesses may be more inclined to invest.
3. **Employment Trends:** Business cycles can affect employment trends, with hiring and layoffs often corresponding to the phase of the cycle. During expansion phases, businesses may increase hiring to meet growing demand and expand operations.
4. **Market Demand:** Fluctuations in the business cycle can impact market demand for products and services. During expansion phases, consumer confidence and spending typically increase, leading to higher demand for goods and services. Businesses may need to ramp up production and marketing efforts to meet this demand. Conversely, during contraction phases, consumer spending may decline, leading to reduced demand.

Strategies for Businesses in Different Phases

Businesses can adopt specific strategies to navigate through different phases of the business cycle effectively. Some strategies include:

1. Expansion Phase:

- Capitalize on growth opportunities and market expansion.
- Invest in research and development to innovate and stay ahead of competitors.
- Expand product lines or services to meet increasing demand.
- Strengthen customer relationships and loyalty to sustain growth momentum.

2. Contraction Phase:

- Focus on cost reduction and efficiency improvements to compensate the economic downturn.
- Evaluate and prioritize essential business activities to streamline operations.
- Diversify revenue streams and explore new markets to mitigate the impact of reduced demand.
- Maintain strong cash flow management and financial discipline to navigate through challenging times.

Examining real-world examples of businesses navigating through different phases of the business cycle can provide valuable insights into effective strategies and best practices for example:

1. **Company A:** During an expansion phase, Company A diversified its product offerings and expanded into new markets, capitalizing on the growing demand. By investing in research and development, the company introduced innovative solutions.
2. **Company B:** In a contraction phase, Company B implemented cost-cutting measures and focused on operational efficiency to mitigate the impact of reduced consumer spending.

Financial equities gain value once a recession ends because investors believe that banks will continue to make more money as long as the economy and demand for loans grow. Brokerage houses become desirable assets due to their earnings and sales are anticipated to increase during the economic recovery as firms sell debt and equity, investors trade securities, and more mergers occur. These industry projections presuppose that demand for loans, home building, and security offerings will all rise following the conclusion of the recession. Customer durable companies that make laptops, refrigerators, Air conditioners and other appliances become appealing investments once the economy starts to improve since a recovering economy will boost customer confidence and disposable money. Due to their high degree of operating leverage—which allows them to profit handsomely from sales rises during an economic rebound—cyclical sectors, whose sales rise and fall with overall economic activity, are appealing investments during the early phases of an economic recovery. Growing sales volumes are also advantageous to industries with strong financial leverage. Inflation often rises as supply begins to fall short of demand towards the top of the business cycle. Investors favour basic materials industries that convert raw materials into finished goods such as oil, metals, and timber. Due to the limited impact of inflation These industries have larger profit margins due to the expense of extracting these items and the ability of the businesses in these sectors to raise prices. Certain industries perform better than others during a recession. Consumer staples like food, drink, and pharmaceuticals do better than other industries during a recession because, even though overall spending may drop, people still spend money on necessities. As a result, these "defensive" industries tend to hold steady or even grow.

Similarly, industries that export to expanding economies gain because their goods become more cost competitive if an economy results in a weak currency.

In conclusion, understanding business and economic cycles is essential for investors to navigate through the ups and downs of the economy effectively. By recognizing the different phases of the business cycle, monitoring key economic indicators, and adapting strategies accordingly, investors can position themselves for success and resilience in a dynamic environment. By leveraging insights from industry analysis and staying attuned to market trends, investors can make informed decisions, seize opportunities, and mitigate risks associated with business cycles. As businesses continue to evolve and adapt to changing market conditions, the ability to anticipate and respond to business cycles will remain a critical aspect of strategic financial investment planning and decision-making.

10.6 THE INDUSTRY LIFE CYCLE

The industry life cycle is a framework that describes the different stages an industry goes through from its inception to its decline. Understanding this cycle can help businesses and investors make informed decisions about entering or exiting an industry, and about strategic planning within different stages. Here are the main stages of the industry life cycle:

1. Introduction Stage

Characteristics: The industry is new, and products or services are being developed and introduced to the market. There is little to no competition, and the focus is on innovation and product development.

Challenges: High costs, low sales, and uncertain demand. Companies need significant investment for R&D and marketing to create awareness.

Strategies: Focus on product development, innovation, and creating awareness. Building a strong brand and establishing a market presence is crucial.

2. Growth Stage

Characteristics: Rapid market acceptance and increasing sales. The industry experiences high growth rates, and more competitors enter the market.

Challenges: Managing rapid growth, scaling operations, and dealing with increasing competition. Prices may begin to fall as competition increases.

Strategies: Expand market reach, invest in capacity expansion, improve product quality, and differentiate from competitors. Marketing and sales efforts are intensified.

3. Maturity Stage

Characteristics: The industry's growth rate slows as it reaches saturation. The market is well-established, and competition becomes more intense.

Challenges: Decreasing growth rates, price competition, and the need for efficiency improvements. Companies may face pressure to maintain market share.

Strategies: Focus on efficiency and cost control, product differentiation, and finding new market segments. Innovation may shift towards improving existing products rather than creating new ones.

4. Decline Stage

Characteristics: The industry experiences a decline in demand and sales. New technologies or changing consumer preferences may render products obsolete.

Challenges: Shrinking market size, overcapacity, and reduced profitability. Companies may struggle to sustain operations.

Strategies: Diversify into new markets or products, reduce costs, and manage the decline strategically. Some companies may choose to exit the market.

Even though these are only broad overviews of the various life cycle stages, they ought to assist you in determining which stage your industry is at and, consequently, in approximating the prospective development and profit margin of your sector.

Factors Influencing the Industry Life Cycle

Technological Innovation: Advances can shorten the life cycle by making current products obsolete.

Consumer Preferences: Changes in preferences can impact demand and accelerate the transition between stages.

Economic Conditions: Economic downturns or booms can influence the speed at which an industry moves through its life cycle.

Regulation: New laws and regulations can either spur growth or lead to decline.

Evaluating an Industry's Life Cycle Stage

Market Analysis: Look at market growth rates, sales data, and the number of competitors.

Product Innovation: Assess the level of innovation and the introduction of new products or improvements.

Competitive Landscape: Evaluate the number and strength of competitors and their market strategies.

Financial Metrics: Analyze profitability, revenue growth, and investment levels.

Understanding the industry life cycle helps businesses to:

Plan Strategy: Align business strategies with the industry's stage to maximize growth and profitability.

Resource Allocation: Allocate resources effectively based on the stage of the industry.

Risk Management: Identify and mitigate risks associated with different stages of the life cycle.

A case of Tourism Industry Life cycle

The tourism industry, like other industries, goes through various stages in its life cycle. Here's an analysis of the tourism industry life cycle:

1. Introduction Stage

Characteristics: New tourism destinations or experiences are being introduced. This stage involves significant investment in infrastructure, marketing, and development to attract tourists.

Challenges: High initial costs, low visitor numbers, and uncertain demand. Building awareness and creating an attractive proposition for tourists are critical.

Strategies: Focus on marketing and promotion to build awareness. Invest in high-quality infrastructure and services to create a positive first impression. Partnerships with travel agencies and online platforms can help in reaching potential tourists.

2. Growth Stage

Characteristics: Increasing tourist arrivals and growing popularity of the destination. More tourism businesses, such as hotels, restaurants, and tour operators, start to emerge.

Challenges: Managing rapid growth, ensuring quality of services, and dealing with initial competition. Infrastructure needs to be scaled up to accommodate the growing number of tourists.

Strategies: Expand marketing efforts to a broader audience. Improve and expand infrastructure and services to cater to increasing demand. Focus on customer satisfaction and build a strong reputation. Differentiation through unique experiences can help stand out from competitors.

3. Maturity Stage

Characteristics: The destination reaches peak popularity, and tourist numbers stabilize. The market becomes saturated with many competitors offering similar services.

Challenges: Intense competition, price wars, and maintaining service quality. The destination needs to innovate to keep attracting tourists.

Strategies: Focus on maintaining service quality and customer satisfaction. Innovate by offering new experiences or improving existing ones. Diversify the target market to include different tourist segments, such as ecotourism, adventure tourism, or cultural tourism. Implement sustainable tourism practices to preserve the destination's appeal.

4. Decline Stage

Characteristics: Tourist numbers start to decline due to various factors such as over-tourism, environmental degradation, or the emergence of new destinations. The destination may lose its appeal.

Challenges: Decreasing revenues, overcapacity, and the need for reinvestment. The destination may face negative publicity or a tarnished image.

Strategies: Rejuvenate the destination through rebranding and new marketing campaigns.

Invest in infrastructure improvement and environmental conservation to restore appeal.

Explore new markets and tourist segments. Collaborate with stakeholders to enhance the overall tourist experience.

Factors Influencing the Tourism Industry Life Cycle

Technological Advances: Innovations in transportation, communication, and booking systems can impact the growth and decline stages.

Economic Conditions: Economic stability and disposable income levels affect tourism demand.

Political Stability: Safety and security concerns can influence tourist arrivals.

Environmental Sustainability: Over-tourism and environmental degradation can lead to a decline in tourist interest.

Cultural Trends: Changing preferences and trends in tourism can affect the industry's life cycle.

Evaluating the Life Cycle Stage of a Tourism Destination

Visitor Statistics: Analyze trends in tourist arrivals, lengths of stay, and spending patterns.

Infrastructure Development: Assess the level of development and investment in tourism infrastructure.

Competitive Landscape: Evaluate the number and strength of competitors and their offerings.

Marketing and Promotion: Review marketing efforts and their effectiveness in attracting tourists.

Case Example: Bali, Indonesia

Introduction Stage: Bali was initially a hidden gem with few visitors.

Growth Stage: Rapidly grew in popularity due to its unique culture, beautiful landscapes, and vibrant nightlife.

Maturity Stage: Became a well-known destination with stable tourist numbers and a saturated market.

Challenges: Over-tourism, environmental degradation, and competition from other Southeast Asian destinations.

Strategies for Rejuvenation: Focus on sustainable tourism practices, promoting lesser-known areas of Bali, and enhancing cultural experiences.

By understanding the life cycle stage of a tourism destination, stakeholders can make informed decisions to ensure sustainable growth and long-term success

10.7 INDUSTRY COMPETITION

An industry earnings estimate should come before an examination of the industry's competitive structure, much like an analysis of the industrial life cycle might improve a sales forecast. In particular, a crucial element influencing an industry's potential for profit is the intensity of industrial competition.

Porter's Five Forces model is a powerful tool for analyzing the competitive forces that shape an industry. Developed by Michael E. Porter, this model helps businesses understand the dynamics of their industry and develop strategies to enhance their competitive position. The model includes five key forces:

1. Competitive Rivalry The intensity of competition among existing firms in the industry.

Factors Influencing Competitive Rivalry:

- Number of competitors: More competitors usually mean more intense rivalry.
- Industry growth rate: Slow growth can increase rivalry as firms fight for market share.
- Product differentiation: Low differentiation can lead to price wars.
- Switching costs: High switching costs can reduce rivalry as customers are less likely to switch to competitors.

- Fixed costs: High fixed costs can lead to aggressive price competition to cover costs.

2. Threat of New Entrants The possibility of new companies entering the industry and increasing competition.

Factors Influencing the Threat of New Entrants:

- Barriers to entry: High barriers (e.g., economies of scale, capital requirements, brand loyalty) reduce the threat.
- Access to distribution channels: Difficulty in accessing distribution channels can deter new entrants.
- Government regulations: Strict regulations can act as barriers to entry.
- Expected retaliation: If existing firms are likely to retaliate aggressively against new entrants, the threat is reduced.

3. Bargaining Power of Suppliers The ability of suppliers to influence the price and terms of supply.

Factors Influencing Supplier Power:

- Number of suppliers: Fewer suppliers increase their bargaining power.
- Uniqueness of the supplier's product: If the supplier's product is unique or highly differentiated, their power increases.
- Switching costs: High switching costs for firms increase supplier power.
- Supplier concentration: A concentrated supplier market increases their power.
- Importance of volume to supplier: If a supplier depends heavily on a particular firm, their bargaining power decreases.

4. Bargaining Power of Buyers The ability of buyers to influence the price and terms of purchase.

Factors Influencing Buyer Power:

- Number of buyers: Fewer buyers increase their bargaining power.
- Product differentiation: If products are undifferentiated, buyers have more power.
- Switching costs: Low switching costs increase buyer power.
- Buyer concentration: A concentrated buyer market increases their power.
- Price sensitivity: If buyers are price-sensitive, they have more bargaining power.

5. Threat of Substitutes The likelihood of customers finding a different way of doing what you do.

Factors Influencing the Threat of Substitutes:

- Availability of substitutes: More available substitutes increase the threat.

- **Price-performance trade-off:** If substitutes offer a better price-performance ratio, the threat is higher.
- **Switching costs:** Low switching costs for customers increase the threat.
- **Buyer propensity to substitute:** If buyers are willing to switch to substitutes, the threat is higher.

Application of Porter's Five Forces Model

By analyzing these five forces, businesses can gain insights into their industry's structure and develop strategies to improve their competitive position. Here's how:

1. **Identify Industry Structure:** Understand how the forces shape the industry's structure and profit potential.
2. **Develop Competitive Strategy:** Formulate strategies to mitigate the impact of the five forces. For example, creating high switching costs can reduce buyer power.
3. **Assess Competitor Behaviour:** Predict how competitors might react to changes in the industry and plan accordingly.
4. **Evaluate Market Entry:** Assess the attractiveness of entering a new market or industry based on the intensity of the five forces.
5. **Anticipate Changes:** Stay alert to changes in any of the five forces that could impact the industry and adapt strategies accordingly.

Example: Application in the Airline Industry

1. **Competitive Rivalry:** High, due to many airlines and low differentiation.
2. **Threat of New Entrants:** Moderate, due to high capital requirements but low brand loyalty.
3. **Bargaining Power of Suppliers:** High, as there are few aircraft manufacturers.
4. **Bargaining Power of Buyers:** High, as customers can easily compare prices and switch airlines.
5. **Threat of Substitutes:** Moderate, with alternatives like trains and cars for short distances.

By understanding these forces, an airline might focus on improving customer loyalty programs, negotiating better terms with suppliers, and differentiating their services to reduce competitive pressure. Porter's Five Forces model is a valuable tool for strategic analysis and planning, helping businesses navigate complex competitive environments.

10.8 SWOT ANALYSIS

A SWOT analysis recognizes strengths and weaknesses that are typically internal to an organization. It includes internal factors—those that internal management of an organisation can control and influence—on the positive and negative side provides managers with the information needed to make meaningful comparisons between the business unit's present state and its desired future state. When strengths and weaknesses are paired with opportunities and threats, managers can uncover strategic implications and direct organizational power and available resources to where they can produce the highest potential strategic impact. Evaluated in the external situation of the firm, opportunities and threats refer to factors that are external to the company, over which the firm has little or no control. As the organization identifies external factors, it becomes possible to develop a clear assessment of the broader business environment and the challenges it creates for the firm or project.

SWOT Analysis of an Industry:

A SWOT analysis is a tool that business managers use to determine an organization's economic performance, market position, and overall business viability. It is a systematic analysis, which, in an orderly way, assesses a company or any business unit's strengths, weaknesses, opportunities, and threats. By this strategic management methodology, one can identify business-related or project-related issues that require resolution or solutions. This management tool helps to build a process for examining different perspectives on organization-based problems. Performing a SWOT analysis is a useful step in the strategic planning stages of an organization for creating a business strategy to determine the best path to growth and sustained progress. The aim of the SWOT studies is to recognize or develop a competitive advantage and to understand what the enterprise can and cannot achieve. It can be done for a new project or industry if an upgrade or renovation of an existing one is still important.

SWOT is primarily used to assess internal capabilities and external opportunities, a mix of internal weaknesses, and external vulnerabilities. The capital is better managed using it. The conclusion of the SWOT assessment is to facilitate the analysis of the business atmosphere. Small organizations who want to deny the services of professionals to assess the company's environment and take the necessary precautions have a major advantage in sector SWOT studies.

The strengths and opportunities of the high-level SWOT analysis should typically cascade naturally into corresponding strengths and opportunities for the operating units. In practice, operating unit managers develop the departmental SWOT analysis with inputs from the people who work within the department. This can also be the responsibility of managers. Departments that have developed certain kinds of plans, such as total quality management plans, may develop a SWOT analysis as a project planning tool. The SWOT findings can be plugged directly into planning analyses involving internal organizational structures or attributes. SWOT analyses can play an important

role in virtually any organization through an examination of the key entities that need to be addressed and a development of the tools for the organization to address them.

The SWOT analysis includes directions of four aspects: strengths, weaknesses, opportunities, and threats. Some analysts add a further aspect, weaknesses (W), which cannot modify but should develop its internal structure, and other, opportunities (O), which similarly cannot modify but also should develop both internal and external structures. Many real-world organizations have multiple layers of entities, including organizations, business units, departments, and project teams. Each of these units can complete a SWOT analysis. For example, a business unit within a department can complete a SWOT analysis. The business unit would examine itself within the department (for a Business-Unit SWOT Analysis), and possibly as part of the entire organization (for a Corporation SWOT Analysis).



Check Your Progress-A

Q1. State True or False.

- i. Business and economic cycles refer to the fluctuations in economic activity that occur over time.
- ii. Industry analysis focuses solely on individual companies within the sector.
- iii. The SWOT analysis includes directions of four aspects: strengths, weaknesses, opportunities, and threats

Q2. What is the primary purpose of industry analysis in investment decisions?

.....

.....

.....

Q3. Name and briefly describe the four stages of the industry life cycle.

.....

.....

.....

Q4. How does Porter's Five Forces model help investors assess industry attractiveness?

10.9 SUMMARY

In the fast-paced and competitive business world, understanding the dynamics of the industry in which a company operates is crucial for success. Industry analysis provides valuable insights into market trends, competitor strategies, and potential opportunities and threats. Industry analysis is a tool used by certain fundamental analysts to determine the stage of the business cycle that the economy is in. Industry analysis is the process of examining the various factors that impact an industry's performance. It involves evaluating the competitive landscape, market trends, regulatory environment, and other external factors that can influence the success of businesses operating within that industry. Investors should keep an eye on changes in industry features and economic trends in order to identify which industry groups stand to gain from the next phase of the business cycle.



10.10 GLOSSARY

Industry Life Cycle: A model that describes the stages an industry goes through from its inception to its decline. The stages include introduction, growth, maturity, and decline, each impacting the strategies of businesses within that industry.

Porter's Five Forces: A framework for analyzing the level of competition within an industry. The five forces are: competitive rivalry, the threat of new entrants, the bargaining power of suppliers, the bargaining power of buyers, and the threat of substitutes.

SWOT: A SWOT analysis is a tool that business managers use to determine an organization's economic performance, market position, and overall business viability



10.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q1.

- i) True
- ii) False
- iii) True



10.12 REFERENCES

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10.13 SUGGESTED READINGS

1. Donald Fischer & Ronald J.Jordan, 'Security Analysis & Portfolio Management', Prentice Hall of India Private Ltd., New Delhi.
2. V.A. Avadhani – 'Securities Analysis and Portfolio Management', Himalaya Publishing House.
3. V.K. Bhalla, 'Investment Management', S.Chand & Company Ltd., Seventh Edition.

4. Punithavathy Pandian, 'Security Analysis & Portfolio Management' – Vikas Publishing House Pvt., Ltd.



10.14 TERMINAL QUESTIONS

1. Explain the significance of industry analysis in the context of investment decision-making. How does it influence the assessment of a company's performance?
2. Discuss Porter's Five Forces model and its application in industry analysis. How do these forces affect the competitive dynamics and profitability of an industry?
3. How do macroeconomic factors, such as interest rates, inflation, and government policies, impact the performance of various industries? Provide examples to support your answer.
4. Compare and contrast the performance of different industries during periods of economic recession and growth. Which industries tend to be resilient, and which are more vulnerable?
5. How can industry analysis help investors identify long-term opportunities within specific sectors? What key factors should be considered when evaluating industries for sustained growth?

UNIT 11 COMPANY ANALYSIS

11.1 Introduction

11.2 Objectives

11.3 How to Conduct Company Analysis

11.4 Valuation of Stocks

11.5 Cash Flow Statement

11.6 Ratio Analysis

11.7 Summary

11.8 Glossary

11.9 Answers to Check Your Progress

11.10 References

11.11 Suggested Readings

11.12 Terminal Questions

11.1 INTRODUCTION

This unit focuses on the integration of company analysis into the broader framework of security analysis, a critical approach for making informed investment decisions.

Security analysis and portfolio decision-making are fundamental aspects of financial management, and within this realm, company analysis plays a crucial role in forming investment decisions. Conducting a thorough analysis of a company's financial statements, industry position, and macroeconomic factors can provide valuable insights into the intrinsic value of a security and its potential for growth. The last phase in the top-down method of investing is the analysis of a company and its stocks.

Company analysis is the study of the factors that have a qualitative and quantitative impact on a firm's future. It is a technique for evaluating a company's competitive standing, earnings, profitability, operational efficiency, financial condition, and future prospects in relation to shareholder earnings. This analysis's basic tenet is that every share of a firm has an intrinsic value that is based on its financial performance, managerial calibre, earnings history, and dividend. They think that eventually, the market price of a share will converge to its inherent value. Financial statement analysis, is a crucial component of company analysis, as it allows investors to understand a firm's

financial position, performance, and changes in its financial status. This analysis can reveal the strengths and weaknesses of a company, shedding light on its profitability, financial soundness, and overall suitability as an investment. For example, every business generates revenue through its ongoing, routine activities. A corporation may occasionally have unique products that have entered the market as a result of a major economic factor. Investors must exercise prudence to make sure that any profit or loss arising from this extraordinary item is disclosed in the financial accounts. In addition to ordinary operations, earnings from a company's various ventures should be displayed in the income statement, with additional information provided in the year's footnotes. The two key factors that determine a stock's intrinsic value are:

- (1) the predicted increase in earnings and cash flows of the company, and
- (2) the risk of the investment and the suitable required return (discount rate).

In addition to financial statement analysis, industry analysis and macroeconomic factors are also important considerations. Unlike bottom-up analysts who choose stocks only based on company-specific variables, top-down analysts consider the present state and prospects for both domestic and economic sectors that are global in scope. They determine which industries, in the anticipated economic environment, offer appealing profits based on macroeconomic study. After conducting macroanalysis, values are assigned to the companies in the chosen sectors. Macroeconomic analysis emphasizes the significance of understanding the industry landscape, including the competitive environment, growth prospects, and potential threats, in order to accurately evaluate a company's value and further highlights the importance of macroeconomic analysis, such as examining Gross Domestic Product and Consumer Price Index, as these factors can have a significant impact on a company's future profitability.

11.2 OBJECTIVES

After studying this unit, you will be able to evaluate a company's financial statements (income statement, balance sheet, and cash flow statement) to assess its profitability, liquidity, and financial health.

11.3 HOW TO CONDUCT COMPANY ANALYSIS

When assessing a business, whom would you trust? Top broking firms' analysts rank companies, use phrases like hold, sell, or acquire. Perhaps you believe that their ratings are reliable. Given their extensive training, these experts own excellent access to data sources. The main objective of a manager is to increase the stock value of the company. The future cash flows that the company will produce are what determine its value. However, how does a manager or investor go about projecting future cash flows to determine which course of action is most likely to boost cash flows. Company analysis is

the process of assessing a firm's financial and operational performance to identify its opportunities, threats, weaknesses, and strengths. Studying the financial statements that publicly listed companies provide answers to both questions. Any company asset's worth is determined by the useable, after-tax cash flows that the asset is anticipated to generate, regardless of whether it is a real (physical) asset like land, buildings, and equipment, or a financial asset like stocks or bonds.

11.4 VALUATION OF STOCKS

Book Value, or a company's net worth as reported on its balance sheet, is a popular valuation metric. In the event that book value is expressed per share, net worth equals book value per share. A few accounting assumptions form the basis of the book value calculation. Regarding asset value, there is a crucial premise. After deducting the acquisition cost from the depreciation value, assets are evaluated. The initial projected life of the machine is used to calculate the depreciation amount of an asset over a given period of time. The amount given as depreciation may be more or less than the actual decrease in the asset's value; there is no guarantee that it will equal the loss in value.

A few accounting assumptions are used to calculate the book value.

1. Assets are valued after the deduction of the acquisition cost from the depreciation value.
2. The initial projected life of the machine is used to calculate the depreciation amount of an asset over a given period of time. There is no assurance that the depreciation amount given will match the asset's value decline, and
3. The market price of a stock accounts for the market worth of the asset, which may be greater or less than the actual loss in the asset's value.

However, book value serves as the foundation for any valuation process, and unless there is accounting window dressing, an asset's intrinsic worth is at least equal to its book value.

Liquidation value per share is another metric that is comparable to book value. This is the total value that could be obtained by dissolving the company, selling its assets, paying off debt, and then giving the remaining funds to the owners. The price of the shares should be at least equal to the liquidation value if there is a thriving takeover market. If not, corporate raiders would find it advantageous to buy the company and then start the liquidation process.

The replacement cost of an asset less debt can also be used to calculate a company's value. If you could ascertain the current cost of installing a comparable facility, you might calculate the replacement cost. The cost per unit of capacity for various sectors is known, such as the cost of a cement plant producing one million tonnes. It will be simpler for business looking to grow to purchase the company than to build a new plant if the market price is below this replacement cost level. If you could ascertain the current cost of installing a comparable plant, replacement cost could be calculated. In numerous

sectors, the Cost per unit of capacity is available, similar to the price of a cement factory producing one million tonnes. Businesses looking to grow will find it easier to purchase the company rather than adding another plant if the market price is below this replacement cost level.

Annual report

The annual report is arguably the most significant of the several reports that companies provide to their investors.

Contents of an Annual Report

1. Company Information
2. Notice of Thirty-fifth Annual General Meeting
3. Corporate Governance Report
4. Board's Report
5. Standalone Financial Statement
6. Independent Auditor's Report on Financial Statement
7. Balance Sheet
8. Statement of Profit and Loss
9. Statement of Changes in Equity
10. Cash Flow Statement
11. Notes to the Financial Statement
12. Consolidated Financial Statement
13. Independent Auditor's Report on Financial Statement
14. Balance Sheet
15. Statement of Profit and Loss
16. Statement of Changes in Equity
17. Cash Flow Statement
18. Notes to the Financial Statement
19. Salient Features of Financial Statement of Subsidiaries / Associates / Joint Ventures

An annual report contains two different kinds of information. First, there's the spoken portion, which is frequently delivered as a chairman's letter. that gives an overview of the company's operating results for the previous year before talking about fresh discoveries that will impact operations going forward. Secondly, the yearly report showcases the balance sheet, the income statement, the cash flow statement and the statement of Changes in Equity. When combined, these financial statements provide an accounting overview of the company's activities and standing. For the last two or three years, comprehensive data are given, along with historical overview of the last five or ten years' with important operating statistics Both the spoken and quantitative materials are equally significant. While the verbal statements make an effort to explain why certain things

happened, the financial statements show what has actually happened to assets, revenues, and dividends over the last few years. The way things worked out is what happened.

The income statement analysis

The income statement is among the most effective tools for predicting a company's future. It provides the company's historical records, which serve as a foundation for the company's forecasts. Although income statements are typically created on a monthly, quarterly, and annual basis, they can cover any time period. The income statement is different from the balance sheet, which shows a company's state at a specific moment in time and represents the period's performance. In the income statement, the income earned by the company is allocated to the expenses related to the business activities to arrive at a result, which means net profit or loss. The income statement is divided into three parts that help analyze the performance of the business at three different points. To determine gross profit, start with revenue and direct costs related to revenue. This is then transferred to operating profit, which subtracts indirect costs such as marketing costs, overheads and depreciation. Finally, after deducting interest and taxes, the net income is arrived at. While all Financials help create a picture of the company's financial condition, the income statement is one of the most important documents that the company's management and individual investors can familiarize themselves with, as it contains a detailed breakdown of income and expenses during the reporting period. process period It contains:

- Revenue: The amount of revenue a business generates during an accounting/reporting period.
- Expenses: The amount of expenses a business incurs during an accounting/reporting period.
- Costs of goods sold (COGS): The cost of goods sold during an accounting/reporting period
- Gross profit: Difference of Total revenue and cost of goods sold
- Operating income: Gross profit less operating expenses
- Income before taxes: Operating income less non-operating expenses
- Net income: Income before taxes
- Earnings per share (EPS): Division of net income by the total number of outstanding shares
- Depreciation: The extent to which assets (for example, aging equipment) have lost value over time
- EBITDA: Earnings before interest, depreciation, taxes, and amortization.

	Notes	2022-23	2021-22
Income			
Value of Services (Revenue)		79 97.85	76 78.21
Less: GST Recovered		11 93.05	11 59.41
Revenue from Operations	18	68 04.80	65 18.80
Other Income	19	12 88.77	15 80.60
Total Income		80 93.57	80 99.40
Expenses			
Employee Benefits Expense	20	17 68.91	14 18.29
Depreciation and Amortisation Expense	1	5 88.69	10 14.36
Other Expenses	21	47 52.29	46 75.49
Total Expenses		71 09.89	71 08.14
Profit Before Exceptional Items and Tax			
Exceptional Items (Net)	22	7 91.99	-
Profit Before Tax		17 75.67	9 91.26
Tax Expenses			
Current Tax	9	3 39.78	4 35.99
Deferred Tax	13	(1 22.15)	(2 00.46)
		2 17.63	2 35.53
Profit for the Year		15 58.04	7 55.73
Other Comprehensive Income			
i) Items not reclassifiable to Profit or Loss			
Equity Investments through Other Comprehensive Income		(11 11.82)	23 15.72
Remeasurement of Defined Benefit Plan		7.09	(2 75.66)
ii) Income tax relating to items not reclassifiable to Profit or Loss		1 26.93	(1 95.54)
iii) Items reclassifiable to Profit or Loss			
Debt investments through Other Comprehensive Income		(9 07.62)	89.58
iv) Income tax relating to items reclassifiable to Profit or Loss		2 06.42	(19.78)
Total Other Comprehensive Income / (Loss) for the year (Net of Tax)		(16 79.00)	19 14.32
Total Comprehensive Income / (Loss) for the year		(1 20.96)	26 70.05
Earnings per equity share of face value of ₹10 each			
Basic and Diluted (in ₹) - After Exceptional Items	23	10.32	5.00
Basic and Diluted (in ₹) - Before Exceptional Items		5.07	5.00
Significant Accounting Policies			
See accompanying Notes to the Financial Statements	1 to 34		

Statement of Profit and Loss for the year ended 31st March, 2023 of Reliance Industrial Infrastructure Limited

The two most popular techniques for examining and interpreting financial documentation of an organisation are vertical analysis and horizontal analysis. The term "vertical analysis" is a financial analysis technique in which each line item in the statement is expressed as a percentage of a base figure. This means that rather than being expressed in precise monetary amounts, such line items on income statements are expressed as percentages of gross sales. It involves analysing a financial statement's single column of data to ascertain the relationships between the various line items.

A company's financial statements are examined and compared using horizontal analysis to see how the amounts have changed across several reporting periods. It can also be used as a %. A horizontal analysis allows you to identify trends and growth patterns for example horizontal analysis is employed to spot trends across time—i.e. differences between results of Q1 and Q2.

Balance sheet

The balance sheet provides information about the company's resources (assets) and capital sources (equity and debts/liabilities). This information helps the analyst assess the company's ability to pay short-term operating needs, meet future debt obligations, and distribute dividends to owners. The basic equation underlying the balance sheet is $\text{assets} = \text{liabilities} + \text{equity}$. Balance sheets serve as a "snapshot" of the company's finances as at the end of the fiscal year. Even though the majority of businesses publish their balance sheets on the final day of a particular period, the "snapshot" is really updated every day due to changes in bank loan balances, inventory purchases and sales, and the addition and retirement of fixed assets. Additionally, a retailer's inventory will be significantly higher before Diwali than it will be later in the March, so at different times of the year the result might vary in balance sheets for the same business.

The balance sheet, sometimes called the statement of financial position, shows the assets and liabilities of an organisation at a certain point in time. Equity is the owners' remaining stake in a company's assets after deducting its obligations. Income received throughout the year or the issuing of fresh equity both raise the amount of equity. Repurchases of shares, dividend payments, and losses all reduce the amount of equity. An analyst can assess a company's liquidity, solvency, and overall financial position by having a thorough understanding of its balance sheet.

Current and non-current liabilities as well as current and non-current assets are distinguished on the balance sheet based on liquidity. The ability of a business to cover its short-term operating expenses is related to the concept of liquidity. Liquidity, as it relates to an organisation as a whole, is the capacity to pay for those immediate expenses. Liquidity is the "nearness to cash" of a specific asset or obligation. Certain assets and liabilities are valued at historical cost, while others are valued at fair value. Information from the notes to financial statements is useful in determining how comparable measurement bases are amongst businesses. Current assets are those that are anticipated to be sold or used within a year, or during a company operating cycle, whichever comes first. Non-current assets are those that are not anticipated to be sold or used within a year or during a business operating cycle, whichever comes first. Current liabilities are those that are anticipated to be settled or paid off within a year, or within one company operating cycle, whichever comes first. Non-current liabilities are those that are not anticipated to be settled or paid within a year or within a business operating cycle, whichever comes first.

	Notes	As at 31st March, 2023	As at 31st March, 2022
(₹ in Lakh)			
Assets			
Non-Current Assets			
Property, Plant and Equipment	1	36 81.87	41 05.67
Intangible Assets	1	0.05	1 56.46
Capital Work-in-Progress	1	-	1 67.67
Financial Assets			
Investments	2	184 66.99	240 78.29
Other Non Current Assets	3	4 56.77	2 99.35
Total Non-Current Assets		226 05.68	288 07.44
Current Assets			
Inventories	4	31.07	2 23.64
Financial Assets			
Investments	5	44 58.51	114 44.34
Trade Receivables	6	3 64.24	16 25.94
Cash and Cash Equivalents	7	1 13.68	1 54.86
Other Financial Assets	8	156 40.45	7 62.24
Other Current Assets	10	5 74.61	3 60.60
Total Current Assets		211 82.56	145 71.62
Total Assets		437 88.24	433 79.06
Equity and Liabilities			
Equity			
Equity Share Capital	11	15 10.00	15 10.00
Other Equity	12	377 45.86	383 19.82
Total Equity		392 55.86	398 29.82
Liabilities			
Non-Current Liabilities			
Deferred Tax Liabilities (Net)	13	12 27.78	16 83.28
Total Non-Current Liabilities		12 27.78	16 83.28
Current Liabilities			
Financial Liabilities			
Trade Payables due to:	14		
Micro and Small Enterprise		22.91	29.39
Other than Micro and Small Enterprise		25 72.46	14 02.39
Other Financial Liabilities	15	68.76	77.45
Other Current Liabilities	16	5 21.81	2 42.76
Provisions	17	1 18.66	1 13.97
Total Current Liabilities		33 04.60	18 65.96
Total Liabilities		45 32.38	35 49.24
Total Equity and Liabilities		437 88.24	433 79.06
Significant Accounting Policies			

Balance Sheet as at 31st March, 2023 of Reliance Industrial Infrastructure Limited

Amounts that clients owe a business for goods and services that have already been provided are known as trade receivables, or accounts receivable. Receivables are generally reported after providing allowance for bad and doubtful debts. Physical commodities that are kept in inventory are those that will eventually be sold to the company's clients, either as finished goods in their current state or as raw materials and work-in-process inventory used to make final goods. Reports on inventories are based on the lowest of net realisable value or cost. A business must record an expense and write down the value of its inventory if its net realisable worth is less than its carrying amount. The first-in, first-out, or weighted average cost approaches are used to estimate inventory costs, which are based on specific identification. Last-in, first-out is another inventory valuation technique that is permitted by certain accounting rules (US GAAP, for example, but not IFRS). A company's debt to its suppliers for products and services

acquired is known as accounts payable, or trade payables. When a business gets payment before the goods and services linked to the payment are delivered, it creates deferred income, sometimes referred to as unearned revenue.

Property, plant, and equipment (PPE) refers to material assets that are intended to be utilised for more than one fiscal year and are utilised in business activities. Land, buildings, furnishings, machinery, equipment, and natural resources including mineral and petroleum resources are a few examples of tangible assets.

The process of calculating an asset's cost throughout its useful life is called depreciation. Identifiable non-financial assets devoid of physical substance are referred to as intangible assets. Trademarks, licenses, and patents are a few examples. A business determines whether the useful life of any intangible asset is infinite or finite. An intangible asset having a finite useful life is amortised systematically throughout the best estimate of its useful life; the useful-life estimate and amortisation method are reviewed on a yearly basis at minimum. The same impairment standards apply to PPE and intangible assets with limited useful lives.

Statement of changes in equity

The calculation of changes in equity is a comparative calculation of the initial and final balance of equity. It is a financial report that presents a summary of equity related transactions during the economic period. This report reflects changes in retained earnings, other funds and share capital. Separating assets and liabilities from one accounting period to another gives you a changes of equity. According to Indian GAAP, this statement is not necessary; However, Schedule III of the Limited Liability Companies Act 2013 requires that changes such as the issuance of new shares and the payment of dividends must be disclosed in the notes to the annual accounts. The statement of shareholders contains detailed information about changes in shareholders during the financial year that is not presented elsewhere in the financial statements. Such information helps shareholders and investors make informed decisions about their investments.

A. Equity Share Capital						(₹ in Lakh)
	Balance as at 1st April, 2021	Changes during the year 2021-22	Balance as at 31st March 2022	Changes during the year 2022-23	Balance as at 31st March, 2023	
	15 10.00	-	15 10.00	-	15 10.00	
B. Other Equity						(₹ in Lakh)
Particulars	Balance as at	Total Comprehensive income for the year	Dividend	Transfer to / (from) Retained Earnings	Balance as at	
As on 31st March, 2023	1st April, 2022				31st March, 2023	
Reserves and Surplus						
Capital Reserve	29 52.96	-	-	-	29 52.96	
Securities Premium	9 60.00	-	-	-	9 60.00	
General Reserve	205 00.00	-	-	3 00.00	208 00.00	
Retained Earnings	44 24.86	15 58.04	(4 53.00)	(3 00.00)	52 29.90	
Other Comprehensive Income (OCI)						
Equity Instruments through OCI	89 21.62	(9 84.89)	-	-	79 36.73	
Remeasurement of Defined Benefit Plan	(3 69.26)	7.09	-	-	(3 62.17)	
Debt Instruments through OCI	9 29.64	(7 01.20)	-	-	2 28.44	
Total	383 19.82	(1 20.96)	(4 53.00)	-	377 45.86	
						(₹ in Lakh)
As on 31st March, 2022	1st April, 2021				31st March, 2022	
Reserves and Surplus						
Capital Reserve	29 52.96	-	-	-	29 52.96	
Securities Premium	9 60.00	-	-	-	9 60.00	
General Reserve	202 00.00	-	-	3 00.00	205 00.00	
Retained Earnings	44 22.13	7 55.73	(4 53.00)	(3 00.00)	44 24.86	
Other Comprehensive Income (OCI)						
Equity Instruments through OCI	68 01.44	21 20.18	-	-	89 21.62	
Remeasurement of Defined Benefit Plan	(93.60)	(2 75.66)	-	-	(3 69.26)	
Debt Instruments through OCI	8 59.84	69.80	-	-	9 29.64	
Total	361 02.77	26 70.05	(4 53.00)	-	383 19.82	

Statement of Changes in Equity for the year ended 31st March, 2023 of Reliance Industrial Infrastructure Limited

11.5 CASH FLOW STATEMENT

The purpose of a cash flow statement is to provide a detailed picture of what happened to a company over a period of time, called an accounting period. With a cash flow report, you can see how much cash different types of operations are generating and then make business decisions based on your financial statement analysis. It shows the organization's ability to operate in the short and long term based on how much money flows in and out of the business. It is noteworthy that cash flow is different from profit, which is why the statement of cash flows is often interpreted together with other financial documents such as the balance sheet and income statement. Net cash flow and accounting profit are typically different in businesses since not all of the revenues and expenses shown on the income statement were paid for with cash. A company may show a profit on the income

statement but still struggle financially due to poor cash flow management. The income statement shows income earned and expenses incurred, regardless of whether cash was exchanged. Additionally, manipulation of income statements is much more common and easier than manipulation of cash flow statements. For example a business can postpone paying taxes. Even if the tax payment is listed as an expense, payments are made at a later time. Deferred tax payments are therefore added to net income when figuring your net cash flow. Ideally, a company's cash from operating profits should routinely exceed net income because positive cash flow indicates a company's ability to be solvent and grow its operations..

	(₹ in Lakh)	
	2022 - 23	2021 - 22
A: Cash Flow From Operating Activities		
Net Profit before Tax as per Statement of Profit and Loss (Including Exceptional Items)	17 75.67	9 91.26
Adjusted for:		
Depreciation and Amortisation Expense	5 88.69	10 14.36
Loss on Disposal / Sale of Property, Plant and Equipments	-	4.70
Net Gain on Financial Assets	(2 23.30)	(1 10.55)
Exceptional Items (Net)	(7 91.99)	-
Interest Income	(10 36.12)	(13 96.40)
Dividend Income	(29.35)	(24.88)
	<u>(14 92.07)</u>	<u>(5 12.77)</u>
	2 83.60	4 78.49
Operating Profit before Working Capital Changes		
Adjusted for:		
Trade and Other Receivables	10 54.78	4 62.49
Inventories	(7.21)	(10.11)
Trade and Other Payables	<u>14 47.70</u>	<u>(1 23.17)</u>
	24 95.27	3 29.21
Cash Generated from/ (used in) Operations	27 78.87	8 07.70
Taxes Paid (Net)	<u>(4 97.20)</u>	<u>(2 27.07)</u>
Net Cash Flow from / (used in) Operating Activities*	22 81.67	5 80.63
B: Cash Flow From Investing Activities		
Purchase of Investments	(169 48.90)	(50 16.01)
Proceeds from Sale of Investments	289 00.48	35 00.00
Investment in Fixed Deposits	(150 00.00)	-
Interest received	11 57.91	14 08.75
Dividend Income	29.35	24.88
Net Cash Flow from / (used in) Investing Activities	(18 61.16)	(82.38)
C: Cash Flow From Financing Activities		
Dividend Paid	(4 61.69)	(4 60.54)
Net Cash flow used in Financing Activities	(4 61.69)	(4 60.54)
Net (Decrease) / Increase in Cash and Cash Equivalents	(41.18)	37.71
Opening Balance of Cash and Cash Equivalents	1 54.86	1 17.15
Closing Balance of Cash and Cash Equivalents	1 13.68	1 54.86
(Refer Note "7")		

* include amount spent in cash towards Corporate Social Responsibility is ₹ 20 Lakh (Previous year ₹ 30 Lakh)

Cash Flow Statement for the year ended 31st March, 2023 of Reliance Industrial Infrastructure Limited

An investor may use this information to determine if a company with positive cash flow is poised for growth, or if a company with inconsistent cash flow is too risky to invest in. Cash flow may also have an impact on internal choices like budgeting and hiring/firing

of staff. A corporation that has positive cash flow has more money coming in than going out during a given time period. Being in this perfect scenario is because the company can use the extra revenue to pay off debt, reinvest in the company and its shareholders, and explore new avenues for commercial expansion. Negative cash flow does not always indicate a loss of profit; it simply indicates that your outflow of cash during a given period exceeds your intake. It's crucial to examine variations in cash flow from one period to the next as they might reveal a company's overall performance. Negative cash flow does not always indicate a loss of profit; it simply indicates that your outflow of cash during a given period exceeds your intake. A company's decision to grow and invest in future expansion may also result in negative cash flow. A company's decision to grow and invest in future expansion may also result in negative cash flow. Thus, if you are ever in a rush to analyse a corporation, start by examining the pattern in net cash flow generated by operations.

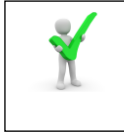
Tools of Analysis of Financial Statements

Comparative statements: These are statements that show the profitability and financial position of a company in different periods in a comparative form to give an idea of the situation over two or more periods. It usually includes two important financial statements, namely the balance sheet and the income statement, which are prepared in comparative form. Financial information is comparable only if the same accounting principles are used in the preparation of these financial statements. If this is not the case, the deviation in the use of calculation principles should be mentioned as a footnote. Comparative figures show the trend and direction of the financial position and operating result. This analysis is also known as "horizontal analysis".

Common size statements: These are statements that show the relationship of different items in the financial statements to a common item expressing each item as a percentage of that common item. The percentage calculated in this way can easily be compared with the results of similar percentages from the previous year, or with the results of any other company, since the figures have been brought to a common standard. With the help of such statements, the analyst can also compare the operating and financial indicators of two companies of different sizes in the same field of activity. Therefore, common size statements are useful both for intra-firm comparisons of different years and for inter-firm comparisons of the same year or several years. This analysis is also known as "vertical analysis".

Trend Analysis: This is a method of examining operating results and financial position over several years. Trend analysis can be done based on the data of the previous years of the trading company, which can be used to check the percentage changes of the selected data over time. A trend percentage is a percentage ratio where each item in different years corresponds to the same item in the base year. Trend analysis is important because, taking a long-term view, it can indicate fundamental changes in the nature of business. By looking at the trend of a certain ratio, one can determine whether the ratio is

decreasing, increasing or has remained relatively constant. Based on this observation problem or a sign of good or bad management is identified.



Check Your Progress-A

Q1. Which of the following is NOT typically included in company analysis?

- a) Analyzing financial statements
- b) Assessing management effectiveness
- c) Reviewing government monetary policy
- d) Examining competitive positioning

Q2. In the EIC framework, the first step in analyzing a company involves assessing which of the following?

- a) Industry dynamics
- b) The company's financial performance
- c) Broader economic conditions
- d) The company's market share

Q3. Which financial statement is most useful for evaluating a company's liquidity position?

- a) Income statement
- b) Balance sheet
- c) Cash flow statement
- d) Shareholder's equity statement

11.6 RATIO ANALYSIS

Ratio analysis is a method of examining a company's balance sheet and income statement to obtain information about its liquidity, operational efficiency and profitability. It does not contain any meters; Instead, it is a way of analyzing various financial data of a company. Ratio analysis is the cornerstone of basic stock analysis. A financial ratio or

accounting ratio expresses the relative size of two selected numerical values taken from a company's financial statements. Financial analysts use ratios to compare the strengths and weaknesses of different companies. When a company's shares are publicly listed, the market price of the shares is used in certain financial relationships. The ratio can be expressed as a decimal value, such as 0.10, or as a corresponding percentage value, such as 10%. Some numbers are usually reported as percentages, especially ratios that are usually or always less than 1, such as earnings, while others are usually reported as decimals, especially numbers that are usually greater than 1, such as the P/E ratio; the latter are also called multiples.

The values used to calculate the KPIs are taken from the balance sheet, income statement, cash flow or (sometimes) statement of changes in equity. These include the company's "accounts" or reports. The information in the financial statements is based on the accounting method and accounting standards used in the organization.

When we evaluate the company's activities, the concern is whether the company is using its resources efficiently and profitably. When an investor assesses the financial health of a company, he is concerned about whether the company will be able to meet its financial obligations. An investor can use financial ratios to evaluate five aspects of operating performance and financial condition:

The ratios presented here are by no means the only ones that can be constructed with financial data, although they are some of the most common ratios used. Once an investor gets used to using financial analysis tools, he can create ratios that serve a specific valuation purpose.

ROI compares utility metrics, such as revenue or net income, to investment metrics. For example, if an investor wants to assess how well a company is using its funds in its operations, it can calculate the return on assets as the earnings before interest ratio. and taxes (EBIT) (also known as operating profit) to the balance sheet total:

The current ratio determines the ratio between current assets and current liabilities. It measures a company's ability to meet its short-term obligations as they come due. This is calculated as follows: Generally, a flow ratio of 2:1 is considered satisfactory. It shows how far current assets cover current liabilities. The higher the ratio, the greater the margin of safety for short-term creditors. But the ratio should not be very very high or very small. A very high current ratio indicates unused funds, accumulated inventory, locked-in amounts owed while a low ratio puts the company in a position where it cannot pay short-term debt on time..

The quick ratio determines the ratio of quick/liquid assets to current liabilities. It measures a company's ability to meet its short-term obligations as they come due without liquidating inventory.

Quick ratio = Quick Assets/Current Liabilities

A 1:1 liquid ratio is generally considered satisfactory.

Due to the exclusion of inventories, the quick ratio is considered better than the current ratio as a measure of a company's liquidity position. The point of this ratio is that stocks are sometimes a problem because they can be difficult to sell or use. For us, this is a more penetrating test of liquidity than the current ratio, but should be used with caution because not all debtors may be liquid or may need cash immediately for certain expenses.

The gross profit ratio defines the ratio between gross profit and revenue.

Gross Profit Ratio = Gross Profit/Net Sales × 100

It determines the efficiency of production, buying and selling activities. It is calculated as a percentage of sales. Gross profit is the difference between sales and cost of goods sold. Gross margin reflects the efficiency with which management produces each output. It also includes the available margin for operating expenses and non-operating expenses. High gross margin relative to the industry average number of workers the firm can produce at relatively lower costs.

The net profit ratio, or net profit ratio, determines the relationship between net profit and turnover. It talks about the effectiveness of the management in manufacturing, managing and selling the product. It is calculated as a percentage of sales.

Net Profit Ratio = Net profit / Net Sales × 100

This ratio measures the ability of companies to convert every rupee of sales into net profit. A company with a high net profit margin would be in a favorable position to survive if sales prices fall, production costs rise or product demand falls..

The operating profit ratio defines the relationship between operating profit and turnover. It can be calculated directly or as a residual of the utilization rate.

Operating Profit Ratio = Operating Profit/ Sales × 100

The utilization rate determines the effectiveness of management activities. It helps to know the amount of profit earned from sales transactions of Rs. 100. This is very useful for inter- and intra-company comparisons. A higher operating ratio indicates that the company has sufficient margins to cover non-operating expenses and to create stock and pay dividends..

Return on Capital Employed or Return on Capital Employed (ROCE or ROI): This ratio measures net profit before interest and taxes and the amount of capital employed. It measures how effectively the long-term funds of long-term creditors and shareholders are being used. It is expressed as a percentage.

Return on Investment = Profit before Interest and Tax/Capital Employed × 100

Where capital employed = Debt + equity

It explains the general use of the fund of the company. It shows the efficiency of the company in using the funds entrusted to it by shareholders, bondholders and long-term liabilities. It is considered a good measure of profitability when comparing companies..

Earnings per Share: This ratio measures the return per share available to shareholders. It expresses the company's profitability per share. In this context, the result refers to the profit available to the shareholders, which is calculated as profit after tax - the dividend on preferred shares. This relationship is very important from the point of view of the shareholders and therefore also the share price in the stock market.

Earning Per Share = Profit available for equity shareholders/ No. of Equity Shares

It also helps to find out its prudence and dividend paying ability compared to other companies. However, an increase in earnings per share does not always indicate an increase in profitability, as sometimes the earnings per share decrease when bonus shares are accounted for. In these cases, earnings per share is misleading because actual earnings have not decreased..

Inventory (or Inventory) Turnover: This determines the ratio between the cost of an item and the average inventory. It determines the efficiency with which inventory is converted into sales during the period under review. It shows the rate at which inventory turns into sales.

Stock Turnover Ratio = Cost of Goods Sold/ Average Stock

Where - Average stock = (opening + closing stock) /2 and

Cost of goods sold = Net Sales - gross profit or

Cost of goods sold = opening stock + net purchases + direct expenses – closing stock

A higher ratio indicated that the stock was selling quickly. A low inventory turnover rate indicates that inventory is not being sold quickly and is becoming unused, which increases inventory costs and clogs cash. High turnover is a good thing, but should be interpreted carefully because it can be the result of buying small lots or selling quickly at low margins to realize cash. Therefore, the company should not have a very high or veterinary low rate..

Debtors Turnover Ratio or Receivables Turnover: This determines the ratio of net credit turnover to average debtors or receivables. It defines the efficiency with which debtors are converted into cash. The ratio showed how many times receivables were recalculated and converted into cash during the reporting period.

Debtors Turnover ratio = Net Credit sales/ Average Accounts Receivable

Where Average Account Receivable = (Opening Debtors and Bills Receivable + Closing Debtors and Bills

Receivable)/2

A higher turnover means that debtors are paid faster. Fast collection of debtors increases the solvency of the company. This ratio also helps to calculate the average collection time.

Creditors Turnover Ratio or Debt Turnover Ratio: This ratio determines the ratio of net credit purchases to average creditors or debts. It determines the effectiveness of paying creditors. It showed the speed of payment to creditors. A higher ratio means a shorter payment period. In this case, the company must have enough money as working capital to pay creditors.

Creditors turnover ratio = Net credit purchase / Average accounts payable.

Where Average accounts payable = (Opening Creditors and Bills Payable + Closing Creditors and Bills Payable)/2

A lower ratio means that the credit provided by the supplier is long-term or may be due to late payments to suppliers, which is not a very good practice because it can affect the company's reputation. So a company should have neither a very high nor a very low ratio..

Fixed Asset Turnover: This ratio determines the relationship between turnover and fixed assets. It determined how efficiently the company used its fixed assets.

Fixed Assets Turnover= Net sales/ Net Fixed Assets

Where Net Fixed Assets =Fixed Assets- Depreciation

This ratio shows how efficiently fixed assets are being used. It shows the ability of companies to sell their investment in fixed assets per rupee. A high ratio indicates more efficient use of fixed assets..

Debt-to-value ratio: It measures the relationship between long-term debt and shareholders' funds. It measures the relative proportion of debt and equity in financing a company's assets. A low equity ratio reflects greater security for long-term creditors.

Debt-Equity ratio = Long-term Debt's/ Shareholder funds

Long- term Debt = Debentures + Long term loans

Shareholders' Funds = Equity Share Capital + Pref. Share Capital + Res. & Surplus– Fictitious Assets

From a security perspective, a capital structure with less debt and more equity is considered more favorable because it reduces the chances of bankruptcy. A high ratio, on the other hand, is considered risky because it can make it difficult for the company to meet its obligations to outsiders. But this is considered risky, so except for a few companies, the prescribed ratio is limited to 2:1..

Proprietary Ratio determines the relationship between assets and balance sheet size of shareholders. It measures the proportion of equity-financed assets. A higher ownership ratio meant more margin for creditors. This tests the ability of shareholders' funds to cover foreign debts.

Proprietary Ratio = Shareholders Funds/ Total assets

A low ownership ratio, on the other hand, indicated greater risk to creditors. To assess whether the ratio is satisfactory or not, the company should compare it with its past performance indicators or with the ratio of similar companies or the industry average..

Long Term Funds to Fixed Assets Ratio/ Total Assets to Debt Ratio: This ratio determined the relationship between total assets and long-term liabilities. It measures the extent to which debt is covered by assets. This ratio mainly showed the use of external funds to finance assets and margin for long-term creditors.

Total Assets to Debt Ratio = Total assets/Long-term Debt

A higher ratio showed that the assets were financed mainly by the owners' assets and that the long-term debt was sufficiently covered by the assets. A low ratio indicated a higher risk for creditors, as it means insufficient funds to meet long-term obligations..

Price to Sales (P/S) Ratio In many cases, investors may use sales rather than earnings to value their investment. The profit figure may not be correct as the profit cycle of some companies can be cyclical. Additionally, due to certain accounting rules, a profitable company may appear to have no income at all due to the massive discounts that have hit the industry. So investors would like to use this ratio. This ratio compares a company's stock price to the company's sales per share.

Price to sales ratio = Current Share Price / Sales per Share A P/S ratio of 3.24 times indicates that for every Rs 1 sold, the stock is valued 3.24 times higher. Obviously, the higher the P/S ratio, the higher the value of the company. The P/S ratio must be compared to competitors to get a fair idea of how expensive or cheap a stock is..

Price to Book Value (P/BV) Ratio The "book value" of a company is simply the amount of money left on the table after the company has paid its liabilities. Take the book value as the salvage value of the business. If we divide the current market price of the stock by the book value of the stock, we get the book value of the company. P/BV indicates how many times a stock trades above the company's book value. Obviously, the higher the ratio, the more expensive the stock. A high ratio may indicate that the company is overvalued relative to the company's equity/book value. A low ratio may indicate that the company is undervalued relative to equity/book value..

Price to Earning (P/E) Ratio The price/earnings ratio is perhaps the most popular financial ratio. Everyone wants to check the P/E of stocks. Due to the popularity of the P/E ratio, it is often considered the "superstar of the financial ratio."A stock's P/E is calculated by dividing the stock's current price by its earnings per share (EPS). EPS gives us an idea of earnings per share. Obviously, the higher the EPS, the better it is for shareholders. If we divide the current market price by the EPS, we get the price/earnings ratio. The P/E ratio measures the willingness of market participants to pay for the stock for every rupee earned by the company. For example, if a certain company has a P/E of 15, it simply means that the company earns market participants for every unit of profit

earned by the company, market participants are willing to pay 15 times. The higher the P/E, the more expensive the stock..

You can use various financial data or stock market APIs available on the web to get stock market data for analysis. Investors rely on a large amount of information to conduct market analysis of the stock industry. Globally, TradingView is ranked #1 among the top 5 stock market news websites in India. It is the main source of new financial markets. Most features are completely free, but additional features can be purchased for a small fee. Stock traders and investors can find basic trading information, technical tools and charts here. Moneycheck is also one of the most popular websites among Indian stock investors and traders. You can find all kinds of information such as financial data and technical charts on stocks, forex and commodities, interest rates, financial market updates and more. Here stock investors and traders can find basic trading information as well as technical tools and charts.

11.7 SUMMARY

Company analysis is the study of the factors that have a qualitative and quantitative impact on a firm's future. It is a technique for evaluating a company's competitive standing, earnings, profitability, operational efficiency, financial condition, and future prospects in relation to shareholder earnings. Financial statement analysis, is a crucial component of company analysis, as it allows investors to understand a firm's financial position, performance, and changes in its financial status. This analysis can reveal the strengths and weaknesses of a company, shedding light on its profitability, financial soundness, and overall suitability as an investment. The annual report is arguably the most significant of the several reports that companies provide to their investors. An annual report contains two different kinds of information. First, there's the spoken portion, which is frequently delivered as a chairman's letter. that gives an overview of the company's operating results for the previous year before talking about fresh discoveries that will impact operations going forward. Secondly, the yearly report showcases the balance sheet, the income statement, the cash flow statement and the statement of Changes in Equity. When combined, these financial statements provide an accounting overview of the company's activities and standing. For the last two or three years, comprehensive data are given, along with historical overview of the last five or ten years' with important operating statistics Both the spoken and quantitative materials are equally significant. In addition to financial statement analysis, industry analysis and macroeconomic factors are also important considerations.



11.8 GLOSSARY

Book Value: Book Value, or a company's net worth as reported on its balance sheet, is a popular valuation metric. In the event that book value is expressed per share, net worth equals book value per share.

Liquidation value: Liquidation value per share is another metric that is comparable to book value. This is the total value that could be obtained by dissolving the company, selling its assets, paying off debt, and then giving the remaining funds to the owners.

Replacement cost: The replacement cost of an asset less debt can also be used to calculate a company's value. If you could ascertain the current cost of installing a comparable facility, you might calculate the replacement cost.

Earnings per share (EPS): Division of net income by the total number of outstanding shares



11.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Answer: C) Reviewing government monetary policy

Answer: C) Broader economic conditions

Answer: B) Balance sheet



11.10 REFERENCES

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11.11 SUGGESTED READINGS

1. Donald Fischer & Ronald J.Jordan, 'Security Analysis & Portfolio Management', Prentice Hall of India Private Ltd., New Delhi.
2. V.A. Avadhani – 'Securities Analysis and Portfolio Management', Himalaya Publishing House.
3. V.K. Bhalla, 'Investment Management', S.Chand & Company Ltd., Seventh Edition.
4. Punithavathy Pandian, 'Security Analysis & Portfolio Management' – Vikas Publishing House Pvt., Ltd.



11.12 TERMINAL QUESTIONS

1. What are Comparative Financial Statements?
2. What do you mean by Common Size Statements?
3. Describe the different techniques of financial analysis and explain the limitations of financial analysis.

UNIT 12 BOND ANALYSIS AND MANAGEMENT STRATEGIES

- 12.1 Introduction**
- 12.2 Objectives**
- 12.3 Reasons for issuing bonds**
- 12.4 Bonds Features**
- 12.5 Types of Bonds**
- 12.6 Risks associated with investing in Bonds**
- 12.7 Bond Management Strategies**
- 12.8 Bond Prices, Yields and Interest rate**
- 12.9 Malkiel's Theorem**
- 12.10 Duration and Immunization**
- 12.11 Summary**
- 12.12 Glossary**
- 12.13 Answers to Check Your Progress**
- 12.14 References**
- 12.15 Suggested Readings**
- 12.16 Terminal & Model Questions**

12.1 INRODUCTION

The various available alternative investments include inter alia, bonds and debentures. A debenture is a legal document containing an acknowledgement of indebtedness by a company. It contains a promise by company to pay a specified rate of interest for defined period and return of principal sum of money at a given date of maturity. Debenture is formal legal evidence of debt and is treated as the senior securities in a company. Although in India the term bond and debenture are often used interchangeably but in U.S they refer to two different kinds of debt securities. A bond is typically a loan that is secured by a specific physical asset whereas debenture is secured only by the issuer's promise to pay the interest after regular intervals (semi-annually or annually) and principal amount at the time of maturity. In this unit both these terms are used

interchangeably. Bonds are an important source of funds for the companies, government, municipality, public sector organizations who raise funds to finance variety of projects and activities. The position of a bond holder is totally different with that of an equity-holder. Whereas the former is creditor or we can say the partial lender to company the latter is the ultimate owner of the company. Although bond holders assume risk but that is much lower than the equity holders in the same organization. Bond investor also does not share in the growth of a company. If at some time company is not in a position to pay the interest to the bond holder in that case, he has the right to sell the assets of the company and recover his principal.

12.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the meaning of bonds
- Know about the different types of bonds and risks associated with bonds.
- Analyse the different management strategies to reduce the risk.
- Know the relationship between bond prices, interest and yield to maturity.
- Understanding of terms Immunization and Duration.

12.3 REASONS FOR ISSUING BONDS

Companies have a choice of raising funds through sale of shares or by issuing bonds. The specific reasons of why the issuance of bonds is the better choice are given below.

To reduce the cost of capital: Bonds are the cheapest source of finance for the companies. Companies having the enough liquidity are often willing to incur the risk of borrowing in order to reduce the cost of capital by financing the portion of its assets through the issue of securities bearing the fixed rate of return in hope of increasing the ultimate return of the equity holder.

Interest Deduction: Unlike the dividends on equity, the interest expense on bond is tax deductible. So company can reduce its taxable income by issuing bonds. The interest payment can make the effective cost of debt quite low, if a company can issue bonds at a low interest rate. This will ultimately increase the earning per share (EPS) of the equity shareholders due to the more earnings are available to the company which they will distribute among equity shareholders in form of dividends.

Ownership Protection: When the existing shareholders do not want to lose their ownership interests by the sale of shares to new investors, they will push for a bond issuance. Since bonds are a form of debt and no new shares will be sold to them thus it will not affect the ownership right and voting power of the existing shareholders.

Alternative source of fund: Issuing bonds by companies attract funds from individual investors and especially from those who are risk averse and reluctant or not permitted to purchase equity shares.

Trade in for a better rate. If interest rates fall after the bonds are issued, and if the bonds have a callable feature, the company can recall the bonds and replace them with lower-priced bonds. This allows the company to lower its financing cost. This is not the case with shares, where the company may be paying dividends to investors for the life of the company.

12.4 BONDS FEATURES

Indenture - Bond indenture is a legal contract or an agreement between the bond issuer, the corporation which issues bonds, bond purchaser (bond holder) which lends money and the trustee which is either the bank or the trust company that represent the bondholder. The indenture specifying the terms of bonds which includes the maturity date, interest rate, timing of interest payment, methods of interest calculation and callable or convertible features if applicable. Thus, three parties involved bond issuer, bond holder and the trustee. The role of the trustee is mainly the coordination between the issuing company and the bond holder. The company does not directly enter into an agreement with the bond holders. The bond indenture is core legal document referenced by the bond issuer and bond holder when there is dispute regarding bonds.

Par Value- Par value is the base amount of each bond which the issuer promised to pay the bondholder at the time of maturity. Par value is also termed as face value or the maturity value. Coupon payments are calculated on the bases of par value of the bond.

Maturity Date – Maturity date specifies the date when the bonds will be matured and the issuer will pay back the par value of bond along with the coupon payment if any. Maturity date is already mentioned in the indenture and the payment is made according to the type of bond. For the short-term government bond, the maturity date can be as low as 14 days and for the long-term duration of the bond the maturity can be as long as 30 years. Longer maturity date increases the liquidity risk involved in the bond investment. Capital-intensive industries with long expectation of equipment life prefer the long-term period bond for the funds financing.

Coupon Payment – Coupon payment is the interest payment by the issuer to the holder. Interest rate is also called the coupon rate. Coupon is paid either annually or semi-annually and the payment date is fixed at the time of issuing bonds. If the interest is payable semi-annually, then there will be two coupons for each year the bond has to run. When the coupon becomes due, bondholder will present the coupon to the authorized bank and received interest. Interest on bonds should be paid regularly by the issuing authority. In case interest is not paid by companies when it is due, the bond issue is

considered to be in default and both the interest and principal become due and payable to the bondholder. The trustee at this time protects the interest of the bondholders. On the basis of interest there are two types of bonds' fixed rate bonds and floating rate bonds.

Fixed Rate bonds- The bonds on which the coupon rate is fixed till the maturity of bonds. Most Government bonds in India are issued as fixed rate bonds. For example, 8% bonds were issued on 1st April 2007 for tenure of 10 years maturity on 1st April 2017. Coupon on these will be paid half yearly at 4% (half of 8% annual coupon rate) of the face value on 1st October and 1st April each year.

Floating Rate bonds (FRB)- Such kind of bonds don't have fixed coupon rate. The rate is re-set at preannounced intervals (say 6 months or 1year). Floating rate bonds were issued in India first time in September 1995.

Zero coupon bonds-The bonds without any coupon payment are called 'zero coupon bond'. Such bonds are issued at discount and redeemed at face value.

Issue price - Issue price is the price at which the bond issuer sells the bonds to the buyers. This price depends upon the par value, coupon rate, maturity period and it is almost equal to the par value in most of the cases.

Market Price – Market price of bond is current market price which is tradable in the market. It is calculated based on the current maturity date, interest rate, coupon payment and par value. In other way, market value is the present value of all expected future and principal payments of the bond discounted at the bond's current yield rate or rate of return.

Call Feature – The call feature gives right to the bond's issuer to recall the bonds from the investors before it reaches maturity. Call features are widely used for corporate and municipal Government bonds. For example- A corporate issue bond due to mature in 5 years of Rs.1000 each at a 6% rate of interest but 3 years after the issuance of bond its interest rate decrease to 4% and market price increase. Now the company can use its right to recall the bonds, retire them and issue new bonds at a low interest rate. In that case, the bondholder would be unable to continue to receive an interest rate that is higher than the prevailing market rate. Generally, the bond attached the callable feature is offered at higher interest rate than a non-callable featured bond.

12.5 TYPES OF BONDS

Convertible Bonds – Convertible bond is the right given to the investor to buy bond at the time of issue and later exchange it for equity shares of the same company. This is a kind of promise to the bondholder by the company to share the growth in capital of company. The price of convertible bond to a great extent depends on the price of equity shares. Investors generally prefer to buy bonds rather than equity shares because risk in convertible bond is less than equity shares but higher than the non-convertible bonds. A

convertible bond is, therefore, between an equity issue and a non-convertible bond. The specification regarding the term of conversion, date of conversion into equity and a rate at which the conversion take place is all mentioned in bond indenture.

Serial Bonds – Serial bonds (installment bonds) describe bonds issues that matures in portions over several different maturity dates. This enables the company to retire the bonds in installments rather than facing a large principal re-payment at maturity. An issuer can opt to spread the principal repayment over several periods. For example, the issuer of Rs.100 million in traditional bonds with ten-year maturities will have to make a Rs.100 million principal payment at the end of the tenth year. But the issuer of Rs.100 million in serial bonds might structure the offering such that Rs.20 million matures after five years, another Rs.20 million matures the year after, Rs. 20 million the year after that, and so on. Serial bonds usually do not have the call feature so company retire the bonds or pay debt only at their maturity date. Serial bonds resemble sinking fund bonds and have an effect on the yields of bonds.

Sinking Fund Bonds- Sinking fund bonds are when an organization plans to retire its bonds in such a way that there is no burden on the company at the time of retiring bonds. For this company generally set aside certain fixed amount each year or annually and creates a sinking fund for this purpose and put the amount in sinking fund through the trustees. The trustees use this fund to call or retire the bonds every year or purchase bonds from them at a discount.

Mortgage or Secured bonds – A mortgage bond is a bond secured by a mortgage or pool of mortgages. These bonds are typically backed by real property or building. In a default situation, mortgage bondholders have a claim to the underlying property and could sell it off to compensate for the default. Mortgage bonds may be open end, close end and limited open end. An open-end mortgage permits the issuing company to issue additional bonds if earnings and asset coverage make it permissible to do so. In close end mortgage bonds, the company can make a one time a stated amount of bonds. After these bonds have been issued or exist no new bonds can be issued. If additional bonds are issued, they rank as junior to the first mortgage bonds and the prior issue gets the first priority in receiving payments. The limited open-end bonds permitted the company to issue specified number of fresh bonds series distributed over a period of years.

Collateral Trust Bonds- Bonds issued usually by a holding company against securities of its subsidiary firms or by an investment trust against its own bonds or other obligations. Also called collateral trust certificate or collateral trust note.

Income Bonds- Income bonds are bonds on which the interest is payable only to the extent of current earnings. If current earnings are available only for the payment of the portion of the interest and company has the cash resources than these resources can be used for the balance of interest payment. In case company is not able to pay interest then the interest amount is cumulated for a future period when the company can sufficiently

earn and make a profit. Income bonds are not offered for sale as new financing but are often used in reorganization or recapitalization to replace other assets.

Adjustment Bonds- Adjustment bonds are issued in the reorganization of companies in financial difficulties. In practically all cases, interest is payable only if the companies have the sufficient earnings.

Assumed Bonds – Assumed bonds are issued by one company but whose liability is taken over by another company. In case Issuer Company has been acquired by another by way of merger or as a result of the re-organization. In taking over the assets of the company the debt is also assumed to take over by the successor company.

Joint Bonds- A joint bond, or a joint-and-several bond, are loan certificates on which interest and principal are guaranteed by two or more companies. In case of default, the bond holders have the right to claim the assets of all the issuing companies or individuals. This reduces risk as well as borrowing costs.

Redeemable and Irredeemable Bonds- Redeemable debentures are issued by company for a limited time period. On expiry of the time period, principal amount will be repaid with or without premium. Irredeemable debentures are not redeemed during the life time of the company. They can be redeemed only at the time of dissolution of the company. In India irredeemable debentures cannot be issued by companies. The maximum time period for which the debentures are issued in India is 20 years.

Participating Bonds - Participating bond is a bond that pays the holder interest as well as entitles him for the dividends also. Generally, the companies having poor credit positions issue such kind of bonds. It is a corporation's debt obligation which bears interest at a stated rate and entitles the bondholder also to participate in earnings up to an additional specified percentage.

12.6 RISKS ASSOCIATED WITH INVESTING IN BONDS

Investor who invests in financial instruments must be aware of the risk associated with particular instruments and its impact on his assets and financial capacity. Investing in bonds involve the following risks.

Interest Rate Risk – Interest rate risk is the changes in bond prices due to change in the interest rate. There is an inverse relation between market interest rates and bond prices. An increase in interest rate results in decrease in the market price of bonds and vice-versa. This risk becomes greater as the maturity period of bonds in question is longer. Suppose investors buys bonds from XYZ Corporation with 4% coupon rate and Rs. 1000 face value. Another investor waits for few days before buying the new bonds. During this time period the issuer increase the interest rate to 6%. Now the second investors can buy the Bonds of face value of Rs. 1000 at 6% rate of interest and can earn the interest of

Rs.60. whereas the first buyer will get Rs.40 only as interest on the same kind of bonds. Now the first buyer wants to sell the bonds of XYZ Corporation. So in order to attract the other investors to buy his bonds he has to cut the price of his bonds or discount the bond price to Rs.666.67 to equalize it to the 6% interest rate.

Reinvestment Risk- Interest rate risk has a second dimension, which is termed as reinvestment risk. After the purchase of bond, if interest rate decline (increase), then interest amount received will not be reinvested at the proposed yield to maturity, rather they will be reinvested at the lower (higher) rates and the amount ultimately received on maturity will be below (above) what an investor expected.

Credit Risk- If an investor buy bond from the company or government that is not financially stable then there are more chances that the investor will lose his money. This is called the credit risk or default risk.

Purchasing Power Risk- When an investor buys bonds, he/ she will receive return till its maturity or at least as long as it is held. But when the cost of living and inflation increases and it increases at faster rate than rate of return, it will result in erode of purchasing power. For example – An investor earns a rate of return 5% on a bond, if inflation grows to 6% after the purchase of bond, then the true rate of return is -1% (because of decreasing of purchasing power).

Callable Risk – Callable feature allows the issuer to redeem the bond prior to maturity. As a result, the bondholder receives the principal payment, which is often at a slight premium to the par value. When the interest rate fall, the issuer company generally, calls the issued bonds and replaces them with lower coupon rate.

Liquidity Risk – In a poor secondary market an investor might not be able to sell his bonds quickly due to few sellers and buyers. In a situation, when a bond holder needs money before maturity, due to thin market he may be forced to take a much lower price than expected at the time of maturity.



Check Your Progress-A

Q1. What is a bond?

Q2. What is the yield on a bond?

Q3. What is the difference between bond and debenture?

Q4. What are the reasons of issuing bonds?

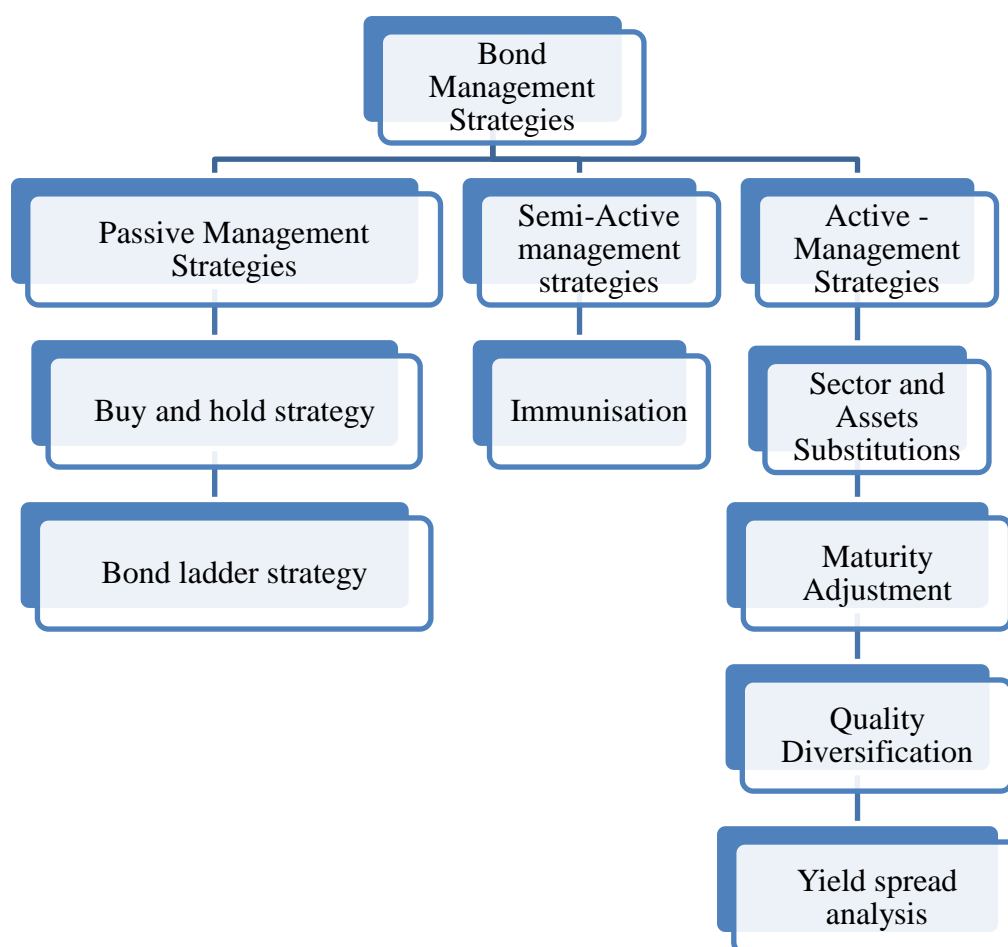
Q5. How does an investor make money in bonds?

Q6. What are the risks of bonds?

12.7 BOND MANAGEMENT STRATEGIES

Bond management strategies help investors to minimize the risk associated with fixed income securities and to get the most out of their portfolio. The management of portfolio can be done actively by the professional investment manager or passively by the investors themselves. Some of the Passive, Semi – active and Active management strategies are discussed below.

Fig-1



Under passive management strategies, one can have buy and hold strategy or Bond ladder strategy. These are given below.

Buy and Hold Strategy- Buy and hold strategy is passive management strategy where investors buy bonds and hold them till the maturity period regardless of fluctuations in the interest rate or the bond prices. The interest income received is further reinvested in the bonds or any other profitable investments. Buy and Hold strategy is for someone who cannot track the market regularly, as he has to just invest in the bonds and do not have to worry regarding rise or fall in the market.

Bond Ladder Strategy- Bond hold strategy is when investors invest in multiple bonds and maturity date of each bond is in the form of ladder meaning one after the other. The benefits of forming the bond ladder is that all the investments in bonds are not stuck to single maturity period rather principal amount will be paid back in regular intervals so as to reinvest in more bonds.

Semi-Active management Strategy- When the investor has time horizon within which he has to fructify his wealth to meet his obligations and liabilities, he has to follow the semi-active investment strategy. This is necessary because in the actual market, interest rate fluctuated frequently and income from the interest are reinvested at the higher or lower rate and capital gains or loss arises due to the change in the interest rate. Interest risk has two components price risk and reinvestment risk which moves in opposite

direction. When interest rates decrease the bonds, prices increases but the cash flows from the coupon interest receipts will be reinvested at the lower rates and will lead to lower wealth for the investors. The reverse is happening when interest rates increase the bond prices will decline but the cash flow from coupon interest receipts will be reinvested at the higher rates. Because of these two opposite factors investors may or may not achieved desired wealth position at the end of the period due to these opposing factors. To eliminate these effects immunization is adopted which is discussed later in this unit.

Active Management Strategy- Active management strategy is where portfolio managers try to choose those bonds which will outperform the index over time and avoid those who they think will underperform the index over time. This requires the major strategies decision regarding the types of bonds, maturity and other terms of bonds, their yield, terms structure of yields and expected shape of yield curve etc. Active bond management strategies include the following aspects.

- a) Sector and Asset Substitution- Under this strategy the manager shifts from government bonds to higher yielding semi- government or to the corporate bonds.
- b) Maturity Adjustment- Reduce the portfolio duration when interest rates are expected to increase and vice –versa.
- c) Quality diversification- Selection of bonds on the basis of their intrinsic value. Bonds ratings by the credit rating agencies and call features etc. are to consider while selecting the bonds.
- d) Yield spread analysis –Yield spreads is the difference between yields on different debt instruments and gives idea of the potential investment opportunities. Factors affecting the yield spreads are business cycle, volatility in the market interest rate.

12.8 BONDS PRICES, YIELDS AND INTEREST RATES

There are number of risks in bond investments. One is business risk that is when the earnings of the company decline it will have an adverse impact on the firm's ability to pay interest as well as principal amount of debt. The second is the purchasing power risk, is the chance that cash flows in the form of interest and principal won't be worth as much in the future because of change in the purchasing power due to inflation. Another kind of risk is interest rate risk. When the market interest rate rises, the prices of fixed -rate bonds decline until its yield becomes competitive with the new higher interest rate. Yield is the amount of return an investor realizes on a bond. When investors buy bonds, they lend bond issuers money. In return, bond issuers agree to pay interest on the bonds throughout their lifetime and to repay the face value of bonds upon maturity. The money that investors earned is called yield. Investors are not required to hold the bonds till its maturity. They can sell the bonds at higher or lower price to other investors over the exchange. If they make money on the sale of bond (capital gain), this is also part of its

yield. So investor who invested in bond is expected to earn return from one or more of the following sources.

- Coupon interest payment made by the issuer.
- Any capital gain or capital loss when bond is sold or matured.
- Income from the re-investment of the interest payment (interest on interest).

There is an inverse relationship between bond prices and yield. As bond prices increase, bond yield fall. To understand the nature of inverse relationship between price and yield, it is necessary to know about methods of yield calculations.

Current Yield

Current yield on a bond is the annual interest on it divided by the current market price of the bond. This measure considers the current market price of the bond instead of its face value.

$$\text{Current Yield} = \frac{\text{Annual Interest}}{\text{Market Price}}$$

As the market price of a bond changes, an investor may purchase a bond at a discount (less than par value) or at a premium (more than par value), and the purchase price of a bond affects the current yield. Suppose an investor buys a 6% coupon rate bond face value of Rs.1000 for a discount of Rs.900, the investor earns annual interest income of (Rs.1,000 X 6%), or Rs.60. The current yield will be $\frac{60}{900}$ or 6.67%. The Rs. 60 in annual interest is fixed, regardless of the price paid for the bond. If, on the other hand, an investor purchases a bond at a premium of Rs. 1,100, the current yield will be $\frac{60}{1100}$ or 5.45%. The investor paid more for the premium bond that pays the same amount of interest, so the current yield is lower. So, there is inverse relationship between price and yield. As the bond prices increase current yield will decrease and vice-versa.

Yield to Maturity

Yield to maturity, known as Book Yield and Redemption Yield is very similar to current yield, which divides annual cash inflows from a bond by the market price of that bond to determine how much money one would make by buying a bond and holding it for one year. Unlike current yield, YTM considers the present value (PV) of a bond's future coupon payments and principal amount. In other words, it factors in the time value of money, whereas a simple current yield calculation does not. As such, it is often considered a more thorough means of calculating the return from a bond. Because yield to maturity is the interest rate an investor would earn by reinvesting every coupon payment from the bond at a constant interest rate until the bond's maturity date, the present value of all the future cash flows equals the bond's market price. The method for calculating YTM can then be represented with the following formula.

$$\text{PV of bond} = \frac{i\text{NTEREST}}{(1+r)^1} + \frac{\text{Interest}}{(1+r)^2} + \dots + \left(\frac{\text{interest} + \text{par value}}{(1+r)^n} \right) \dots 1$$

or

$$\text{Bond Price} = \text{Cashflow} * \frac{1 - \left(\frac{1}{(1 + \text{interest rate})^n} \right)}{\text{interest rate}} + \left[\text{Maturity Value} * \frac{1}{(1 + \text{interest rate})^n} \right]$$

.....2

Solving the equation requires an understanding of the relationship between a bond's price and its yield. The relationship between yield to maturity and coupon rate of bond may be stated as follows:

1. When the market price of the bond is less than the Par value, i.e., the bond sells at a discount, $\text{YTM} > > \text{coupon yield}$.
2. When the market price of the bond is more than its Par value, i.e., the bond sells at a premium, $\text{coupon yield} > > \text{YTM}$.
3. When the market price of the bond is equal to its Par value, i.e., the bond sells at par, $\text{YTM} = = \text{coupon yield}$.

YTM is a complex but accurate calculations of a bond's return that can help investors comparing bonds with different maturities and coupons.

The complex process of determining yield to maturity means that it is often difficult to calculate a precise YTM value. The calculation of YTM involves a trial and error (manual) method. YTM can also be calculated using the spread sheet like Excel. Though yield to maturity represents an annualized rate of return on a bond, coupon payments are often made on a semiannual basis, so YTM is often calculated on a six-month basis as well.

Yield to Maturity Calculation (YTM)

Yield to maturity can be calculated manually as well as using functions in MS Excel.

Manual (Trial and Error) Method

Example: Currently bond price is Rs. 102.5, has a coupon rate 8%. It matures in 2years and the par value of bond is Rs. 100. What is the yield to maturity?

Solution: Here we have to find the value of 'r' to solve the equation 1.

As in this example bond market price is (102.5) is more than its par or face value (100). It means the investor sold the bond at premium. So, the second relationship will apply here which states that **when the market price of the bond is more than its Par value, i.e., the bond sells at a premium, coupon yield > > YTM.**

It means YTM will be less than 8%. So, we will use **trial and error** or manual method and plug in the different numbers (below 8%) until find 'r' to solve the equation 1

Cash flow table at assumed Discount rates of 6% and 7%

Year	Cash Flow	Discount Rate 6%		Discount Rate 7%	
		P.V . Factor	P.V.of cash Flow	P.V . Factor	P.V. of cash Flow
1	8	0.943	7.544	0.935	7.48
2	108	0.889	96.11	0.873	94.33
Total			103.654		101.81

As long as the right-hand side is more than 102.5, will take a higher value of 'r' and solve again. As in above table at 6% rate P.V of cash is 103.654 which is more than 102.5. so higher discount rate 7% will be plug in. Now the P.V of cash flow is less than 102.5. It means the 'r' lies between 6% and 7%. Hence 'r' can be calculated by following way.

$$r = 6\% + \frac{1.154 (103.654 - 102.5)}{1.154 + 0.69 (102.5 - 101.81)} \times (7\% - 6\%)$$

$$= \text{Yield to maturity (r) is } 6.625\%$$

So at 6.625% present value of future cash flows are equal to the bond's current market price.

Spread sheet method using MS Excel

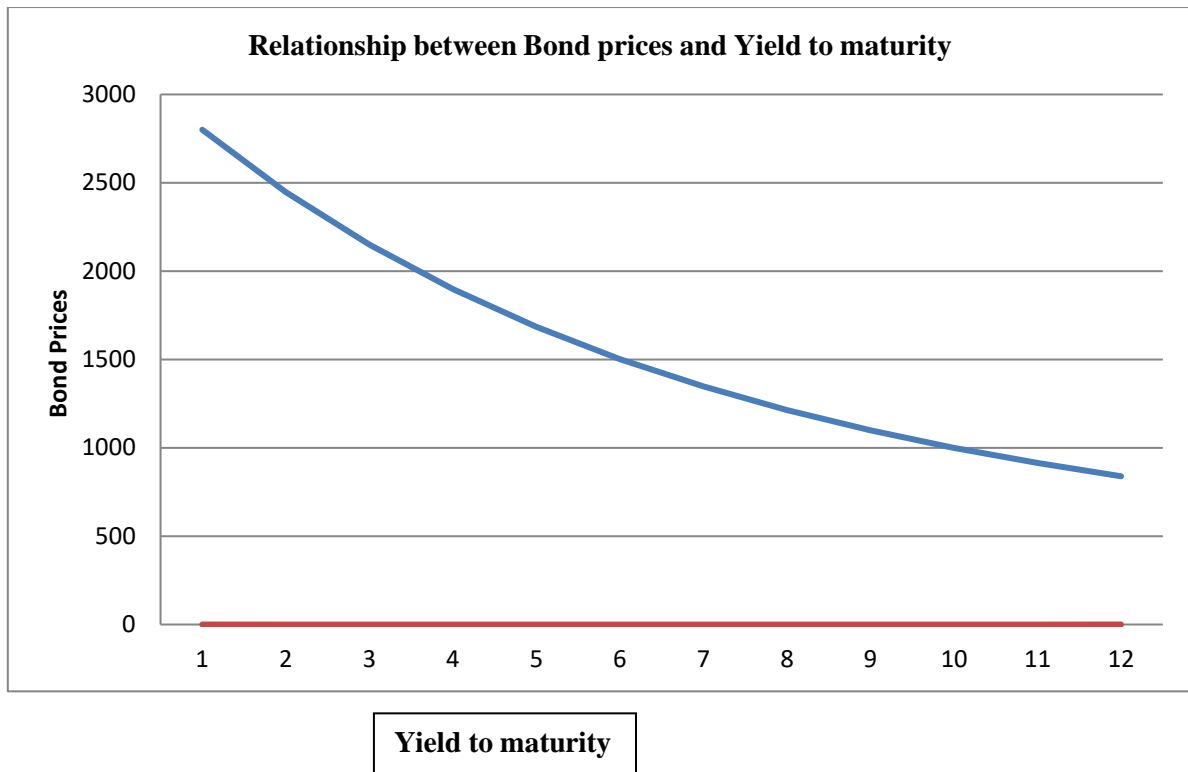
In the MS Excel programme, the following function could be used for calculating the yield of periodically coupon paying securities, given the price.

YIELD (settlement, maturity, rate, price, redemption, frequency, basis)

Relationship between required yield and Bond Price

Bond yield to maturity moves inversely to the price. The price of the bonds depends on the number of factors. i.e. maturity period, coupon rate, credit rating of the bond, call features, secured or unsecured etc.

Fig-2



Holding Period Yield

The bond investors are not obliged to hold bonds until its maturity. There is an active secondary market for bonds. This means that someone can buy for example bonds with maturity period of 5 years and sold it after one year without waiting until the period of maturity. So the holding period can be any length of time. The holding period yield for a bond is

$$HPY_b = \frac{It + \Delta P}{P_0}$$

t = the subscript t stands for time and refers to a holding period.

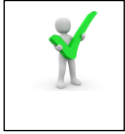
It = the bond's coupon interest payment during holding period t .

P_0 = the bond price at the beginning of holding period t .

ΔP = Change in bond price over the period.

Suppose A buy 13.5 % bonds of xyz at Rs. 80 against its face value of Rs. 100. It could be sold at Rs. 85 after a year, without waiting up to the time of maturity, say after 5 years. A decided to sell the bonds after one year. In this case the holding period is one year and holding period yield calculated by applying the above formula is 23.1%.

$$HPY = \frac{13.5 + 5}{80} = 23.1\%$$



Check Your Progress-B

Q1- How is current yield of bond is calculated?

Q2 - What is the relationship between yield to maturity and price of bond?

Q3. What does it mean to call a bond?

Q4. What are the different types of bonds?

Q5. Who issue bonds and why?

Q6. Who buys a bond and why?

Q7. 12% bond with a face value of Rs.1000 matures in 3 years. If yield is 15%, what is the bond price ?

12.9 RELATIONSHIP AMONG BOND PRICES, TIME TO MATURITY AND INTEREST RATES: MALKIEL'S THEOREMS

Bonds are issued at a fixed rate of interest known as coupon rate. The calculations of coupon rates are based on the face value and maturity of the bond. At the time of issuance, the coupon rate seems to be equal to the prevailing market interest rate. Based on the market condition, interest rate may change (if there is inflation in the economy the RBI will control the inflation by increasing the market interest rate. RBI will charge high interest rate from the borrowing banks. As a result, the banks will also charge high interest from the bank loan borrowers. So, at high-interest rate people will borrow less and there will be less supply of money in economy. It will result in less demand and ultimately prices started decreasing. To control the inflation RBI, suck the funds from the economy by charging high interest rates). If the current market interest rate is higher than the coupon rate of a bond, the bond generates a lower return and becomes less attractive to the investors. Therefore, the price of the bond declines below its face value. On the other hand, if the market interest rate declines below the coupon rate, bond price will increase and the bond becomes popular and being sold at a premium on its face value. Thus, the general assumption is that the bond prices vary inversely with changes in market interest rates.

Malkiel's identified the relationship between bond prices, time to maturity and interest rates. He stated five fundamental principles and understanding of these patterns is a must for an investment professional.

These are discussed as:

Theorem 1. Bond prices move inversely with the interest rates.

Theorem 2. In case two bonds are similar in every respect except for their maturity period, the bond with the longest maturity will fluctuate more as the interest rates changes. So, it is stated that the variability in bond prices and term to maturity are positively related.

Theorem 3. The percentage price changes described in theorem 2, increases at a diminishing rate as the time remaining until the bond's maturity increases.

Theorem 4. Absolute increases in market interest rates and subsequent bond price changes are not symmetrical. For any given maturity, a decrease in market interest rate causes a capital gain that is larger than the capital loss resulting from an equal increase in market interest rate.

Theorem 5. Bond price volatility is related to its coupon rate. Higher the coupon rate on a bond, the smaller is the percentage change of price of bond due to a change in the market interest rate.

12.10 DURATION AND IMMUNISATION

There is a common perception among many investors that bonds are the safer form of investment and are less risky than the stocks. Bonds are although less volatile than the equity shares but they are not without risk. The most common risk associated with bonds is credit risk. Credit risk refers to the possibility that the company or Government entity that issued a bond will default and be unable to make interest payments as well as investors' principal.

Bonds issued by the Government generally have low credit risk. However, Treasury bonds (as well as other types of fixed income investments) are sensitive to interest rate risk, which refers to the possibility that a rise in interest rates will cause the value of the bonds to decline. Bond prices and interest rates move in opposite directions, so when interest rates fall, the value of fixed income investments rises, and when interest rates go up, bond prices fall in value. If the interest rates rise and investors sell their bonds prior to its maturity date (the date on which the investment principal is scheduled to be returned to him), he will receive the price less than what he paid to purchase the bonds. The degree to which prices will fluctuate depends on several factors, including the maturity date and coupon rate on the bond.

DURATION

Duration (Macaulay Duration) is the weighted average number of years the investor must hold bond until the present value of the bonds cash flows equal to the amount paid for the bond. In other words, duration refers to the payback period of a bond i.e. time taken by a bond to payback its own purchase price if the investor held it till its maturity. Duration is expressed in number of years. The bond's duration period will always be less than the maturity date. A Step-by-step approach to calculate duration is given below through an illustration.

Calculation

First Step -Each of the future cash flows is discounted know the present value of cash flow for each period. The coupons are paid semi-annually and a bond with three years maturity will have six time period.

Second Step- The P.V calculated is multiplied with their respective time period (these are weights).

Third Step- The weighted present value is added and divided by the current price(total of P.Vs in first step 1). The resultant value is duration in number of periods. Since 1 period is equal to six months, to get the duration in number of years divide it by 3. So, this is expected payback period within which the bond holder is expected to recover its initial investments.

Illustration – Taking a bond, having a maturity in 3 years, and 6% coupon rate with face value of Rs. 100. Interest rate is 5% with semi-annual compounding.

Time Period (yrs.)	Inflows	P.V at a yield (5%)	P.V* time
1	6	5.85	5.85
2	6	5.71	11.43
3	6	5.57	16.71
4	6	5.43	21.72
5	6	5.3	26.5
6	106	91.4	548.4
Total		119.26	630.61

Duration in number of periods = $630.61 / 119.26 = 5.288$

Duration in years = $5.288/3 = 1.76$ yrs.

So, in 1.76 yrs investor would be able to recover his initial investment.

However, duration of any bond will change over time as Interest rate and terms to maturity changes. For example, duration of this 6% bonds with 3-year maturity will fall as the maturity period and or interest rate on the bond increases. In case of zero-coupon bonds, as bond has no interest rate, duration is equal to maturity period.

Modified Duration

In contrast to duration the modified duration is a measure of change of bond's market price to one percent change in interest rate (i.e yield). As no one can predict the future direction of interest rates, examining the "duration" of bond an investor can make a good estimate of how sensitive is his fixed income security to a potential change in the interest rate. So basically, duration is a measure of a bond's sensitivity to interest rate changes. The higher the bond's duration, the greater is its sensitivity to the change and vice versa. Generally, Investment professionals rely on duration because it rolls up several bond characteristics (such as maturity date, coupon payments, etc.) into a single number that gives a good indication of how sensitive a bond's price is to interest rate changes.

The Formula is

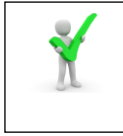
$$MD = \left\{ \frac{\text{Macaulay Duration}}{1 + \frac{\text{YTM}}{\text{No. of coupon periods in a year}}} \right\}$$

In the above illustration the Modified Duration (MD) = $1.76 / 1 + \frac{.05}{2} = 1.71$ years

It means if the interest rate is changed by 1% means interest rate is increased from 6% to 7% the prices of bond will decrease by $(.01 \times 1.71 \times 100)$. 1.71 % .In value terms it will be decrease by $1.71 \times \frac{119.26}{100} = \text{Rs. } 2.03$.

BOND IMMUNISATION

Some investors holding portfolio of bonds do not want to beat the market but rather seek to accumulate a specified level of wealth at the end of the maturity period. For such investors bond portfolio immunization often proves to be of great value. Immunization allows the investors to derive specified rate of return from the bond investment irrespective of changes in the interest rates over a given investment horizon. Change in interest rates has two effects. First is the price effect and second is the Reinvestment. Price effect is when the interest rate is changing in the market it has a reverse effect on the bond prices. As the interest rate increases the bond prices fall and as interest rate decrease bond prices increases. The second effect is reinvestment effect, as YTM calculation assumes that interest received on bonds are reinvested. Thus, if interest rate increases, coupon income may be reinvested at higher rate and will ultimately increase the wealth of the investor but if interest rate declines then the coupon income will be reinvested at lower rate which result in decrease in wealth. Thus, where increase in interest rate has a negative effect on the bond prices it has a positive effect on the reinvestments of the coupon. So here the role of immunization is to offset these two changes to an investor's bond value, leaving its worth unchanged. A portfolio is immunized from the effect of interest rate changes when the weighted-average duration of the bond portfolio is equal to the desired investment horizon. At this point, any change in investment rate will affect both the price and reinvestment at the same rate, keeping the portfolio's rate of return the same. Maintaining an immunized portfolio mean rebalancing the portfolio average duration every time interest rate change, so that the average duration continues to equal the investor's time horizon.

**Check Your Progress-C**

Q1- What is Duration?

Q2. What is modified duration?

Q3. 6% coupon bond, having a maturity in 3 years, with face value of Rs. 100. Interest rate is 5% with semi-annual compounding. Calculate MD.

Q4. Describe the bond Immunization.

12.11 SUMMARY

There are two ways a company can raise capital. It can do it by way of borrowing money which is termed as debt or by selling of its shares or essentially allowing other people to be the partial owners of it and that is called equity. Equity is generally termed as stock and debt is termed as a bond. There are short terms as well long-term bonds. Short-term bonds mature in one to three years, while long-term bonds may not mature for more than a decade. Bonds have a fixed face value, known as the Par Value or Face value. If bonds are held to maturity, the bondholder will receive the face value amount back, plus interest that may be set at a fixed or floating rate. However, if a bond is sold prior to its maturity, the investor should receive the bond's market value, which might be more or less than its

face value determined by the market forces. The most common reason why investors trade in bonds is to increase the yield of their portfolios. Yield is the total return an investor expects to receive if he holds a bond until it matures. There is an inverse relationship between yield, interest rate and bond prices. When interest rate decreases, the bond prices increases and yield will decrease. Bonds are not totally risk free. There are different types of risks associated with bonds and to mitigate these risk different management strategies are adopted by the investor and portfolio manager.



12.12 GLOSSARY

Face value- the amount repaid to the bondholder at the end also known as Par value, Maturity value and Nominal value.

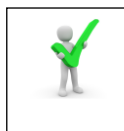
Financial system- the set of institutions that connect savers with borrowers.

Market Rate – The percentage of interest that similar bonds in the market are paying.

Yield to Maturity- Discount rate that can be used to make the present value of all of a bond's cash flows equal to its price.

Inflation- Inflation refers to the rate at which prices of goods and services rises.

Interest Rate- Interest rate is the amount of interest due per period as a proportion of the amount lent, deposited or borrowed.



12.13 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q7. Answer Rs. 931.50



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4. Punithavathy Pandian, ‘Security Analysis & Portfolio Management’ – Vikas Publishing House Pvt., Ltd.



12.16 TERMINAL QUESTIONS

1. Distinguish between current yield, yield to maturity (YTM) and coupon rate. Discuss the concept involved.
2. What does the term duration mean to bond investor and how do the duration of bond is different from its maturity? What is modified duration and how is it used?
3. What are the risks associated with investing in bonds? Discuss the different management strategies to minimize the risks associated with fixed income securities.

Security Analysis and Portfolio Management MS 404



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Uttarakhand Open University, Haldwani

MS 404

School of Management Studies and Commerce

Security Analysis and Portfolio Management



Block III Portfolio Analysis

Block IV Portfolio Management

Security Analysis and Portfolio Management



Block – III

Block Title- Portfolio Analysis

Block – IV

Block Title- Portfolio Management

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Course Name: Security Analysis and Portfolio Management

Course Code-MS404

Course Objective: The objective of the course is to provide the student the understanding of financial market environment and manage the investments for maximum returns.

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Unit I Introduction to Investments and Securities

Unit II Investment Alternatives

Unit III Investment Attributes

Unit IV Securities Market

Unit V Listing of securities

Unit VI Stock Exchanges and Their Mechanics

Unit VII The Securities and Exchange Board of India

Block II Security Analysis

Unit VIII Market Indexes

Unit IX Economic Analysis

Unit X Industry Analysis

Unit XI Company Analysis

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Block III Portfolio Analysis

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Unit XV Options, Rights, Warrants and Convertibles

Unit XVI Futures and Swaps

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Unit XXI Capital Asset Pricing Model

Unit XXII Portfolio Revision and Portfolio Investment Process

Unit XXIII Portfolio Evaluation and Performance Management

Unit XXIV Value at Risk and Risk Management

Unit XXV SAP-An Introduction

Suggested Readings:

1. Donald E.Fischer & Ronald J.Jordan, 'Security Analysis & Portfolio Management', Prentice Hall of India Private Ltd., New Delhi 2000.
2. V.A.Avadhani – 'Securities Analysis and Portfolio Management', Himalaya Publishing House,1997.
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Block III
Portfolio Analysis

UNIT 13 MUTUAL FUNDS

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- 13.2 Objectives**
- 13.3 Mutual fund**
- 13.4 Constituents of mutual funds organization**
- 13.5 Regulations of mutual funds in India**
- 13.6 Classification of mutual funds scheme**
- 13.7 Progress of mutual funds industry**
- 13.8 Return method**
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- 13.13 Terminal Questions**

13.1 INTRODUCTION

Mutual funds are the financial organisation who collect the savings from the investors and invest them into securities in capital market and earn income from it. The earning is distributed among the investors in the form of return on investment and they reinvest some portion of their earnings again in mutual funds. Professional manages such funds for consideration. Through mutual funds, an investor can have exposure in variety of investment avenues like, money market, fixed income to high yield debts, gold and other commodities, real estate equities etc. Even investment in India and abroad is accessible through investment in mutual funds now in India. Unit trust of India was the first mutual fund in India established on 1964. Mutual fund industry in India received a boost when it was thrown open to private sector in 1993 and to foreign mutual funds in 1994. In India there are 44 mutual funds organisations which are offering number of schemes suits to each profile of investor. In this unit you will come to know the about the mutual funds and their benefits to the investors, their constituents, regulations and progress of mutual funds from their set up in India till their status by 2019.

13.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the meaning of mutual funds
- Know about the constituents of mutual fund industry
- Understand the benefits of mutual funds
- Come to know about the different schemes of mutual funds
- Progress of mutual funds in India
- Calculate absolute return and compound annual growth rate (CAGR)

13.3 MUTUAL FUNDS

Mutual funds are associations or trusts of public members who wish to make investments in the financial instruments or assets of the business sector or corporate sector for the mutual benefits of its members. The fund collects the money of these members from their savings and invests them in a diversified portfolio of financial assets such as equity shares, debentures, government securities and other fixed income securities etc. with a view to reduce risks and to maximize their income and capital appreciation for distribution to its members on a pro-rata basis. Mutual funds issue units to the members (investors) known as unit holders in accordance with the amount of money invested by them. The unit holders (investors) enjoy collectively the benefits of expertise in investment by specialists in the trust, economies of scale which no single individual by himself could enjoy, diversification of financial assets and also the risk sharing among the members. Mutual fund is thus a concept of mutual help of subscribers for portfolio investment and management of these investments by experts in the field. These funds are set up under the Indian Trusts Act. The concept of mutual funds gained momentum because of increasing complexities of capital market. Individual investors lacking expertise in the securities market prefer to invest in the stocks through the mutual funds expertise.

The Definition:

A mutual fund is nothing more than a collection of stocks and /or bonds. We can think of a mutual fund as a company that brings together a group of people and invests their money in stocks, bonds, and other securities. Each investor owns shares, which represent a portion of the holdings of the fund.

The SEBI has defined mutual fund as:

“Mutual fund” means a fund established in the form of a trust to raise monies through the sale of units to the public or a section of the public under one or more schemes for investing in securities including money market instruments or gold or gold related instruments or real estate assets”.

According to Weston J.Fred and Brigham

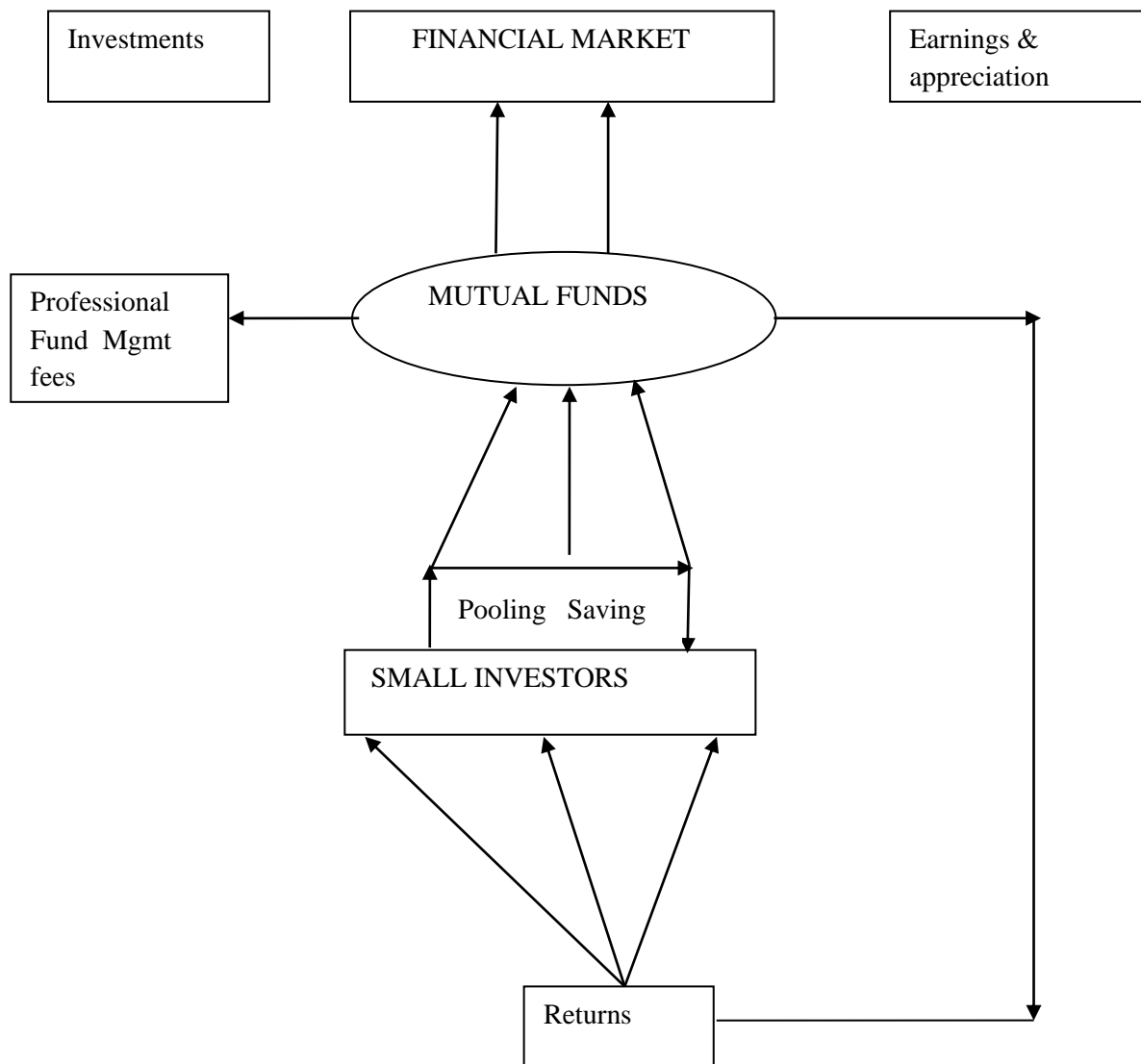
“Mutual Funds is a corporation which accepts money from the investors and use the same way to buy stock, long -term bonds, short-term bonds debt instruments issues by the issuers”.

According to **(Dr. Manoj V.Dave, Lalitkumar R.Chauhan)**

“One can make money from a mutual fund in three ways:

1. Income is earned from dividends on stocks and interest on bonds. A fund pays out nearly all income it receives over the year to funds owners in the form of a distribution.
2. If the funds sell securities that have increased in price, the fund has a capital gain. Most funds also pass on these gains to investors in a distribution.
3. If fund holdings increase in price but are not sold by the fund manager, the fund's shares increase in price. You can then sell your mutual fund shares for a profit. Funds will also usually give you a choice either to receive a check for distributions or to reinvest the earnings and get more shares”.

FIG-1
CONCEPT OF MUTUAL FUND



13.4 CONSTITUENTS OF MUTUAL FUNDS ORGANISATION

The following are the constituents of mutual funds organisation;

1. Sponsor
 2. Mutual Fund Organization (Trust)
 3. Asset Management Company (AMC)
 4. Custodian
1. **Sponsor** : Every Mutual Fund has a sponsor which establishes the fund and hence a sponsor can be considered as similar to promoter of a company. Mutual

funds organizations follow the rules laid down by SEBI. Following organization are eligible for the sponsor:

- Banks
- Financial institutions
- Private and Public limited companies

An organization to become a sponsor must have a track record of profitability of at least 5 years with positive net worth. And minimum 40% of capital of AMC is contributed by a sponsor.

2. **Trust :** The sponsor forms a trust in accordance with SEBI regulations. The trust has a governing body which is also appointed by the sponsor. The governing body of the trust gives direction, control and also manages the overall affairs of the mutual fund. The trustee has to be a person of high reputation and integrity. One of the members of the governing body becomes a full time executive of the trust and heads a company floated by the trust called Asset Management Company (AMC).
3. **Asset Management Company (AMC):** It is a team of professionals and experts with the knowledge of the investment activities. The AMC floats various schemes of the fund and also manages them on day to day basis. Every mutual fund has its own AMC. AMC can be a listed/non-listed company and has high standing professionals like Management Graduates, Chartered Accountants, Financial Analysts, and Engineers etc., who are expert in the job of making investments. They also see that the investments made under its various schemes are fully protected and properly accounted for. Assets Management Companies in India are broadly categorized into three types, bank sponsored mutual funds, mutual funds institutions, private sector mutual funds. There are 44 AMCs in India as of today.

Some Currently Operating AMCs:

Sr. No	Mutual Fund	Launching Date	Number of schemes
1	Axis Asset Management Company Ltd.	1994	312
2	Aditya Birla Sun Life Asset Management Company Limited	1994	789

3	Baroda Pioneer Asset Management Company Limited	1995	108
4	BOI AXA Investment Managers Private Limited	2007	84
5	BNP Paribas Asset Management India Private Limited	2004	132
6	Canara Robeco Asset Management Company Limited	1987	122
7	DHFL Pramerica Asset Managers Private Limited	2009	325
8	DSP Investment Managers Private Limited	1996	176
9	ESSEL Mutual fund	2009	91
10	Edelweiss Asset Management Limited	2008	176
11	Franklin Templeton Asset Management (India) Private Limited	1996	338
12	HDFC Asset Management Company Limited	2000	687
13	HSBC Asset Management (India) Private Ltd	2002	163
14	IIFL Management Co. Ltd.	2010	22
15	IIFCL	2012	2
16	IL&FS	2014	

			8
17	ICICI Prudential Asset Mgmt. Company Limited	2007	1255
18	IDFC Asset Management Company Limited	1999	352
19	India bulls Asset Management Company Ltd.	2011	140
20	IDBI Asset Management Ltd.	2010	105
21	INVESCO Asset Management Company Private Limited	2006	216
22	ITI Asset Management Ltd	2018	20
23	JM Financial Asset Management Private Limited	1994	415
24	Kotak Mahindra Asset Management Company Limited(KMAMCL)	1998	415
25	L&T Investment Management Limited	1997	196
26	LIC Mutual Fund Asset Management Limited.	1994	100
27	Mahindra Asset Management Co. Ltd	2016	52
28	Mirae Asset Global Investments (India) Pvt. Ltd.	2007	69

29	Motilal Oswal Asset Management Company Limited	2009	53
30	PPFAS Asset Management Pvt. Ltd.	2013	12
31	Principal Pnb Asset Management Co. Pvt. Ltd.	1994	96
32	Quant (Escorts) Money Managers Ltd	1996	60
33	Quantum Asset Management Company Private Limited	2005	30
34	Reliance Capital Asset Management Ltd.	1995	971
35	SBI Funds Management Limited	1986	586
36	Sahara Asset Management Company Private	1996	68
37	SREI Mutual Fund Asset Management Pvt. Ltd.*	2012	Na
38	Shriram Asset Management Co. Ltd.	1994	16
39	Sundaram Asset Management Company Limited	1996	431
40	Tata Asset Management Limited	1995	239
41	Taurus Asset Management Company Limited	2006	42

42	UTI Asset Management Company Ltd.	2003	1279
43	Union Asset Management Company Private Limited	2011	71
44	Yes Asset Management (India) Ltd	2017	30

*SREI mutual fund's no scheme has been listed yet

4. **Custodian:** Custodian is the organization, which is responsible for safe keeping of various securities purchased under various schemes. Following functions are generally performed by a custodian.
- Post trading activities
 - Safe keeping of securities
 - Collection of dividends and benefits on behalf of mutual fund
 - Maintain the account of holding

Wide Range and Options

Mutual funds provide a range of options for the investors to suit their need and capabilities. An asset management company can be a one stop solution provider for retail investors. As today in India, through mutual funds, an investor can have exposure in variety of investment avenues like, money market, fixed income to high yield debts, gold and other commodities, real estate equities. Even investment in India and abroad is accessible through investment in mutual funds now in India.

Fig-2



There is a range of mutual fund types which invest in specific asset class or combination of classes in equal or variable distribution. Investors can review the fund types against his financial goal, time frame, risk appetite and economy to best judge the fund or combination of funds that suits the requirements.

Benefits of Mutual Funds

There are several benefits to invest in mutual funds. The key benefits are as follows

1. Expert Money Management

Mutual fund companies hire financial experts to manage the money pooled in a mutual fund scheme. This ensures that the investor's funds are in the hand of experts and they do not have to fret on it. Its fund manager's duty to decide to which securities funds to be invested.

2. Low-cost investment

Mutual funds offer variety of schemes which are available for every kind of investor. Investors with limited income can start investment with as low as just Rs. 500 per month and investors who have high income with them can invest a lump sum and seek benefits as well as high returns.

3. Systematic Investment Plan (SIP)

As mentioned above mutual funds schemes are available for every profile of investor. Systematic investment plans are for those investors who do not want to make a onetime investment. Through the facility of SIP the investors can make small and manageable investments in installments every month.

4. Lock-in-period

Every mutual fund has different lock-in-period. This could be one must or none at all. ELSS is one mutual fund scheme that has the shortest lock-in-period of 3 years for good returns. However, the holding period of investment is directly proportionate to the return receive. The longer investor stay invested the higher will be returns. Also, an investor can withdraw any time when he or she has invested in open ended mutual funds.

5. Flexibility to Switch Funds

Fund managers invest the money of investors in different securities. Due to market conditions or volatility in the market may be some securities do not perform well. So the fund manager has the right to switch. In such case they sell those securities which are not performing well and can add in the portfolio those securities which are doing well in the market.

6. Flexibility Terms of Tenure

Most of the mutual funds schemes have no time boundations. For instance, ELSS is a tax saving scheme which has a lock-in-period of 3 years minimum. Other investment schemes have flexible tenure depending on investor's financial goals.

7. Liquidity

Mutual funds are highly liquid. Investors can get their money any time they want.

8. Tax efficiency

Mutual fund investments are highly tax efficient. Many of the mutual fund schemes have proven to be very tax efficient and have generated high returns in comparison to any other traditional form of investment.

9. Diversification

Mutual funds enable the investors to successfully “buy the market”. Being so extensively diversified by investing in shares, bonds and different company sizes investors try to manage the risk of loss. It is not easy to select the investments that will work well. Rather than attempting to invest in a single security, it is usually safer to be well diversified throughout the market. The general effect of variation is that investor can control the unpredictability and can smooth out the returns as time passes. The recommended number of entities to invest in is 5 as then it might become complicated to monitor the funds.

***Check Your Progress-A*****Q1. What are Mutual Funds?**

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Q2. Discuss the benefits of Mutual Funds.

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Q3. What range of options mutual funds provides to their investors?

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Q4. Discuss the constituents of mutual fund organization.

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Q5. What is SIP ?

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Q6. What are the functions of custodians?

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13.5 REGULATIONS OF MUTUAL FUNDS IN INDIA

Every mutual fund operated in India, is subject to the following regulations specified by SEBI.

1. Formation and Registration
2. Document
3. Regulation of schemes
4. Investment by mutual fund
5. Advertisement code of conduct
6. Disclosure of NAV
7. Winding up

1. Formation and Registration

All the constituents discussed above, should be registered with SEBI. All the constituents should fulfill the eligibility criterion set by the SEBI. All the constituents must be registered with SEBI before the starting of their respective functioning. SEBI requires the fulfillment of various formalities for registration and payment of requisite fee too.

2. Document for Schemes

Offer document contain information to enable investors to make an informed investment decision, including disclosure regarding the maximum investment proposed to be made by the scheme in the listed securities of the group companies of the sponsor. The SEBI can suggest modification in the offer document, in the interest of investors, which would be binding on the AMC. If no modification is suggested by SEBI within 21 working days from the date of filing, it may issue the offer document to the public.

3. Regulation of Schemes

Mutual funds schemes are classified into a) Open-ended, and (b) Close-ended schemes. At the time of launching, SEBI regulates the size of the scheme in terms of its corpus, which is as follows:

- An open-ended scheme should have a minimum corpus of Rs.50 crore. This is counted as the amount collected during the first 45 days of the launch of the scheme.
- A close- ended scheme should have a minimum corpus of Rs.20 crore.

Unless a mutual fund achieves these minimum corpus targets, it cannot issue the units to applicants; rather money is to be refunded to them.

4. Investment by Mutual Fund

Following are the regulatory provisions for the investment to be made by mutual fund:

- Mutual fund may invest money collected under any of its schemes only in (a) securities (b) money market instruments, (c) privately placed debentures, (d) securities debt instruments (e) gold/gold related instruments, (f) real estate assets or (g) infrastructure debt instruments. The investments should be in accordance with the investment objectives of the relevant scheme. Money collected under the money market scheme of mutual fund should invest only in money market instruments only. Similarly, money collected under the gold exchange traded fund scheme should invest in only gold/ gold related instruments.
- No mutual fund, under all its schemes, should own more than 10% of any company's paid-up capital carrying voting rights.
- A scheme may invest in another scheme under the same AMC or any other mutual fund without charging any fees.
- A mutual fund scheme should not invest in a) any unlisted security (b) or any security issued by way of private placement of any associate/group company of the sponsor (c) listed security of group companies of the sponsor in excess of 25% of the net assets.
- No mutual fund scheme would make any investment in any fund of funds scheme.

5. Advertisement Code of Conduct

Every mutual fund should follow the code of conduct while advertising for the schemes as directed by SEBI.

The advertisement should be 1) true, fair, accurate, clear, complete, unambiguous and concise; 2) not contain statements which are false/misleading/biased/deceptive; 3) should not be designed as such which would misunderstood/ disguise the significance of any statement. Further, the advertisement for the schemes shall give full details about the sponsor- its background, past track record, affiliation etc. The offer document shall also contain information about the functioning of scheme, AMC, custodian and other activities of the mutual fund organization. The mutual fund should mention about 'risk factors' if investment is made in the scheme.

6. Disclosure of NAV

Mutual funds organizations are required to disclose NAV of all the schemes at a regular time interval as specified by SEBI from time to time.

$$\text{NAV} = \frac{\text{Market value of investment under the scheme} + \text{Net receivables} + \text{cash}}{\text{Number of units under the scheme}}$$

7. Winding up

Close ended scheme

A close-ended scheme is wound up on the expiry of the duration fixed in the scheme, on the redemption of the units, unless it is rolled over for a further period.

Open ended scheme

An open ended scheme does not have any maturity period; therefore, in normal circumstances, there is no winding up of such a scheme. Such a scheme can be wound up compulsorily, if at any time corpus of the scheme falls below 50% of the original corpus. By original corpus, we mean the funds pooled during the initial 45 days of the opening of the subscription for the scheme.

13.6 CLASSIFICATION OF MUTUAL FUNDS SCHEMES

Mutual Fund Schemes in broad sense can be classified either as Open end vs. Closed end schemes or Income schemes vs. Growth schemes. Under such broad classification any amount of permutations and combinations are possible.

Open ended and Closed Ended fund

Open-Ended Fund

An Open-ended fund or scheme is one under which an investor can buy or sell units on continuous basis i.e., the scheme has perpetual existence. These schemes do not have a fixed maturity period. Investors can conveniently buy and sell units at Net Asset Value (NAV) that is declared on a daily basis. The important feature of open end scheme is liquidity. Open ended funds can issue and redeem units any time during the life of the scheme on the other hand the closed end schemes remains open for subscription for limited period only. Hence, unit capital of open-ended fund can fluctuate on daily basis while that is not the case for close ended scheme. Another way of explaining the difference is that new investors can join the scheme by directly applying to the mutual fund at applicable new asset value related prices in case of open-ended schemes while that is not case in close-ended schemes. New investors can buy the units from secondary market only at the market prevailing prices and not at NAV.

Closed Ended Funds

A close-ended funds or scheme has a stipulated maturity period. The fund is open for subscription only during a specified period at the time of launch of the scheme. Investors can invest in the scheme at the time of initial public issue and thereafter they can buy or sell the units of the scheme on the stock exchanges where the units are listed. In order to provide an exit route to the investors, some close-ended funds give an option of selling back the units to the mutual fund through periodic repurchases at NAV related prices.

Logically closed end schemes should perform better than the open end ones as managers of closed end schemes have better control over investments. i.e., the scheme does not suffer from continuous repurchase or sales. On the other hand in case of open end scheme a big portion of corpus has to be invested in short term instruments including cash as a cushion against regular redemptions/repurchase. Since the return from a short term investment cannot match that of a long term performance of the open end scheme suffers to that extent. It is worthwhile adding that the biggest losers are those schemes which become open ended after starting off as closed ended as those funds not only have to change their investment strategies but are also forced to show the performance of a closed end fund even after the switch.

Growth and Income schemes

Growth Scheme

Growth schemes aim at generating long term capital appreciation for its investors. This is done by investing the resources raised from the investors in high growth equity shares which give good returns when the markets are rising. However a lot of risk is also attached to such stocks and their returns can also be zero or even negative when the market return bearish. So such schemes are meant for bold and daring investors who can afford to take risks on the stock markets.

Income Schemes

Income schemes on the other hand aims at generating and distributing regular returns to the investors. Such schemes invest their funds in safe and income earning instruments like Public Deposits, Bonds, and Debentures etc. Since they provide a reasonable return on regular basis along with reasonably safety of funds it is favoured by investors who want fixed regular incomes like pensioners, retired persons, senior citizens etc. Income funds can be either bond funds or monthly income plans.

Whereas the former invests in government securities, corporate bonds and debentures of the different companies with zero equity exposure, the latter also invests in these instruments but also has a little equity exposure too, say around 5-6% of the total corpus. However there is no assurance of fixed income under the income funds. In India approx. 70% of schemes are income oriented.

Nowadays, capital markets are flooded with scheme which are not purely growth or income but either a combination of two or variant of the two. The need for such different schemes is being felt because of the changing perception of the investors towards the stock market. Because the pure schemes of mutual funds are not up to the mark so the need was felt to design such schemes which are tailor made as per the requirement of the investors. Some of the schemes are:

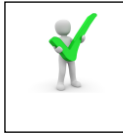
- a) **Equity Linked Saving Scheme:** Also called 'Tax savings via Growth', such schemes invest in equity shares of the companies and hence fall in the category of

growth schemes but also do provide tax savings to individual under the tax savings scheme.

- b) **Specialised Sector Schemes:** Certain sectors like Pharmaceuticals and consumer goods have always outperformed the traditional sector like textiles, Iron and Steel. Because of this reason, the mutual funds have launched from time to time specialised sector schemes which are growth schemes but with respect to investment, focus only a particular sector.
- c) **Guilt & Liquid Schemes:** A variant of an income scheme is GUILT scheme which concentrates mainly on long term government securities. A liquid scheme on the other hand usually invests in short term instruments with short maturities say up to one year.
- d) **Balanced Schemes:** Such schemes usually strike a balance between the growth and income schemes by putting their money in somewhat equal proportion in equity and debt instruments. Some of the balanced schemes follow a certain criteria for allocating funds between equity and debt i.e., higher the Sensex level lower shall be the equity component in their schemes and vice-versa.
- e) **Index Schemes:** Index Schemes or index funds mimic the market index i.e., the fund manager allocates the corpus in proportion of the different securities in the index be it BSE Sensex, NSE Nifty or any other index. These funds are also passively managed meaning that once the fund manager has allocated the resources according to the index most of his job is over and therefore the charges for the management fees are also minimal as the fund manager does minimum of research work to find out which shares are expected to outperform the others.
- f) **Exchange Traded Schemes:** Such schemes are similar to the index fund scheme represent a basket of securities but are listed on the stock exchange. (Note: Index schemes are usually not listed on exchanges). One can buy and sell the units of ETF at their NAV on any time during the trading hour. The ETFs also give an option to the investors to exchange their scrips which they own with the units of the fund. The advantage to the investor is that no cash investment is required to buy additional units of Exchange Traded Funds but fund exchanges it with the stock held by investor.
- g) **Mid Cap Schemes:** Such a scheme invests in the shares of those companies which have a market capitalisation between 1500 to 5000 Crores i.e. Mid Cap Shares. The reason why fund managers invest in these mid cap shares is that there is general belief that such companies have good potential and may get transformed to the large cap companies.
- h) **Gold ETF:** With India being the largest consumer of the gold jewellery in the world, Gold ETF hold tremendous potential in this country. Gold ETF has certain advantages firstly it helps in unlocking the physical gold lying with the households. Under this their physical gold and jewellery is converted into small sized units which can be traded on stock exchanges, moreover there is a promise of earning a little more. Secondly investment in Gold ETFs is possible with very

low amount of investment, thirdly underlying commodity i.e., gold is pure to the extent of 24 carats.

- i) **Extended Cash Fund Schemes:** Such schemes are very short term schemes say one to three months and the target customers are those with surplus cash only for few months. These funds usually give better return than a pure cash fund.
- j) **Contra Fund:** In case of this fund, the focus is on those securities which are currently out of flavour and hence do not deliver the normal PE to the investor.
- k) **Capital Protection Fund Scheme:** Capital Protection Fund Schemes promises preservation of initial investment. Such schemes are very popular in US. This may be in the form of guarantee given by the trustee or even backed by the insurance policy. The charges of these schemes are higher.
- l) **Fund of Funds Scheme:** Under this scheme the mutual fund instead of investing in stock markets invests in the units/schemes of other mutual funds and it is called Fund of Funds scheme. Thus Fund of Funds scheme is essentially a repackaging idea. For many it is a dynamic alternative to the balanced fund. The fund manager after doing thorough research can select the better performing equity funds and their likely performance in future. Similarly he can do the same exercise for the debt funds and thus he can make a portfolio of mutual funds for investing his corpus under the fund of funds scheme.

**Check Your Progress-B**

Q1. Explain how mutual funds are regulated in India?

Q2. Discuss open ended and closed ended funds.

Q3. What are Gold ETFs ?

Q4. What is the difference between ETFs and index funds?

Q5. What are mid-cap schemes?

13.7 PROGRESS OF INDIAN MUTUAL FUND INDUSTRY

The progressive liberalization of economic policies has led to a rapid growth of capital market, money market and financial services industry. Consistent with this evolution of the financial sector, the mutual fund industry has also come to occupy an important place in India. It forms an important part of capital market, providing the benefits of a diversified portfolio and expert fund management to a large number of investors, particularly small investors. The industry has witnessed starling growth in terms of the products and services offered, returns churned, volumes generated and also the contributions of international players in this growth. Today the industry offers different schemes ranging from equity and debt to fixed income and money market. The mutual

fund industry offers diverse products such as Gold funds, Exchange Traded Funds, Index Funds and Capital protection oriented funds and even thematic funds. With the improvement in deployment of investment through markets, the need and scope for mutual fund operations has increased tremendously. UTI was the first mutual fund set up in India in the year 1963 by Government of India. During the last 50 years, UTI has grown to be a dominant player in the industry with assets of over Rs 69450.3972 Crores. (as on 31-Mar-2013) and total number of schemes it offers are 472 till 30th April 2013. The assets has been increased to 87390.13 Crore at the end of 2014 and the number of schemes rose to 1232. (Source: India Infoline) UTI Mutual fund is promoted by the four of largest public sector institutions SBI, LIC, Bank of Baroda and Punjab National bank with each of them presently holding a 18.5 percent stake. US-based T Rowe Price has acquired a 26% stake in UTI Asset Management Company Ltd which runs UTIMF. Mutual funds gained momentum in India since 1987 when public sector banks and insurance companies made an entry by floating different schemes. In 1987 public sector banks and insurance companies were permitted to set up mutual funds and accordingly since 1987, 6 public sector banks have set up mutual funds. Also the two insurance companies LIC and GIC established mutual funds. At the end of 1993, the mutual fund industry had assets under management of Rs 47004 Crores. (**Source; AMFI**). Mutual funds received more boost when in 1993 Government policy was changed to allow private sector mutual funds also to operate on equal terms with public sector mutual fund. With the entry of private sector funds in, a new era started in the Indian mutual fund industry, giving the Indian investors a wide choice of fund families.

1964- India's first mutual fund launches *i.e.*, US 64

1987- Amendment to the banking regulation Act in 1983, which empowered the RBI to permit the entry of banks to carry on mutual fund business. SBI (June 1987) and Canara bank (December 1987) made an entry in mutual fund world

1993- SEBI regulations for mutual funds industry (except UTI) come in to force first time and also in the same year industry is open to Private sector and foreign sector giving the Indian investors a wider choice of mutual funds products.

1995- Money market mutual funds set up.

1998- Mutual funds in troubled waters. CRB MF closes shop. Funds underperform index. US 64 flop shop.

2000- Shakeout imminent. Myth about safety and liquidity of investment in UTI broken.

2001- US 64 to be redeemed as per pre-determined rate scheme. Charitable institutions allowed keeping their surplus money in mutual funds. Committee formed to evolve benchmark for performance appraisal of debt schemes by SEBI and AMFI.

2002- SEBI to control UTI also

2003- In Feb-03, following the repeal of the Unit Trust of India Act 1963, UTI was bifurcated into two separate entities which include Specified Undertaking of UTI and the UTI Mutual Fund, sponsored by SBI, Punjab National Bank (PNB), Bank of Baroda (BOB) & LIC.

2004- Mutual funds allowed to invest in overseas securities.

2006- SEBI amended custodian of securities Act.

2007- Gold ETFs introduced by Benchmark AMC

2009- Entry load was abolished by SEBI

2012- SEBI introduced several progressive measures to “re-energize” the mutual fund industry and increase MFs penetration.

2016- The Number of SIP accounts crossed 1crore mark and currently each month retail investors contribute around Rs. 3500 crore via SIP. The Industry’s AUM crossed the milestone of Rs.10 Lakh Crore for the first time as on 31st May 2014 and in a span of two years the AUM size has crossed **Rs. 15 lakh crore** in July 2016.

2019- Assets under Management (AUM) as on 31st July 2019 reached Rs.2453626 crore.

The total number of accounts (or folios as per mutual fund parlance) as on July 31, 2019 stood at 8.48 crore (84.8 million), while the number of folios under Equity, Hybrid and Solution Oriented Schemes, wherein the maximum investment is from retail segment stood at 7.62 crore (76.2 million).

13.8 RETURN METHODS

There are many ways to calculate return from the mutual funds investments. Absolute return and Annualized returns are two most popular method of measuring returns.

Absolute Return

Absolute return is the simple increase or decrease in investment calculated in terms of percentage. It does not consider the time taken for this change. So if investment’s current value is Rs.620000 and initial investment was Rs. 300000 then the absolute return will be

$$\begin{aligned} \text{Absolute Return} &= \frac{\text{current value} - \text{previous value}}{\text{previous value}} \times 100 \\ &= \frac{620000 - 300000}{300000} \times 100 \\ &= \mathbf{106.67\%} \end{aligned}$$

In the above calculation you must observed that the date of investment and date of redemption both are irrelevant. So ideally, investor should use the absolute returns method if the investment period is less than 1 year.

For period more than one year annualized return which means to find out what the rate of return is per annum.

Annualized Return (CAGR)

A compound annual growth rate is the geometric average of annual growth. It measures the rate of return over an investment period. It is a smoothened rate because it measures the growth of investment as if it had grown at a steady rate on an annually compound basis.

$$\text{CAGR} = (\text{Final Amount}/\text{initial amount}) ^ {1/\text{no. of years}} - 1$$

NAV's of Mutual Funds

S.No	Mutual Fund	March 31,2011	March 31,2012	March 31,2013	March 31,2014
1	SBI Mutual fund	525	530	569	834
2	Quantum Mutual	530	539	585	697
3	Kotak Mutual	540	538	583	671
4	Canara Robeco	70	72	74	94

*(imaginary figures)

In the above table NAV's of some mutual funds are given. By using the above formula we can calculate the absolute return and CAGR of the mutual funds can calculate. Learners must notice that to calculate the return of one year i.e. March 2012, we used the formula of absolute return. And to calculate the returns of 2013 and 2014 we used the formula of compound annual growth rate (CAGR). CAGR provides the constant rate of return over the time period.

Calculation of CAGR

S.No	Mutual Fund	Return on March 31,2102	CAGR on March 31,2013	CAGR on March 31,2014
1	SBI Mutual fund	0.95 %	4.1%	16.8%

2	Quantum Mutual fund	1.70%	5.0%	9.5%
3	Kotak Mutual Fund	-0.37%	3.9%	7.5%
4	Canara Robeco Mutual fund	2.85%	2.8%	10.3%



Check Your Progress-C

Q1. Discuss the progress of Indian Mutual Fund Industry ?

Q2. What are absolute returns?

Q3. What is CAGR ?

13.9 SUMMARY

India is the emerging economy as there is lot of potential in the financial sector of India. Mutual funds are dynamic financial institutions (FIs), which play a crucial role in an economy by mobilising savings and investing them in the capital market, thus establishing a link between savings and the capital market. Mutual fund units are investment vehicles that provide a means of participation in the stock market for people who have neither the time, nor the money, nor perhaps the expertise to undertake direct investment in equities successfully. On the other hand they also provide a route into specialist market where direct investment often demands both more time and more knowledge than an investor may possess. First mutual fund in India was UTI set up in 1963. Mutual funds gained momentum in India since 1987 when public sector banks and

insurance companies made an entry by floating different schemes. Till now there are 44 mutual funds companies providing different schemes for the different profile of investor. With the entry of private sector funds, a new era started in the Indian mutual fund industry, giving the Indian investors a wide choice of fund families



13.10 GLOSSARY

Mutual fund: It is an investment vehicle, which pools the saving of small investor with the aim to invest funds in the different securities. The returns thus generated shall be distributed among the investors.

NAV: The total value of a company's assets less the total value of its external liabilities is its net asset value (NAV).

Assets under Management: Asset under management is the amount of fund managed by a fund manager or asset management company for the mutual fund. It also refers to the clients' fund that a fund manager is responsible to manage. With the help of this, the size of the business of AMC is measured.

Open-ended fund: An open-ended fund is a mutual fund scheme that is available for subscription and redemption on every business throughout the year. An open ended scheme is perpetual and does not have any maturity date.

Close-ended fund: A close-ended fund is open for subscription only during the initial offer period and has a specified tenor and a fixed maturity date.

Claim: To say that something is true or is a fact, although you cannot prove it and other .



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13.12 SUGGESTED READINGS

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3. V.K. Bhalla, ‘Investment Management’, S.Chand & Company Ltd., Seventh Edition.
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13.13 TERMINAL QUESTIONS

1. Explain the structure and types of mutual funds. How are mutual funds categorized based on their investment objectives, structure, and asset class?
2. Describe the advantages and disadvantages of investing in mutual funds compared to other investment options.
3. How is the Net Asset Value (NAV) of a mutual fund calculated, and why is it important for investors?
4. Differentiate between open ended and closed ended funds.

UNIT 14 DERIVATIVES

- 14.1 Introduction
- 14.2 Objectives
- 14.3 The Need for Derivatives
- 14.4 Types of Derivatives
- 14.5 Participants of Derivative Market
- 14.6 Understanding Risk in Derivatives
- 14.7 Hedging
- 14.8 Summary
- 14.9 Glossary
- 14.10 References/ Bibliography
- 14.11 Suggested Reading
- 14.12 Terminal and Model Questions

14.1 INTRODUCTION

The derivative market in India, like its counterparts abroad, is increasingly gaining significance. Since the time derivatives were introduced in the year 2000, their popularity has grown manifold. Derivatives have taken a very prominent place in the world of investment since last two decades. The real purpose of derivatives is to hedge the risk. Risk is inherent in every sort of investment. Securities dealt in stock market always bear risk because their valuation is based on future market activities.

Derivatives are financial contracts that derive their value from an underlying asset. These could be stocks, indices, commodities, currencies, exchange rates, or the rate of interest. These financial instruments help investors make profits by laying a bet on the future value of the underlying asset. So, their value is derived from that underlying asset. This is why they are called '**Derivatives**'.

In the Indian context the Securities Contracts (Regulation) Act, 1956 (SC(R)A) defines "derivative" to include —

1.2.1 A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.

1.2.2 A contract which derives its value from the prices, or index of prices, of underlying securities. Derivatives are securities under the SC(R)A and hence the trading of derivatives is governed by the regulatory frame work under the SC(R)A.

For example, let's assume that in April 2017 the investor enters a futures contract with a farmer to sell 50 tonnes of wheat at Rs 2000 per ton in July, 2017. At expiry date in July 2017, if the market price of wheat falls to Rs 1500, the investor has to buy at the contract price of Rs 2000 which is much higher than the market price of Rs 1500. Instead of paying $1500 \times 50 = \text{Rs } 75,000$ he will pay $2000 \times 50 = \text{Rs } 100,000$. Lucky farmer gets to sell at a higher price than what the market is offering.

Most derivatives are traded over-the-counter (off-exchange) or on an exchange such as the Bombay Stock Exchange. Derivatives are one of the three main categories of financial instruments; the other two are stocks (i.e., equities or shares) and debt (i.e., bonds, debenture and mortgages).

The privately traded over-the-counter (OTC) derivatives such as swaps do not go through an exchange or other intermediary, whereas exchange-traded derivatives (ETD) are traded through specialized derivatives exchanges or other exchanges.



Source: Kotak securities

14.2 OBJECTIVES

After reading this unit one should be able to understand:

- The concept of derivatives
- The need for derivatives
- Types of derivatives
- Understanding risk in derivatives
- Hedging through derivatives

14.3 THE NEED FOR DERIVATIVES

The emergence of the market for derivative products has occurred because of the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. The financial markets are marked by a very high degree of volatility. And through the use of derivative products, it is possible to partially or fully transfer price risks by locking—in asset prices

The major reasons behind the growth of derivatives in India are many such as:

- The integration of national and global financial markets.
- Increasing volatility in various financial markets.
- Advancement in risk management tools, giving investors and traders a wider range of risk management strategies.
- Sharp decline in cost of communication and improved communication facilities.
- Innovation and developments in derivatives market that has led to instruments which optimally combine risk and return and generate higher returns as well as reduced transaction cost.

The derivatives market performs many functions:

- It helps in transferring risk from risk takers to risk averse people.
- They predict future and current prices.
- They promote the investment activity in the market due to its nature of minimizing risks and maximizing returns.
- It has improved entrepreneurial activity in the market.

14.4 TYPES OF DERIVATIVES

In derivatives market there are hundreds or even thousands of types of contracts that are available in the market. This may become a difficult and confusing task to deal with derivatives for the investors. However, these variations can all be sorted into four categories. These four types of derivatives are:



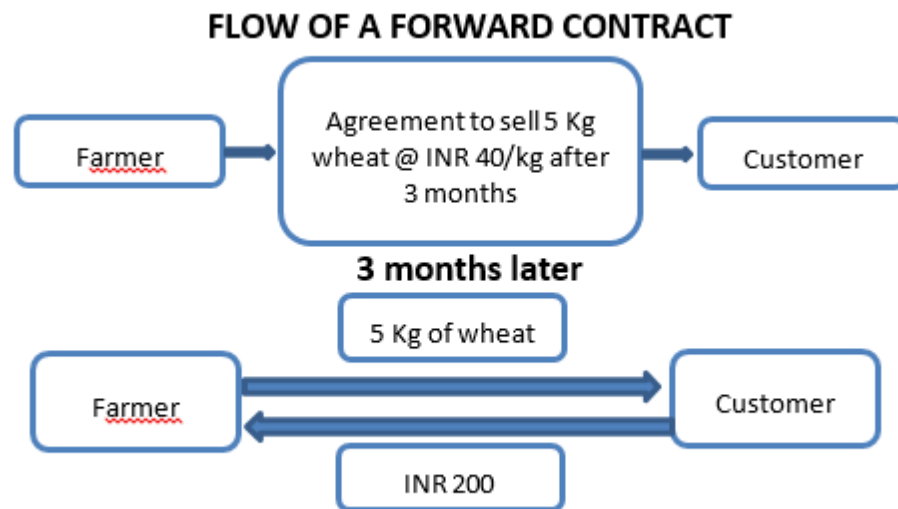
14.4.1 Forward Contract: A forward contract is an agreement between two parties to buy or sell underlying assets at specified date, at agreed rate in future. The salient features of forward contracts are:

- Forward contracts are customized contracts therefore has its own unique contract size, underlying asset and expiry date.
- These are two sided contracts.
- As it is a customized contract, the contract price is generally not available to the public or other investors.
- The contract has to be executed on the maturity date by the delivery of the asset at an agreed price.
- Forwards contract bears counterparty risk.

Let's take an example of a farmer who grows wheat in his farms. The conventional way is that the farmer will sell his crop in spot market after harvesting. But then there is a risk of downward movement in the price of wheat from the time of harvesting to the time crop is ready for sale. To avoid risk, farmer can sell his crop in advance at an agreed price, at a predetermined rate with a promise to deliver the crop at a predetermined date. This may hedge the risk and can ensure profit.

The transaction which farmer has entered is called a forward transaction and the contract which covers such transaction is forward contract. A forward contract is an agreement between buyer and seller, obligating the seller to deliver a specified asset of specified quality and quantity at the specified rate and at the specified place and the buyer is obligated to pay the price agreed upon.

Figure 1



Source: www.ipleaders.com

Figure 1 presents an example of a forward contract where a farmer agrees to sell 5 kg of wheat after 3 months at the predefined rate of Rs 40 per kg. Three months later on the date of execution farmer will deliver the 5kg wheat for Rs 200 to the customer. Now there could be three possibilities. Suppose on the date of execution, the spot rate is Rs 45, the customer will add Rs25 and farmer will lose Rs 25. In case the spot rate is Rs 40 only, then there will be no profit no loss. But if the price falls from Rs 40 to Rs 35, customer will lose Rs 25 and farmer will gain Rs 25. Due to the dynamic nature of various currencies the above stated possibilities will hold true for the foreign exchange market too.

14.4.2 Future Contracts: Future contracts are the standardised contracts to sell or buy financial instruments or physical commodities for a future delivery at an agreed price. Unlike forward contracts future contracts are traded on exchange. Futures contract does not carry any credit risk because the clearing house acts as counter-party to both parties in the contract.

Suppose a company exports its services to US and hence earns its revenue in Dollars. If a company would receive a payment of \$1 million in six months time, it cannot be sure as to what would be the Rupee value of this \$2 million after six months. Assuming that the current rate is Rs 50/\$, the value as per current rate would be Rs 50 million. Now suppose the actual forex rate after six months is Rs 40/\$ and hence the company receives Rs 40 million. In the reverse scenario of rupee depreciating vis-à-vis the dollar, a rate of Rs 55/\$ would lead to a gain of Rs 5 million. Hence, the company is exposed to currency risk. To hedge this risk, the company may sell dollar forward i.e. it may enter into an agreement to sell \$1 million after 6 months at a rate of Rs 55/\$. The condition in the forward contract is that there has to be party to take the reverse position

Forward Contract Vs Future Contract

Table 1 Forward Contract Vs Future Contract

Basis	Forward Contract	Future Contract
Nature	Traded over the counter	Traded on exchange
Contract	Personalized	Standardised
Settlement	At the end of the contract	Follows daily Settlement
Liquidity	Lesser liquid	More liquid
Margin Money	Not required	Margin money is required
Squaring off	Contract can be reversed only with the same party	Contract can be reversed with any party of the exchange.

Illustration: Let us take an example of a Reliance Future contract. What does the statement - “A has bought 1 lot of 250 shares of Reliance July Future @ Rs 700. Which means that the person has agreed to buy 250 shares of Reliance Industries on 26th July 2012 i.e...the expiry date at Rs 700 per share. Here, The underlying is the shares of Reliance Industries .The quantity is 1 lot, i.e. 250 shares. The expiry date is 26th July 2012, last Thursday of July, and The pre-determined price i.e.. the strike price is Rs 700.. If the actual price of Reliance is Rs 800 on the settlement day (26th July), the person buys 250 shares at the contracted price of Rs 700 and may sell it at the prevailing market price of Rs 800 thereby gaining Rs 100 per share in all the Rs 25,000. On the other hand if the price falls to 650 he loses Rs 50 per share i.e.. Rs 12,500 in total, as he has to buy at Rs 700 and the prevailing market price is Rs 650.

14.4.3 Options Contract

An option contract is an agreement between two parties to buy or sell securities at a specified price within a specified period of time, in exchange for a non refundable deposit. The unique feature of options contract is that it offers the buyers the right to buy but not the obligation to buy at the specified price or date. Similar to the futures contract, options contract also minimizes the risk for buyers by setting a pre determined price but without the obligation to execute the contract unlike futures contract. The seller of options contract is known as “options writer”. Unlike futures contract seller in options contract is compelled to execute the contract on the stipulated date and at stipulated price. There is no physical exchange of goods or documents takes place.

Important terms in options contracts are:

- **Strike price** is pre decided price at which transaction is going to be executed. Also known as exercise price.
- **Spot price** is the current price at which asset or securities are bought and sold.
- **Expiry Date** is the date on which the contract is going to be executed.
- **Quantity** is the quantum or asset or securities bought or sold.

Types of option contract

There are many types of options contract that are traded. Broadly, options contracts can be categorised as Put Option and Call option.

Put Options are the contracts where owner has the right to sell the underlying asset in the future at a predetermined date and price. If a party is expecting a fall in the future value of an underlying asset, it will buy a put option. The put contract gives the owner of the contract the right to sell the underlying asset on the maturity date but not the obligation to execute the contract. This process is known as exercising an option. There are two parties in the put option the writer and the holder. The writer of the put sells the underlying asset and takes the obligation to buy it at an agreed price. The writer of the put option has right to sell the underlying asset if he chooses to exercise his option. Puts can be based on any of underlying assets such as Stock in publically listed companies is common or based on indices, commodities, currencies, or a combination of different financial instruments. The parties in the put option do not keep the underlying securities actually and it is known as a naked put. Practically puts are rarely exercised and only a monetary exchange takes place at the time of execution o the contract.

Let's take an example, the current share price of Company A is Rs 50 per share, and it is expected to fall. A trader can go for a put option of lot size of 100 shares. If the share price goes down by Rs 10 to Rs 40 trader could close his position at a profit of Rs 10 per share, which at 200 shares gives you a profit of Rs 2,000.

Call Option is an option contract in which the buyer has the right to buy an underlying asset at a specified price i.e.. at a strike price , for a fixed period of time but at the same time buyer do not have any obligation to buy the option. Buyer of the call option will be known as holder of the option. For the writer or seller of a call option, it represents an obligation to sell the underlying security at the strike price if the option is exercised by the holder of the contract. The call option writer is paid a premium for taking on the risk associated with the obligation. The holder of a call pays a price to purchase the contract, but isn't obligated to proceed with buying the underlying security. If the holder decides and buys the security, this is known as exercising an option. The seller of the contract has to sell the underlying security if the buyer decides to exercise their option.

Suppose the Nifty is quoting around 7,000 points on the current day. If the investor is bullish about the market and expects index to reach the 7,100 level within the next one month, he may buy a one month Nifty Call option at 7,100.

Presume that this call option is available at the premium of Rs 50 per share and the current lot size of the call option is 50 units. Then the total premium that buyer has to pay is Rs 2500. If the index remains below 7,100 points for the whole of the next month until the contract expires, investor would not want to exercise option and purchase at 7,100 levels. And he has no obligation to purchase it either. Buyer could simply ignore the contract. All he has lost, then, is premium of Rs 2,500. If, on the other hand, the index crosses level of 7,100 points as expected, investor will buy at 7,100 levels. Buyer of the option will make profit only once the index crosses the level of Rs 7150. When the index is between 7,100 and 7,150 points, buyer of option will only begin to recover your premium cost. So, it makes sense to exercise option at these levels, only if buyer do not expect the index to rise further, or the contract reaches its expiry date at these levels.

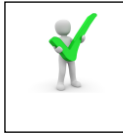
- **American Style Options** gives the right to the holder of the put option and the call option to exercise the contract any time before the expiry of the contract. It is an added advantage of flexibility to the holder of the contract.
- **European Style Options** do not gives the same flexibility to the holder of the contract as it is given in American style options. Here the holder of both the put and call option is compelled to execute the contract on the specified expiry date.
- **Exchange Traded Options** is the most common form of options. These are the option contracts which are listed on a stock exchange. These options can be traded using a service of a broker.

14.4.4 Swap Contracts

A swap is a derivative contract through which two parties exchange financial instruments. These instruments can be almost anything, but most swaps involve cash flows based on a notional principal amount that both parties agree to. Swaps are traded over the counter and are customized contracts. The assets exchanged in the swap contracts are assets, currencies, liabilities, securities, commodities etc.

Generally, institutions and banks use swap for risk management. Some qualified individuals may also be suitable users of these basic derivatives products. **Swaps are gaining popularity at an** increasing rate. The marketers are scheming innovative and intricate swap structures to provide customized solutions to the traders. Traditionally, swaps had been used when two companies had complementary requirements. The first time swaps were negotiate in 1982 and now the market for swap is very huge. A swap is a derivative in which two counterparties agree to exchange one source of cash flows against another source of cash flow. Swaps can be used to hedge interest rate risks or to speculate on changes in the underlying prices. Swaps are not used in equity markets in India.

Note: Swaps will be dealt in detail in Unit XVI Futures and Swaps



Check Your Progress-A

Q1. Explain the term derivatives with suitable examples.

Q2. Write a short note on futures contract.

Q3. Distinguish between Futures and Forward contract.

14.5 PARTICIPANTS OF DERIVATIVES MARKET

There are 3 types of participants in the Derivatives Market:

- **Speculator:** A trader who enters the futures market for pursuit of profits, accepting risk in an attempt. They provide liquidity and depth to the market.
- **Hedger:** A hedger is someone who faces risk associated with price movement of an asset and who uses derivatives as means of reducing risk. They provide economic balance to the market. They help in bringing about price uniformity and discovery.
- **Arbitrageur:** A person who simultaneously enters into transactions in two or more markets to take advantage of the discrepancies between prices in these markets. Arbitrageurs also help to make markets liquid, ensure accurate and uniform pricing, and enhance price stability. Arbitrage involves making profits from relative mispricing.

14.6 UNDERSTANDING RISK IN DERIVATIVES

Though trading in derivatives is done to hedge the risk and assuring the future returns, still derivatives bear some sort of risks due to its nature. The risk borne by derivatives can be categorized as follows:



Market Risk is the risk that is experienced by the whole market due to macro-economic factors. This type of risk cannot be eliminated even by diversification. Sources of market risk include depression in the market, political disorder, and changes in interest rates, natural calamity and terrorist assault. This type of risk is also known as systematic risk as it is systematically distributed on the whole market. Investors take decisions and take positions in the derivatives on the basis of certain assumptions, or considering technical and fundamental analysis or other factors that lead them to certain conclusions about how an investment is likely to perform. But when these assumptions go wrong due to market factors the expected outcomes vary.

Counterparty Risk - Derivatives contract involve risk related with the counterparty that it is not going to fulfil its contractual obligations. It is a risk to both the parties and should be properly valued at the time of contract. Counterparty risk is also known as default risk. Derivatives with higher counterparty risk will pay higher premium. For example, if Mr A agrees to lend funds to Mr B up to a certain amount, there is an expectation that Mr A will provide the cash, and Mr B will pay those funds back. There is still the counterparty risk assumed by both parties. Mr B might not repay the loan or Mr A might not provide the agreed fund to Mr B. This risk of non repayment of funds is counterparty risk.

Liquidity risk arises when the underlying investment or asset is no longer marketable and cannot be bought and sold quickly to minimize losses. Liquidity risk is associated with the investments where there is large volatility in the prices; the thumb rule is that the

smaller the size of the security or its issuer, larger will be the liquidity risk. The 9/11 attack in 2007—08 lead investors to sell their stock at any price due to large fall in the prices and resulted in market illiquidity later. Investor must analyse the liquidity risk before entering into any contract.

Interconnection Risk

The derivatives are dependent on its underlying assets' performance. Apart from its underlying assets, it is also affected by external factors. These external factors and all the assets in a derivative are all inevitably interconnected. One market can greatly affect what happens to another market, and that market affects another market, and so on. If an investor is against this situation, it is possible to lose whole investment.

14.7 HEDGING

A hedge is a financial transaction that is applied to reduce or eliminate the risk linked to another transaction. For instance, an investor having Reliance Ltd share may be afraid that the share price will decrease in value, but may wish to hold the stock for another six months due to tax reasons. If this investor deals with another investor to sell him Reliance Ltd share after six months at the present price, he will completely remove the risk related with holding Reliance Ltd share. Hedging is not always a good idea as elimination of risk leads to reduction of potential profits too. If Reliance Ltd share rises considerably over the next six months, locking in the current price for the future sale will turn out to be an unprofitable decision.

14.8 SUMMARY

In this chapter we discussed about derivatives, that it is a general term. Derivative literally means 'derived from'. These are financial instruments that can be bought and sold. The various types of derivatives are Forward, Futures, options and swaps. The main function of any derivative contract is the "right to buy" or the "right to sell". This right, to buy or sell, ceases on the cut off date decided by an exchange before which you have to either exercise your right or sell off the right to another person. The 'cost of buying a right' is very less compared to the actual stock price. In other words, the buyer of a derivative gets a right over an underlying asset which after a certain period of time might result in the buyer buying or selling asset. An underlying asset could be anything like commodities, bonds, treasury bills, index funds etc. The transaction that results in a execution of right without actually transacting the asset becomes a derivative instrument. All derivative instruments are not the same. They differ when it comes to the kind of obligation it creates on the holder.



14.9 GLOSSARY

- **Risk-** Possibility of losing money invested in any of the investments.
- **Hedging-** Strategically using investment instruments in the market to offset risk of any adverse price movement. Investor hedge one investment by investing in some other investment. Hedging is investing in two negatively correlated securities.



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14.12 TERMINAL QUESTIONS

1. Explain the term derivatives and its various types.
2. Write a detailed note on risk associated with derivatives.
3. Distinguish between Futures and options.
4. Write a detailed note on Options contract and explain its different types.

UNIT 15 OPTIONS, RIGHTS, WARRANTS AND CONVERTIBLES

- 15.1 Introduction**
- 15.2 Objectives**
- 15.3 Defining Options**
- 15.4 Types of Options**
- 15.5 Defining Rights**
- 15.6 Defining Warrant**
- 15.7 Features of Warrant**
- 15.8 Types of warrant**
- 15.9 Why companies need warrant**
- 15.10 Distinction between options and warrant**
- 15.11 Describing convertibles**
- 15.12 Types of Convertibles**
- 15.13 Conversion rate**
- 15.14 Summary**
- 15.15 Glossary**
- 15.16 Reference/ Bibliography**
- 15.17 Suggested Reading**
- 15.18 Terminal and model questions**

15.1 INTRODUCTION

In the last few decades there has been a most important shift in the way in which people invests. The willingness to raise income among people has led to evolution of innovative financial products that fulfils the twin objective of maximizing returns and minimizing risk. We have come through a sustained period of deregulation and globalization in the world's markets. Financial innovation and the introduction of new securities have been usual as a result of the free markets that have spread throughout the world. As discussed in the previous unit that derivatives are the innovative financial instruments the main

objective of which is to hedge the risk. Taking that unit ahead, this unit is going to discuss warrants and convertibles along with the options contract and right issue. Warrants and call options are securities that are similar in many ways, but they also have some noteworthy differences. A warrant is a security that gives the holder the right, but not the obligation, to buy a common share directly from the company at a fixed price for a pre-defined time period. Similar to a warrant, a call option (or “call”) also gives the holder the right, without the obligation, to buy a common share at a set price for a defined time period.

15.2 OBJECTIVES

After going through this unit, students will understand the following concepts:

- The concept of options
- Types of Options
- Right Issue
- Why do companies issue rights?
- Warrant
- Features of warrant
- Types of warrant
- Why companies need warrant
- Distinction between options and warrant
- Describing convertibles
- Conversion rate

15.3 DEFINING OPTIONS

Options are a type of derivative contracts. They derive their value from an underlying asset. Options are contracts that give the right, but not the obligation to buy or sell an underlying asset at a set price on or before a certain date. The right to buy is called a call option and the right to sell is a put option. The only difference between future and options contract is that futures or forwards bestow both the right and obligation to buy or sell at the future. An options contract does not carry the same obligation that is why it is called an “option.” Over the last few years, domestic stock markets have witnessed an increased interest in the Futures & Options (F&O) segment. There are lots of reasons for this increased interest in option trading in India.

Primarily, lack of returns in the cash segment due to a prolonged economic slowdown has driven away many stock market participants. Many others have taken to option trading because it requires less capital as it provides higher leverage. i.e. you can put a

small margin amount of the whole transaction value to take a trading position). Further, it is possible to make profits by betting on the directional movement of a stock or the market as a whole unlike the cash market where you typically buy and hold the stock until it appreciates.

Important features in options contracts are:

- **Strike price** is pre decided price at which transaction is going to be executed. Also known as exercise price.
- **Spot price** is the current price at which asset or securities are bought and sold.
- **Expiry Date** is the date on which the contract is going to be executed.
- **Quantity** is the quantum or asset or securities bought or sold.

15.4 TYPES OF OPTION CONTRACT

The following are types of option contract;

- **American Style Options** gives the right to the holder of the put option and the call option to exercise the contract any time before the expiry of the contract. It is an added advantage of flexibility to the holder of the contract.
- **European Style Options** do not give the same flexibility to the holder of the contract as it is given in American style options. Here the holder of both the put and call option is compelled to execute the contract on the specified expiry date.
- **Exchange Traded Options** is the most common form of options. These are the option contracts which are listed on a stock exchange. These options can be traded using a service of a broker.

15.5 DEFINING RIGHTS

Rights are issued to the existing shareholders at a discount in proportion to the number of shares already owned. Rights are issued only for a short period of time, after which they expire. A company issues rights when it is in need of funds for the expansion projects, so the one source of funding is issuance of rights to the existing shareholders. A company would normally take this route if raising funds through loans is too expensive an option. The companies even to pay off their existing debt or to improve their debt to equity ratio may opt for right issue. Rights issued give first preference to current shareholders at a discounted price, before the shares are made available in the public markets. However, the addition of new shares to existing shares in the market creates a share dilution where each share owned is devalued. When a shareholder is given rights, he has a couple of options at his behest. He can take advantage of the offering by exercising the rights given to him.

The shareholders if not found suitable may not exercise the right for a number of reasons.

- If the shareholder does not have the cash on hand to subscribe to the offering,
- The shareholder may let the rights sit in his account until they become worthless.
- If the shareholder has lost hope in the company or does not believe in the project that the company is raising capital for.
- In some cases, a shareholder may only exercise some of the rights to purchase additional discounted shares. The remaining rights, not subscribed to may be sold on the market.

Why do companies offer right issue?

Companies issue rights to raise additional capital for many reasons. A company may need extra funds to meet its current financial obligations, or for expansion plans or projects, such as expanding vertically or horizontally. A rights issue is an issuing of rights by a company to its shareholders to purchase extra stock shares at a discounted price. The shareholders have the right to transfer the rights to underwriters or another shareholder. A right offering leads to dilution of shareholding as it spreads a company's net profit over a wider number of shares. As a result, the company's earnings per share decline. However, if the company is using the extra capital to fund expansion, it can eventually lead to increased capital gains for shareholders.

For example, 1:4 rights issue means an existing investor can buy one extra share for every four shares already held by him/her. Usually, the price at which the new shares are issued by way of rights issue is less than the prevailing market price of the stock, i.e. the shares are offered at a discount.

A rights issue affects two important essentials of a company i.e. its equity capital and market capitalisation. In case of a rights issue, since additional equity is raised, the issuing company's equity base extends to the level of the issue. Theoretically, every new issue has some sort of diluting effect and hence as a result there will be a fall in the market price in proportion to an increase in the number of shares.

15.6 DEFINING WARRANT

A warrant is a derivative like an options contract that gives the right, but not the obligation, to buy or sell a security – usually equity – at a certain price before expiration. A warrant is issued by a company for the purpose of raising capital. Warrants usually carry a longer maturity, varying from 3 years to 10 years. The price at which the underlying security can be bought or sold is referred to as the exercise price or strike price. Similar to an American option, American warrant can be exercised at any time on or before the expiration date, while European warrants can only be exercised on the expiration date. Warrants that confer the right to buy a security are known as **call**

warrants; those that confer the right to sell are known as **put warrants**. Warrants are longer-dated options and are generally traded over-the-counter.

15.7 FEATURES OF A WARRANT

- **Exercising:** When the holder of the warrant shows his willingness to buy the shares underlying warrant, it is said to be exercising the warrant.
- **Premium:** A warrant's premium is that extra amount which has to be paid for shares when buying them through warrants.
- **Gearing or leverage:** It is the difference in the exposure of returns when you buy stocks through warrant and if you buy the same stocks directly from the market.
- **Expiry Date:** The expiry date is the date on which the right to exercise ceases to exist.
- **Restrictions on exercise:** Like options, there are different exercise types associated with warrants such as American style in which the holder can execute transaction anytime before expiration and European style where holder can only exercise on expiration date

15.8 TYPES OF WARRANT

- **Equity warrants** can be of two types i.e. call and put warrants. Callable warrants offer investors the right to buy shares of a company from that company at a specific price at a future date prior to expiration. On the other hand puttable warrants offer investors the right to sell shares of a company back to that company at a specific price at a future date prior to expiration.
- **Basket warrants:** As with a regular equity index, warrants can be classified at, for example, an industry level. Thus, it mirrors the performance of the industry.
- **Index warrants:** Index warrants use an index as the underlying asset. Your risk is dispersed—using index call and index put warrants—just like with regular equity indexes. It should be noted that they are priced using index points. That is, you deal with cash, not directly with shares.
- **Wedding warrants** are attached to some debentures and can be exercised only if the debentures are given up.
- **Detachable warrants** are the warrant part of the security can be detached from the debenture and traded separately.
- **Naked warrants** are issued without an accompanying bond and, like traditional warrants, are traded on the stock exchange.

- **Cash or Share Warrants** in which the settlement may be in the form of either cash or physical delivery of the shares - depending on its status at expiry.

15.9 WHY COMPANIES NEED WARRANTS

Warrants are used by companies as a source to raise capital. The Securities and Exchange Commission is the regulating authority which decides the number of shares a company is allowed to issue. Some companies will issue warrants as a way to sweeten a deal during a takeover or restructuring.

Warrants give investor an opportunity to earn higher returns but at a higher risk. The maximum that an investor can lose is its original investment. Buying warrants is very easy as compared to any other investments and they are regularly traded on stock exchanges. Warrants are very liquid as they are quickly sold.

15.10 DISTINCTION BETWEEN WARRANTS AND OPTIONS

Though there is no big difference in options contract and warrant still they can be differentiated on some grounds. A stock option is a contract between two people that gives the holder the right, but not the obligation, to buy or sell stocks at a specific price and at a specific date. Options contract are dealt when it is perceived that the price of a stock will go up or down depending on the option whether it is a put option or a call option. For example, if a stock currently trades at Rs 50 and you believe the price will rise to Rs 75 next month, you would buy a call option today so that next month you can buy the stock for Rs 50, then sell it for Rs 75, and make a profit of Rs 25. On the other hand a stock warrant is similar to stock options as it gives the right to purchase a company's stock at a specific price and at a specific date from the company itself. Unlike a stock option, a stock warrant is issued directly by the company. When a stock option is exercised, the shares usually are received or given by one investor to another; when a stock warrant is exercised, the shares that fulfil the obligation are not received from another investor, but directly from the company.

Companies issue stock warrants to raise money. When stock options are bought and sold, the company that owns the stocks does not receive any money from the transactions. However, a stock warrant is a way for a company to raise money through equity. A stock warrant is a smart way to own shares of a company because a warrant usually is offered at a price lower than that of a stock option. The longest term for an option is two to three years, while a stock warrant can last for up to 15 years. The option contract is an investment for short term whereas warrants are the long-term investment.

Table 1 Distinction between stock options and warrants

Stock Options	Warrants
Issued by one investor to another.	Issued directly by the company.
Lasts up to 3 Years	May last upto 15 Years
Short term Investment	Long term Investment
Objective of the investor is to hedge the risk	Objective of the company is to raise capital
Investors can write options contract	Company writes the contract
Traded on Exchange	Traded over the counter

Warrants are no longer traded in the U.S., but are heavily traded in Hong Kong, Germany and other countries.



Check Your Progress-A

Q1. Explain the term options with suitable examples.

Q2 What do you mean by rights and why do companies issue rights?

Q3. Why companies need warrants?

Q4. Discuss various features of warrant.

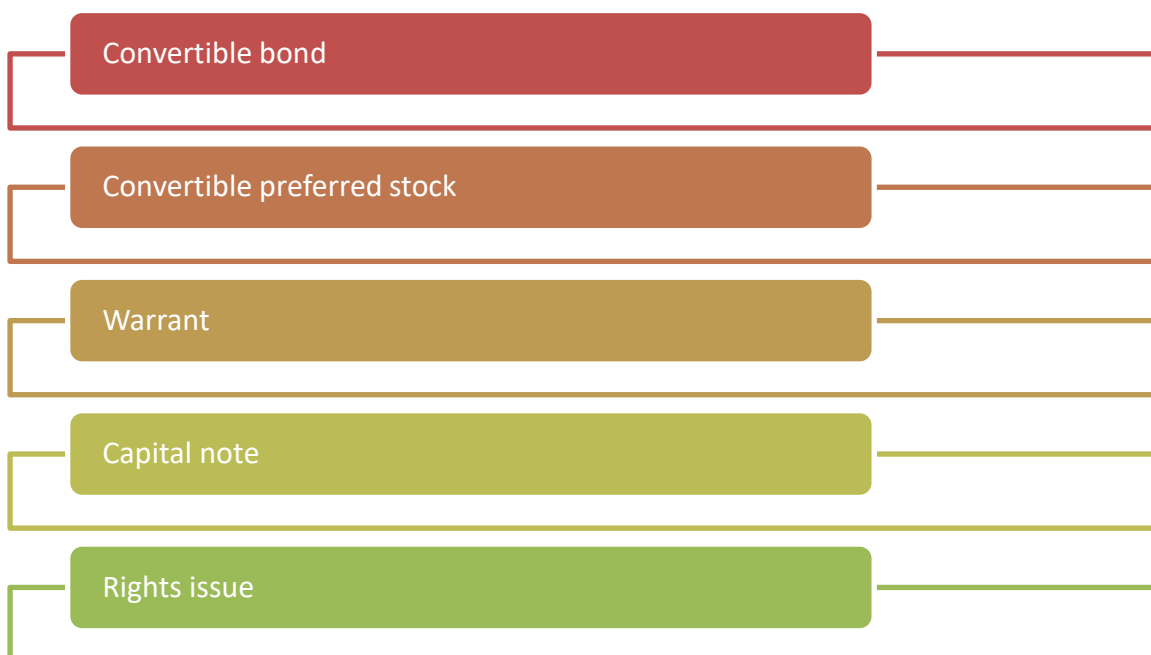
Q4. What do you mean by conversion rate?

15.11 DESCRIBING CONVERTIBLES

Convertibles are the financial instrument that can change their form at a pre agreed time and exchange ratio. The most common convertible securities are convertible bonds or convertible preferred stock, which can be changed into equity or common stock. A convertible security pays a periodic fixed amount as a coupon payment in the case of convertible bonds or a preferred dividend in the case of convertible preferred shares, and it specifies the price at which it can be converted into common stock. Convertible bonds are most often allowing bond holders to convert their creditor position to that of an equity holder at an agreed-upon price. Convertibles are ideal for investors demanding greater potential for appreciation than bonds provide, and higher income than common stocks offer. Convertible bonds, offer a lower coupon over a standard bond. Though, the option of conversion of bond to common stock adds value for the bond holder. Mainly there are

three types of investments; bond, equity and their hybrid. Hybrid is the combination of bond and equity. Convertibles are the hybrid investments as they have return contribution from both bonds and equity. Convertibles fall into the category of debt where company pays a fixed rate of interest referred as coupon rate. Convertibles give right of conversion of bond into equity to the holder of the bond. Convertibles are the preferred investments as they give protection against deep losses and they also give some appreciation in the returns. Most convertible bonds are callable, which means the company can force investors to convert.

15.12 TYPES OF CONVERTIBLES



- **A convertible bonds** or a convertible debenture if it has a maturity of greater than 10 years is a type of bond that the holder can convert into a specified number of shares of equity stock in the issuing company or cash of equal value. It is a hybrid security with debt- and equity-like features.
- **Preferred stock** also known as preferred shares or preference shares is a hybrid stock which possess the quality of a debt instrument and later can be converted into equity stocks. Preferred stock holders at the time of dividend distribution get the priority over equity shareholders at the time of liquidation. Just like bond holders preferred stock holders also get a fixed rate of interest but bond holders have the right to get interest payment prior to the preference shareholders.
- **Warrant** is a security that entitles the holder to buy the underlying shares of the issuing company at a fixed price called exercise price until the expiry date.
- **Capital notes** are similar to warrants, except that they often do not have an expiration date or an exercise price. A capital note is a bond with a very long maturity horizon, reaching several decades. Unlike equity securities, these capital notes *do* mature at some point; therefore, they form part of the company's liabilities and not part of equity. Since the maturity of these capital notes is far away, they are treated as equity in practice.
- **A rights issue** is a dividend of subscription rights to buy additional securities in a company made to the company's existing security holders. When the rights are for equity securities, such as shares, in a public company, it is a non-dilutive pro rata way to raise capital.

15.13 CONVERSION RATE

The conversion rate is the rate at which investors can convert bonds into stocks, that is, the number of shares an investor gets for each bond. The conversion rate may be fixed or change over time depending on the terms of the offering. A conversion rate of 50 means that for every Rs 1,000 of par value the convertible bondholder converts, he receives 50 shares of stock. It is not always profitable to convert bonds into equity. Investors can determine the breakeven price by dividing the selling price of the bond by the conversation rate.

In this example, a convertible bond has a par value of Rs 1,000 and a selling price of Rs 800. Shares of this company are selling for Rs 40. The conversion rate is 25 shares. The share price at which the convertibility feature becomes profitable is calculated by dividing Rs 800 by 25, the conversion rate. The answer is Rs 32, which is much less than Rs 40. An investor can decide to convert and take profit at this point. If the bond never becomes profitable, the holder receives the bond's stated interest rate.

15.14 SUMMARY

In this unit we have discussed about options, rights, warrant and convertibles. This unit gives the insights of options and its types. Further it deals with the right issues and suggest about why companies opt for right issue. In addition to options and rights this unit covers warrants, its features and types. The unit answers that why companies issue warrants. This unit distinguishes between options and warrants. The last section of this unit deals with convertibles and its types along with conversion rate.



15.15 GLOSSARY

- **Debt** financing occurs when a firm raises money for working capital or capital expenditures by selling bonds, bills or notes to individuals and/or institutional investors.
- **Preferred Stock** A preferred stock is a class of ownership in a corporation that has a higher claim on its assets and earnings than common stock. Preferred shares generally have a dividend that must be paid out before dividends to common shareholders, and the shares usually do not carry voting rights.



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15.18 TERMINAL QUESTIONS

1. Explain the term warrants and its various types.
2. Write a detailed note on convertibles and describe its types.
3. Distinction between Warrants and options.
4. Describe Right issue in detail.

UNIT 16 FUTURES AND SWAPS

16.1 Introduction

16.2 Objectives

16.3 Describing futures

16.4 Contractual terms of futures

16.5 Explaining swaps

16.6 Features of swap

16.7 The swap market

16.8 Types of swaps

16.9 Distinction between Swap and futures

16.10 Summary

16.11 Glossary

16.12 Reference/ Bibliography

16.13 Suggested Reading

16.14 Terminal Questions

16.1 INTRODUCTION

We have already discussed about various types of derivatives in the Unit XIV Derivatives. This unit Futures and Swaps will focus on more deep insights of these two types of derivatives i.e. Futures and Swaps. Swaps and futures are the derivatives that seems to be similar in nature. Each type of derivative has its own unique benefits and associated risks too. Before investing in any of the derivative there should be a clear understanding of basics of the same. Here in this unit, we are going to focus mainly on Futures and swaps.

16.2 OBJECTIVES

This unit is going focus on the following points:

- Describing futures contract
- Contractual terms of futures contract
- Explaining swaps

- Features of swap
- The swap market
- Types of swaps
- Distinction between swaps and futures

16.3 DESCRIBING FUTURES

We know that the derivatives are the contracts whose value is dependent on an underlying asset. The price of the derivative is not its inherent value but is derived from some other underlying asset. Future contracts are the derivatives that counteracts on all the shortcomings of a forward contract. Like in forward contract the quantity, the payment method, the delivery date, the price, – everything differs from one contract to another and performance of the contract is not ensured. In short, nothing is regulated in forward contracts. These are customized contracts according to circumstances and can be written for any amount and any terms. We can only differentiate forward and future contract on the basis of regulation i.e. Futures market is well regulated. A ‘future’ is an agreement between the seller and the buyer to deliver a specified quantity of a share/commodity/or any other asset at a fixed time in the future at a price fixed between the parties. An organization called clearing house regulate both the parties to ensure that both the parties fulfil their obligations.

16.4 CONTRACTUAL TERMS IN FUTURES CONTRACT

They are following contractual terms in futures contract;

- **Underlying asset**

The underlying asset is that base product which gives value to futures contract like share market indices, shares, commodities, currency, interest rates, etc.

- **Lot Size**

It is the quantum of the underlying asset specified by exchange. Exchanges decides lot size for each type of contract. A lot size is not divisible. For example, a lot size of Wipro shares is of 300 shares therefore value of 1 lot of Wipro shares at the rate of Rs 1200 will be Rs 3, 60,000. Lot sizes are decided by exchanges and these lot sizes differ from exchange to exchange. Stocks are selected by exchanges on basis of criteria specified by the SEBI.

- **Value of a lot**

Value of a lot is derived by per unit price of the stock and no of shares in the lot. In most of the cases it is more than Rs 2 Lacs.

- **Margin Money**

Margin money is a small percentage of full value of a contract when he enters into the contract. Usually, margin money would be a percentage ranging from 10% to as high as 35 or 40% depending upon the volatility in the market. Margin money is specified by SEBI.

- **Duration of the Contract**

One future contract holds for at least three months.

- **Long and short position**

Long position is unsettled or open purchase position at any point of time and short position is unsettled sales position at any time point of time is called a short position.

- **Spot and Spread**

The current market price is called the 'spot price' and the prices of futures contracts are called the 'futures price'. The spread is a general term and it is the difference between the 'bid price' and 'ask price'. The term spread used to describe the difference between these two prices. For example – Wipro August futures may be trading at Rs 850 per share and December futures may be trading at say, Rs 900. The difference is called spread.

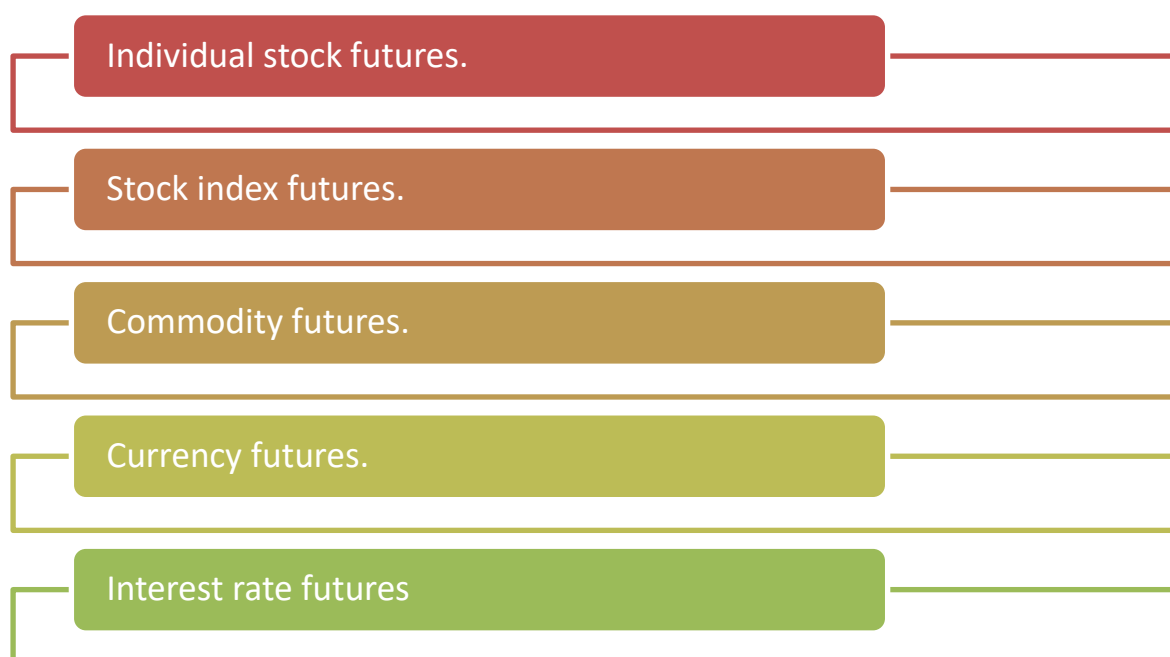
- **Expiry date of a contract**

Futures contract expires on the last Thursday of a month. On that date the contract ceases to exist and all the obligations must be fulfilled and the rights, if any, become invalid subsequently. Near month contract expire on the last Thursday of that month. For example – Tech Mahindra July contract (1 month) would expire on the last Thursday of July while its September contract which is available for trading in July (3months contract) would expire on the last Thursday of September. If the last Thursday is a holiday like Gandhi Jayanti, the expiry will be fixed for the next day. In case of unforeseen circumstances, the maturity date may be shifted to another day by the SEBI through a notification.

- **Settlement**

Mostly in futures market, actual delivery never takes place. Futures are cash settled. Futures are used more for hedging purpose and therefore no one takes the delivery on the underlying asset. For example – let's take the case of a person who has taken two futures long positions of Ambuja cement at Rs 550. At the expiry of a futures contract, if the price of an underlying asset i.e..Ambuja Cement shares is more than Rs 550, the exchange will pay the difference plus the initial margin as settlement value. If the price has declined below Rs 550, the trader will have to pay the difference to the exchange. The settlement takes place by taking an opposite position to the one have. When the contract is settled, the initial margin paid plus or minus any gains or losses will be credited back to trader's account.

- **Types of futures**



1. Individual stock futures

Individual stock futures are the simplest of all derivative instruments. Stock futures were officially introduced in India on 9th November 2001. Before that, the local version of stock futures called '*badla*' were traded which was eventually banned by the Securities Exchange Board of India in July 2001.

2. Stock index futures.

The underlying asset is the stock index. Suppose the S&P CNX Nifty popularly called the 'nifty futures'. Stock index futures are more useful when speculating on the general direction of the market rather than the direction of a particular stock. It can also be used to hedge and protect a portfolio of shares. So here, the price movement of an index is tracked and speculated.

3. Commodity futures

These are similar to the individual stock futures but the underlying asset would be a commodity like gold or silver. In India, Commodity futures are mainly traded in two exchanges – MCX (Multi commodity exchange) and NCDEX (National commodities and derivatives exchange). Unlike stock market futures where a lot of parameters are measured, the commodity market is predominantly driven by demand and supply.

The term 'commodity' includes –

- i. Bullion – gold and silver
- ii. Metals – Aluminium, copper, lead, iron, steel, nickel, tin, zinc
- iii. Energy-crude oil, gasoline, heating oil, electricity, natural gas

- iv. Weather- carbon
- v. Oil and oil seeds – crude palm oil, kapsica Khali, refined Soya oil, Soya bean
- vi. Cereals- barley, wheat, maize
- vii. Fiber- cotton, kapas
- viii. Species-cardamom, coriander, termuric etc
- ix. Pluses – chana
- x. Others- like potatoes, sugar, almonds, gaur

4. Currency futures

The underlying asset in the currency futures will be currency of some other country.

The MCX-SX exchange trades the following currency futures:

- a. Euro-Indian Rupee (EURINR),
- b. Us dollar-Indian rupee (USDINR),
- c. Pound Sterling-Indian Rupee (GBPINR) and
- d. Japanese Yen-Indian Rupee (JPYINR).

5. Interest rate futures.

Interest rate futures are traded on the NSC. These are futures based on interest rates. In India, interest rates futures were introduced on August 31, 2009. Buying an interest rate futures contract will allow the buyer to lock in a future investment rate.

16.5 SWAPS

A swap is a derivative contract through which two parties exchange financial instruments. These instruments can be almost anything, but most swaps involve cash flows based on a notional principal amount that both parties agree to. Swaps are traded over the counter and are customized contracts. The assets exchanged in the swap contracts are assets, currencies, liabilities, securities, commodities etc.

Generally, institutions and banks use swap for risk management. Some qualified individuals may also be suitable users of these basic derivatives products. Swaps are gaining popularity at an increasing rate. The marketers are scheming innovative and intricate swap structures to provide customized solutions to the traders. Traditionally,

swaps had been used when two companies had complementary requirements. The first-time swaps were negotiated in 1982 and now the market for swap is very huge.

16.6 FEATURES OF SWAP CONTRACT

The following are the features of SWAP contract;

- It involves multiple payments.
- In swaps one party likely to pay a fixed rate on the other hand the another party pays at a floating rate.
- When initiated, no party exchanges any cash; a swap has zero value at the beginning.
- Payment is made by the parties on the settlement date. When parties agree just to exchange the difference that is known as netting.
- Termination date is the final day of payment.
- Usually traded in the over-the-counter market. This means they are subject credit risk or counter party risk.

16.7 THE SWAPS MARKET

Firms and financial institutions dominate the swaps market, with few individuals if any participating. Because swaps occur on the OTC market, there is always the risk of a counterparty defaulting on the swap. The dynamic environment of the financial market has led to the growth of swaps. Unique features of swaps make it an appropriate investment to hedge the risk. The market imperfections like arbitrage opportunities, tax regulations, capital controls, etc., need protection against interest rate and exchange rate risk. Thus, swaps are powerful tool for various institutions and investors to minimize risk against the dynamic environment. Various institutions agree to such an exchange because in future repayment scenario may change. The other reason is that new available alternates may have better returns as compared to the existing one.



Check Your Progress-A

Q1. Explain the term Futures with suitable examples.

Q2 What do you meant by swaps.

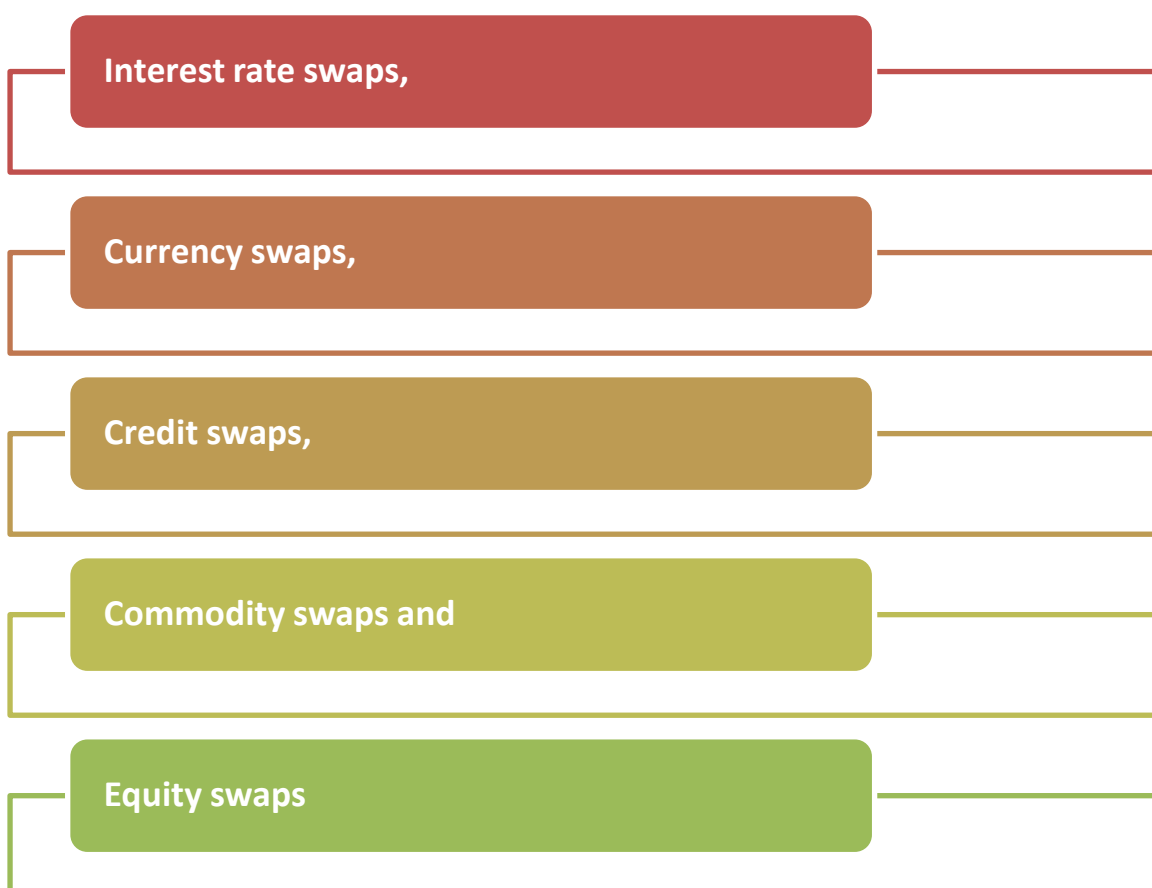
Q3. What are the contractual terms of swaps?

Q4. Write features of swap.

Q4. Give full form of LIBOR and HIBOR.

16.8 TYPES OF SWAPS

The five most common types of swaps are;



16.8.1 Interest rate swaps are the most common type of swap contract. Interest rate swaps are used for speculating and hedging. The two parties involved exchange cash flows on the interest rate. There are different types of interest rate swaps such as Fixed-for-floating rate swaps, floating-for-floating rate swaps and fixed-for-fixed rate swaps. The two important terms in it are LIBOR and HIBOR.

LIBOR-The London interbank Offered Rate is the average of interest rates estimated by each of the leading banks in London that it would be charged were it to borrow from other banks. **HIBOR** Hong Kong Interbank Offer Rate - ' An interest rate stated in Hong Kong dollars on the lending and borrowing between banks in the Hong Kong interbank market.

When the present market is not able to provide cost effective loan to any institution, investor or trader, they go for some other market where a cost-effective loan is available.

In case, an investor may get cheaper loan in a floating rate market, but he prefers a fixed rate. Therefore, Interest rate swaps allow the investor to switch the cash flows, as per their requirement and desired. For example, there are two parties A and B. A prefers fixed rate loans and the choices available to him are either floating rate (LIBOR+0.5%) or at fixed rate (10.75%). Whereas B prefers floating rate loan and has loans available at either floating rate (LIBOR+0.25%) or at fixed rate (10%). Due to her better credit

rating with the lender, B has the advantage over A in both the floating rate market (by 0.25%) and in fixed rate (by 0.75%). B's advantage is greater in the fixed rate market, so he goes for fixed rate loan. However, since he prefers the floating rate, he gets into a swap contract with a bank to pay LIBOR and receive a 10% fixed rate.

The most fundamental type of swap is a plain vanilla interest rate swap. In this type of swap, parties agree to exchange interest payments. For example, imagine, ICICI Bank agrees to make payments to HDFC Bank based on a fixed interest rate, while HDFC Bank agrees to make payments to ICICI Bank based on a floating interest rate.

Let's suppose ICICI Bank owns a \$10 million investment that pays it the London Interbank Offered Rate, or LIBOR, plus 1% every month. Therefore, as LIBOR fluctuates, the payment the bank receives changes. Now, assume HDFC Bank owns a \$10 million investment that pays it 2.5% every month. Therefore, the payment it receives is fixed.

16.8.2 Currency Swap

Currency swaps are very prominent financial instruments used by banks, financial institutions and multinational corporations. The currency swaps functions like interest rate swaps but have their own unique characteristics. A currency swap involves exchanging principal and fixed interest payments on a loan in one currency for principal and fixed interest payments on a similar loan in another currency. For example, an Indian investor needs US\$2 million. If he borrows it from an US bank there is a risk that value of rupee may fall sharply and his debt burden get raised in terms of rupees. The current value of his loan @ (\$1= Rs 70) in terms of rupees is Rs 14 Crores. If the value of rupee falls to Rs 100, then loan amount on maturity will be Rs 20 Crores. So, this risk of rupee devaluation could be hedged through currency swap. The investor has to identify another in US who needs Rs 14 Crores. If both the investors get mutually agree first investor will give second investor Rs 14 Crores and the second investor in turn will give US\$2 million to the Indian investor. Both the investor will pay interest at the prevailing rate. At the end of the term both the investors will re-exchange their original principal amounts.

This arrangement is called currency swap. Currency swap is generally done by business firms and governments. Currency swaps are tailored arrangements matching to the needs of both the parties. The main advantage of currency swap is that it reduces foreign exchange risks and interest rate risk.

16.8.3 Credit Default swap

CDS was introduced by JP Morgan in 1997. Credit default swaps (CDS) are a type of insurance against default risk by a particular company. A credit default swap is a type of swap that transfers the credit exposure of fixed income products between two or more parties. A credit default swap is the most common form of credit derivative and may involve municipal bonds, mortgage-backed securities or corporate bonds.

A CDS contract is like insurance because it provides the buyer of the contract, protection against default s like lower credit rating, or another depressing event which is known as “credit event”. The seller of the contract bears the credit risk that the buyer avoids in exchange for a periodic protection fee just like an insurance premium. CDS seller will only pay in case of happening of any credit event. It is important to note that the CDS contract is not actually tied to a bond, but instead references it. For this reason, the bond involved in the transaction is called the "reference obligation." A contract can reference a single credit, or multiple credits. In the event of a default, the buyer receives the face value of the bond or loan from the protection seller. From the seller's perspective, CDS provides a source of easy money if there is no credit event.

The company is called the reference entity and the default is called credit event. It is a contract between two parties, called protection buyer and protection seller. Under the contract, the protection buyer is compensated for any loss emanating from a credit event in a reference instrument. In return, the protection buyer makes periodic payments to the protection seller. In the event of a default, the buyer receives the face value of the bond or loan from the protection seller. From the seller's perspective, CDS provides a source of easy money if there is no credit event. CDS was introduced by JP Morgan.

For example, there are two parties A and B enter in a seven-year CDS. In this, A is the CDS buyer and B is the CDS seller. The notional principal is Rs 50 crore and the CDS buyer agrees to pay 1% annually to the CDS seller. If the credit event does not occur, the protection buyer keeps on paying 1% of Rs 50 crore, which is Rs 50 lacs, to the protection seller every year.

On the other hand, if a credit event occurs, the CDS buyer will be compensated fully by the CDS seller. The settlement of the CDS takes place either through cash settlement or physical settlement.

16.8.4 Commodity Swap

Commodity swaps are traded over-the-counter markets since the middle of the 1970s. A commodity swap is a contract where two parties agree to exchange cash flows, which are dependent on the price of an underlying commodity. A commodity swap is used to hedge the risk against the volatility in the price of a commodity. Commodities are physical assets such as precious metals, base metals, energy stores (such as natural gas or crude oil) and food (including wheat, pork bellies, cattle, etc.). A commodity swap consists of a floating-leg component and a fixed-leg component. The floating-leg component is tied to the market price of the underlying commodity or commodity index, while the fixed-leg is specified in the contract. Most common commodity swaps are based on oil.

16.8.5 Equity Swap

In an equity swap, two parties agree to exchange a set of future cash flows periodically for s specified period of time. Once leg of the equity swap is pegged to a floating rate

such as LIBOR or is set as a fixed rate. The cash flows on the other leg are linked to the returns from a stock or a stock index. The leg linked to the stock or the stock index is referred to as the equity leg of the swap. Most equity swaps today are conducted between large financing firms such as auto financiers, investment banks and capital lending institutions. Equity swaps are typically linked to the performance of an equity security or index and include payments linked to fixed rate or floating rate securities.

16.9 DISTINCTION BETWEEN SWAP AND FUTURES

Swaps and futures are both particular kind of derivatives that derive their value from number of underlying assets. Futures contract are exchange traded and are, standardized contracts, whereas swaps generally are over the counter (OTC) and therefore these are customized contracts. The other main difference between the two is that futures require a margin to be maintained whereas in swap no margin call is required.

16.10 SUMMARY

This unit was covering the important aspects of swaps and futures. This unit describes about futures and their contractual terms. After that it explains swaps and its features. Then it discusses the types of swaps such as Interest rate swaps, Currency swaps Credit swaps, Commodity swaps and Equity swaps. In the last section it describes the difference between swaps and futures.



16.11 GLOSSARY

Swap: A swap is a derivative contract through which two parties exchange financial instruments.

Underlying asset: The underlying asset is that base product which gives value to futures contract like share market indices, shares, commodities, currency, interest rates, etc.

Value of a lot

Value of a lot is derived by per unit price of the stock and no of shares in the lot.

- **Margin Money** :Margin money is a small percentage of full value of a contract when he enters into the contract.



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16.14 TERMINAL QUESTIONS

1. Explain the term swaps and its various types.
2. Write a detailed note on futures.
3. Distinction between Swaps and futures.

UNIT 17 TECHNICAL ANALYSIS

17.1 Introduction

17.2 Objectives

17.3 Assumptions

17.4 Dow Theory

17.5 Charts

17.6 Chart Patterns

17.7 Continuation Patterns

17.8 Distinction between fundamental and technical analysis

17.9 Summary

17.10 Glossary

17.11 Reference/ Bibliography

17.12 Suggested Reading

17.13 Terminal Questions

17.1 INTRODUCTION

Technical analysis is the method of identifying or predicting the future moves of stock prices on the basis of patterns depicted by various types of charts. These charts are prepared using data generated by market activity such as past prices and volume traded. This concept relies on the simple fact that stock prices will always follow a pattern for a specific period of time. Analysts make use of many methods, tools and techniques to identify price patterns and market trends in financial markets and attempt to exploit those patterns. Technical analysts do not attempt to measure a security's intrinsic value, but instead use charts and other tools to identify patterns that can suggest future activity.

“A study of past share price behaviour to predict the future trend is termed as technical analysis.” The technical analysis is based on the premise that stock price always follows a trend, that reflects the changing attitude of the investors towards various market forces. Technical analysis comprises of huge information in terms of daily, weekly, monthly yearly, opening and closing prices of stocks which are plotted on the charts and then future forecast is made from the formation of similar patterns over period of time.

17.2 OBJECTIVES

After reading this unit you should be able to understand

- Assumptions of the theory
- Preparation of various types of charts.
- Dow theory and its application
- Charts of technical analysis
- Charts of reversal patterns
- Charts of continuation Patterns
- Fundamental Vs Technical Analysis

17.3 ASSUMPTIONS OF TECHNICAL ANALYSIS

The main assumptions of technical analysis are:

- **The Market Discounts Everything:** At any given time, a stock's price reflects everything that has or could affect the company - including fundamental factors.
- **Prices moves in trends:** After a trend has been established, the future price movement is more likely to be in the same direction as the trend than to be against it. Analysts believe that prices always follow a direction i.e. up, down or sideways.
- **History tends to repeat itself:** An elementary belief of technical analysis is that a market's price reflects all information, so investors' looks at the historic prices of securities and their trading pattern rather than fundamental forces. Therefore, price trends tend to repeat itself due to investors collective and similar behaviour.

17.4 DOW THEORY

Charles H Dow formulated a hypothesis that stock market does not perform on a random basis but is influenced by three distinct cyclical trends that follows a particular direction. These trends namely are the primary trend, secondary trend and the minor trend.

The primary trend is a long-term cycle that carries the entire market up or down. Primary trend lasts for a year or for several years. It can be a bullish market or a bearish market.

The Secondary trend is a corrective action to a primary trend. It acts as a restraining force on the primary trends. It lasts for several weeks to several months.

The Minor trends are the short-term movements lasting from one day to three weeks.

Dow Theory is based on three important assumptions:

1. Price discounts all information
2. Price movements are not random
3. Investors can identify the reasons for price movements.

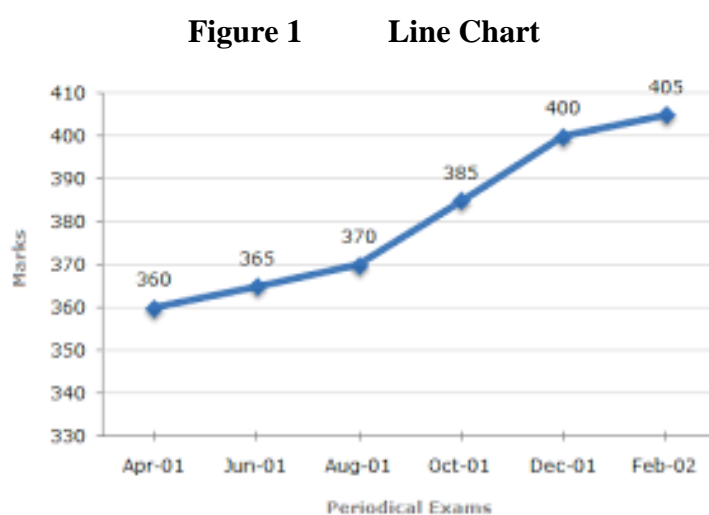
17.5 CHARTS

Charts are easy to understand rather than numbers or statements. Charts portray the overall picture of the market and makes decision making easier. Charts are the tools that facilitate short term and long-term financial decision making. The data plotted on the chart can be intraday, daily, weekly or monthly. The charts can display shortest pattern of a day or as long as many years.

The most commonly used charts are as follows:

1. Line Charts
2. Bar Charts
3. Point and figure Charts
4. Candlestick Charts

Line Charts are the most fundamental type of chart because it represents only the closing prices over a set period. The line is formed by connecting the closing prices for each period over the specific time period. Though this type of chart doesn't provide much detailed analysis still many investors consider the closing price to be more important in decision making rather than the open, high, or low price within a given period. These charts have more clarity in plotting as it considers only the closing price therefore the noise on the chart is less.



Source: www.indiabix.com

Figure 2 Line Chart of Sun Microsystems



Source: www.pinterest.co.uk

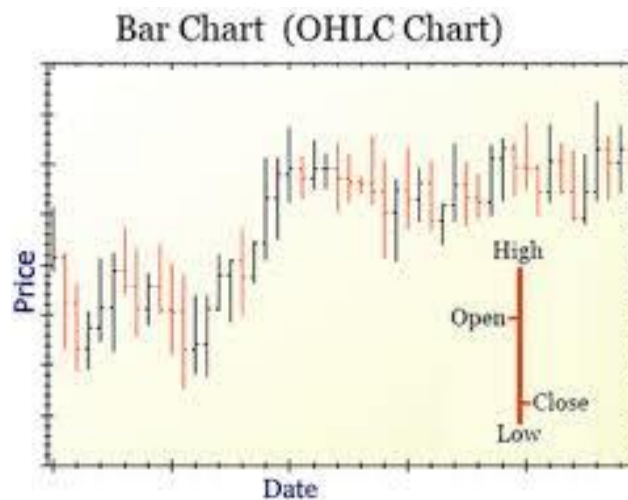
2. Bar Chart

Bar charts are the extended version of the line chart having the daily opening, highest, lowest, and closing prices. The bar charts give detailed analysis of the whole range of a share price over a day. These charts are made up of a series of vertical lines that represent the price range for a given period with a horizontal dash on each side that represents the open and closing prices. The opening price is the horizontal dash on the left side of the horizontal line and the closing price is located on the right side of the line. If the opening price is lower than the closing price, the line is often shaded black to represent a rising period. The opposite is true for a falling period, which is represented by a red shade.

Figure 3 Implication of Bars in a Bar Chart



Source: wikifinance.com

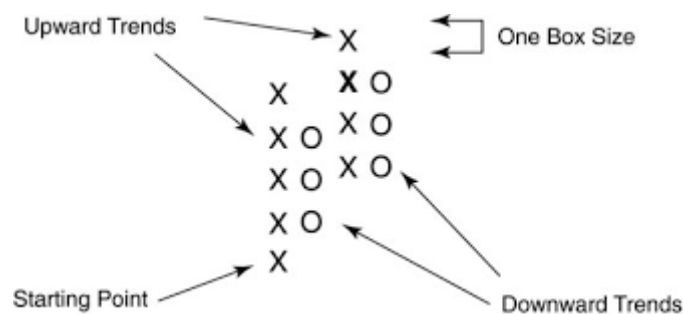
Figure 4 Bar Chart

Source: bar chart forex

3. Point and Figure Chart

The point and figure chart shows only price changes. These charts are less popular and are not normally used by the investors for analysis purposes. The chart reflects price movements without time or volume concerns, which helps remove noise – or insignificant price movements.

Figure 5 Implication by X and O in Point and Figure Chart



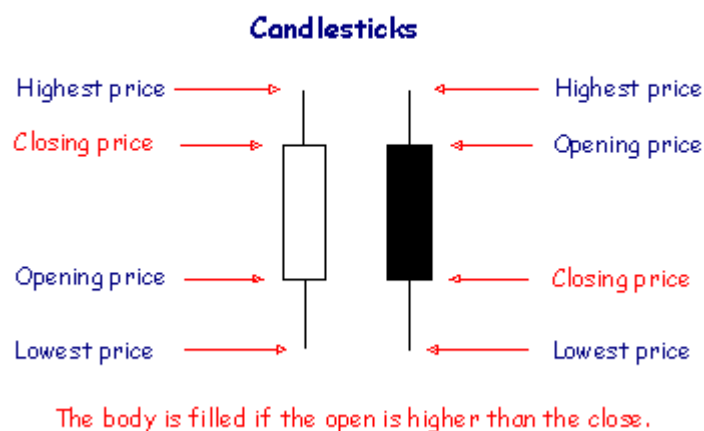
Source: Investorguide.com

Point and figure charts are written off as series of Xs and Os. The Xs represent upward price trends and the Os represent downward price trends. There are also numbers and letters in the chart that represent months and given investors a rough idea of dates. Each box on the chart represents the price scale, which adjusts depending on the price of the stock: The higher the stock's price the more each box represents.

4. Candlestick Chart

Candlestick charts are the most popular form of charts now days discovered in Japan in 17th century. Like a bar chart, candlestick charts have a thin vertical line showing the price range for a given period but they give an extra interpretation by highlighting the relationship between opening and closing prices. The narrow stick represents the range of prices traded during the period (high to low) while the broad mid-section represents the opening and closing prices for the period. A candlestick shows the high, low, open and close for a security each day. Candlesticks are shown as vertical rectangle with strands at both the ends. When the closing price is higher than the opening the rectangle is transparent and when opening price is higher than the closing price the rectangle is black.

Figure 6 Implication by candles in Candlestick Chart



Source: www.incrediblecharts.com

Falling periods will typically have a red or black candlestick body, while rising periods will have a white or clear candlestick body. Days where the open and closing prices are the same will not have any wide body or rectangle at all.

Figure 7 Candlestick Chart

Source: stockcharts.com

Charts are the most basic part of technical analysis and it's necessary for the investor to understand what information the chart is providing for the accurate decision making.

17.6 CHART PATTERNS

There are millions of traders investing a huge amount of money in securities each day. Chart patterns try to establish a picture to identify the trend of future price movements. Chart patterns are based on the assumption that history repeats itself and therefore some patterns may reappear and will fetch the same outcomes.

The two most prominent chart patterns are Reversal Pattern and Continuation Pattern.

17.6.1 Reversal Pattern

A reversal pattern signals that a prior trend will reverse upon completion of the pattern. Reversal patterns indicate reciprocation in a trend. The following are the most popular reversal patterns:

- Head and Shoulders
- Inverse head and shoulders
- Triple tops and Triple bottoms
- Double tops and Double bottoms

Head and Shoulders:

As the name suggests a head and shoulder reversal pattern is represented by three peaks. The middle peak is highest which highlights the head position and on the other hand the two peaks on both the sides of head are representing shoulders. The lows between these

peaks are connected with a trend line (neckline) that represents the key support level to watch for a breakdown and trend reversal.

Figure 8 Head and Shoulders Pattern



Source: investopedia.com

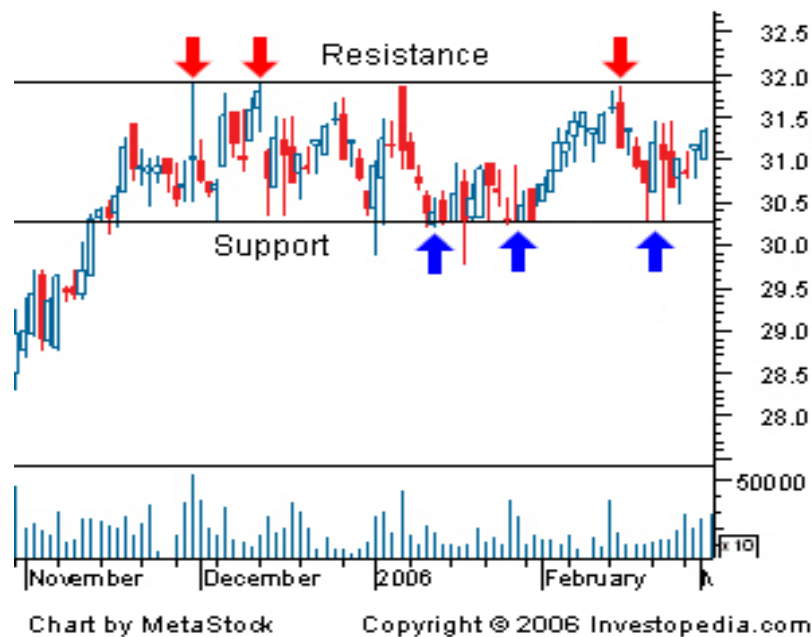
Figure 9 Head and Shoulders Chart Pattern



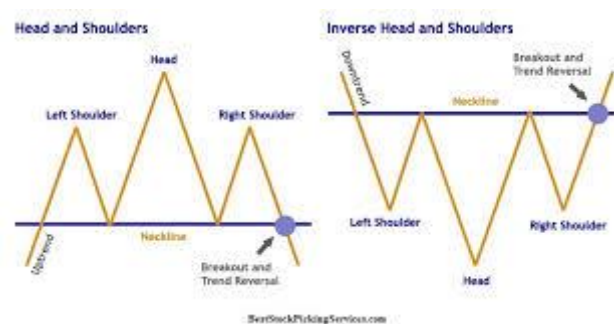
Source: bigtrends.com

Support and resistance level

When it is assumed by the chartist that the price of a particular share will not move up or grow beyond a certain point that point is known as resistance level. On the other hand support support level is the point where it is assumed that share price will not fall or decline after this point.

Figure 10 Support and Resistance Level**Inverse Head and shoulders**

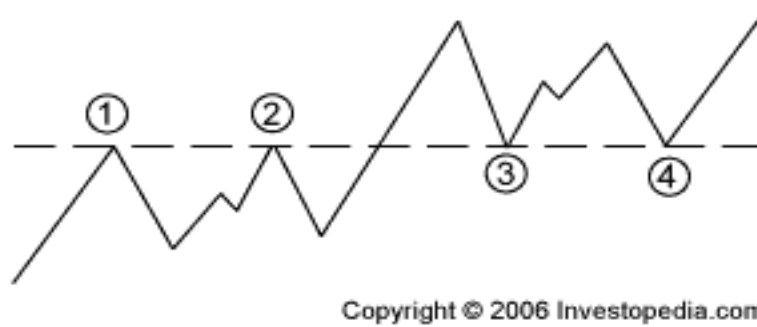
A Head and Shoulder Bottom – or Inverse Head and Shoulders – is simply the inverse of the Head and Shoulders Top with the neckline being a resistance level to watch for a breakout higher.

Figure 11 Support and Resistance in a head and shoulders pattern

Source: beststockpickingservices.com

Role Reversal

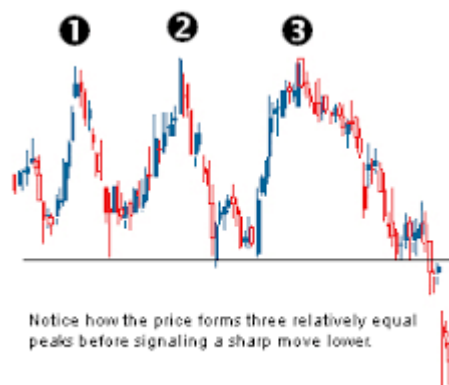
Once a resistance or support level is broken, its role is reversed. If the price falls below a support level, that level will become resistance. If the price rises above a resistance level, it will often become support. For a true reversal to occur, however, it is important that the price make a strong move through either the support or resistance.

Figure 12 Role Reversal

In figure 12, 1 & 2 are the resistance points, when the price rose; the same became the support points at point 3 & 4. This is known as the state of role reversal.

Triple Tops and Bottoms

Triple tops and triple bottoms are the reversal pattern that are seen when a stock moves in the same direction of its prevailing trend. With any reversal pattern, there should be an existing trend to reverse. In the case of the Triple Top Reversal, there should be an uptrend. This triple top pattern is formed when a security that is trending upward witness a similar level of resistance three times without breaking through. Each time the security tests the resistance level, it falls to a similar area of support. After the third fall to the support level, the pattern is complete when the security falls through the support; the price is then expected to move in a downward trend.

Figure 13 Triple Bottom Pattern

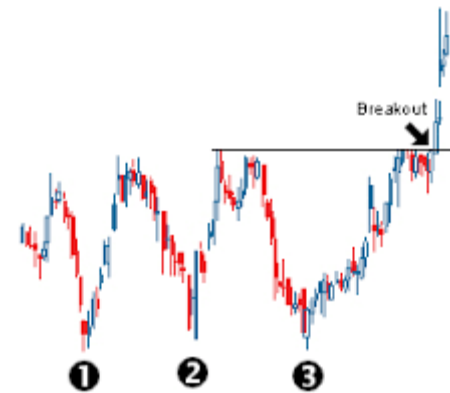
Source: Chart by MetaStock

Source: metastock.com

Triple bottom pattern is a bullish reversal pattern. In the case of the Triple bottom reversal, there should be a downtrend. The triple-bottom pattern illustrates a stock that is trading in a downtrend and attempts to fall through a support level three times, each time moving back to a level of resistance. After the third attempt to push the price lower, the

pattern is complete when the price moves above the resistance level and begins trading in an upward trend.

Figure 14 Triple Bottom



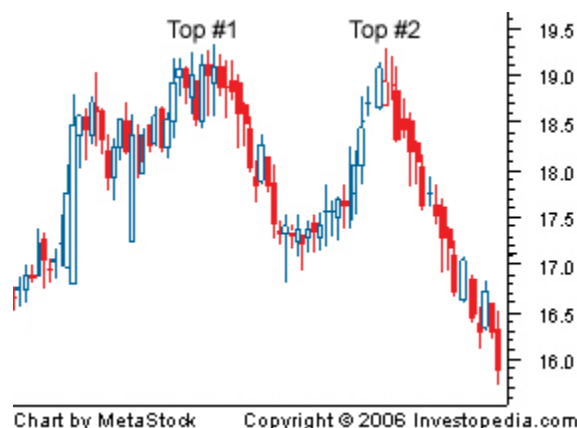
Source: Chart by MetaStock

Source: Metastock.com

Double Top and Bottom

Chart patterns in which the quote for the underlying investment moves in a similar pattern to the letter "W" (double bottom) or "M" (double top). The double top occurs when a stock hits a high or low after sizable move, pulls back but fails to hit the old high. A double top is a drop, another rise to the same level as the original rise, and finally another drop. The formation is completed and confirmed when the price falls below the neck line, indicating that further price decline is coming up.

Figure 15 Double top and bottom



A double bottom describes the drop of a stock, a jump back, another drop to the same or similar level as the original drop, and finally another return. A double bottom indicates a bullish trend in the prices. A double bottom indicates that a price level is reached two times before it breaks up into a bullish pattern.

Figure 16 Double Bottom

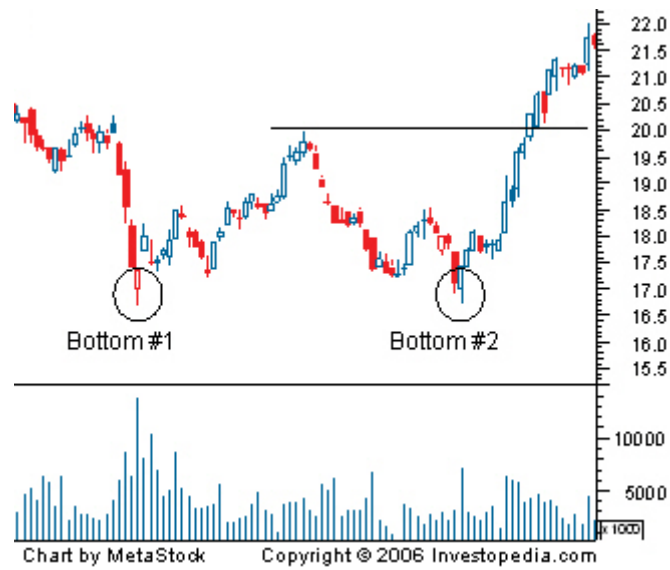
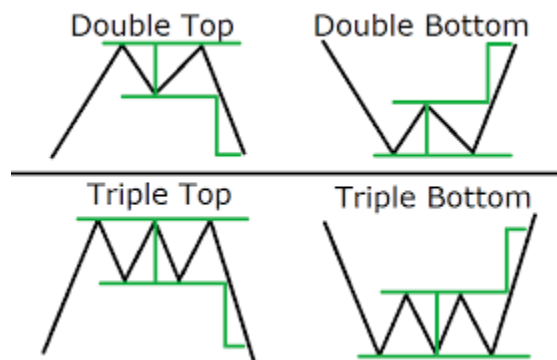


Figure 17 Double and Triple Top Bottom Pattern



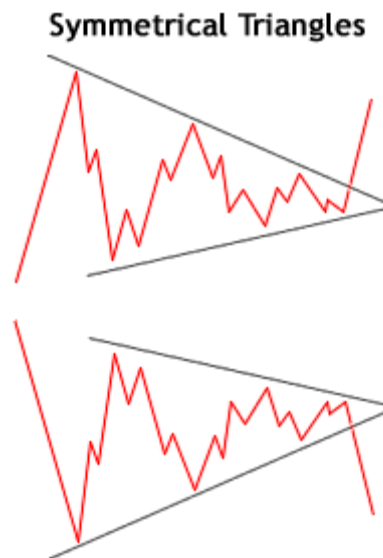
Source: Forextraininggroup.com



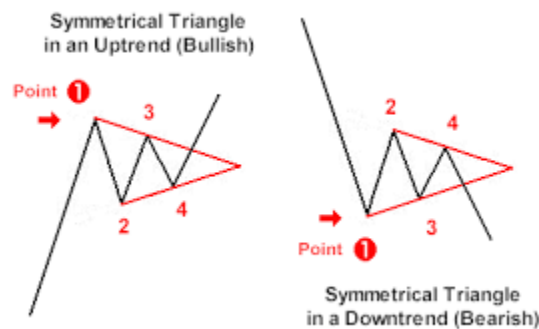
Check Your Progress-A

Q1. Define Technical Analysis.

Q2. What are the assumptions of technical analysis.

Figure 18 Symmetrical Triangles

Source: Investopedia.com

Figure 19 Bullish and Bearish Symmetrical Triangle

Source Chartpattern.com

An Ascending Triangle

An ascending triangle pattern occurs when there is an uptrend in the stock prices and sometimes it could be found at the bottom of a down trend, indicating a reversal to occur. The ascending triangle has a flat upper trend line and the lower trend line slopes upwards forming an upward trend.

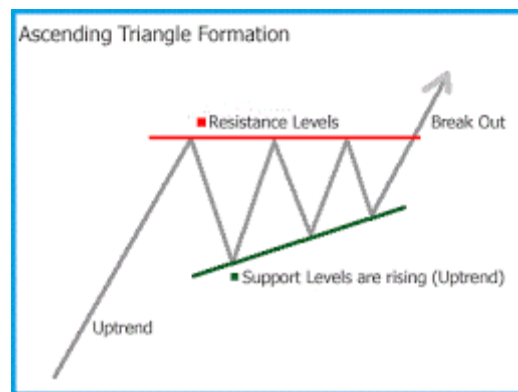
Figure 20 Ascending Triangle3`

Fig.20 Source: forextradingstrategies.com

Figure 21 Ascending Triangle Pattern

Source: chart formations.com

Descending Triangle Pattern

The descending triangle indicates the reversal of an upward trend in the market. It is formed when there is a break in the bull run of a stock's prices and it is followed by highs which are low and equally lower lows. A trend line is made connecting peaks and another trend lines connected through troughs. These lines are extended until they form a triangle. A minimum number of two lows and two highs are required for descending triangle pattern.

Figure 22 Descending Triangle Pattern

Source: Dailyfx.com

Figure 23 Descending Triangle Pattern

Source : ifcmarket.com

Flag

A flag pattern is basically a parallelogram. It is a very short pause in any ongoing trend. Flag lasts for very few weeks. The most prominent way to recognise a flag is that there will be a sharp increase or decrease in the price during a trading day.

Figure 24 Bullish and Bearish Flag Pattern

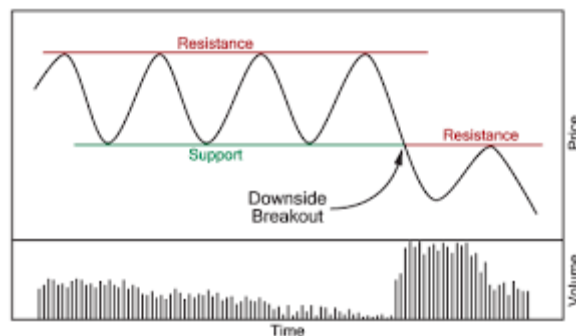
Source: luckscout.com

Figure 25 Flag Pattern

Source: fmdirect.in

Rectangles

As the name suggest a rectangle is a pattern in which a price of a share rotate around two horizontal lines making a shape of a rectangle. A pattern of rectangle appears with a less frequency but it is one of the most important observations. The pattern is easily identifiable by two similar highs and two equal lows. The highs and lows can be connected to form two parallel lines that make up the top and bottom of a rectangle.

Figure 26 Rectangle Pattern

Source: Stocks chart.com

Figure 27 Rectangle Pattern

Source: infinmarket.com

17.8 DIFFERENCE BETWEEN TECHNICAL AND FUNDAMENTAL ANALYSIS

Criteria	Fundamental Analysis	Technical Analysis
Definition	Calculates stock value using economic factors, known as fundamentals.	Uses price movement of security to predict future price movements
Data gathered from	Financial statements	Charts
Stocks bought	When price falls below the intrinsic value	When trader believes they can sell it on for a higher price
Time horizon	Long term Approach	Short term approach
Function	Investing	Trading
Concepts used	Return on Equity (ROE) and Return on Assets (ROA)	Dow Theory, Price Data
Vision	Looks forward as well as backward	Looks backward.

Source: <http://www.diffen.com>

17.9 SUMMARY

In this unit we have discussed all the details about technical analysis. The unit covers technical analysis assumption, Dow Theory, various charts such as head and shoulders, inverse head and shoulders, tripe tops and bottoms, double top and bottoms. Further the unit has covered different continuation patterns like triangle, flags, pennants and rectangles. All the charts and patterns are represented graphically for better understanding. In the last section of the unit technical analysis is distinguished from fundamental analysis.



17.10 GLOSSARY

Fundamental Analysis: Fundamental analysis measures the intrinsic value of a share by stepwise examining the economy, industry and then the specific company.

Intrinsic Value

The intrinsic value is the actual value of a company's share based on its true value including all aspects of the business, in terms of both tangible and intangible factors.



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- <http://www.investopedia.com/university/charts/charts4.asp>
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7. **Van Horne, James. C** financial management and policy. New Delhi. Prentice Hall Publications.



17.13 TERMINAL QUESTIONS

1. Describe technical analysis in detail.
2. Write a detailed note on various types of charts used in technical analysis
3. Explain Dow Theory.
4. Discuss in detail all the continuation patterns used in technical analysis.

UNIT 18 EFFICIENT MARKET THEORY

- 18.1 Introduction
- 18.2 Objectives
- 18.3 Efficient Market Theory: Concept and meaning
- 18.4 Evolution of Efficient Market Theory
- 18.5 Random walk hypothesis
- 18.6 Different forms of Efficiency
- 18.7 Implications of EMH
- 18.8 Criticism
- 18.9 Summary
- 18.10 Glossary
- 18.11 Reference/ Bibliography
- 18.12 Suggested Reading
- 18.13 Terminal Questions

18.1 INTRODUCTION

The previous unit discussed about the technical analysis that is a method of identifying the future movement of any stock price and accordingly the investor can make his decision. Technical analysis is based on the past price data of any stock. The future is predicted by forming various chart patterns. To measure the efficiency of technical analysis an efficient market theory was evolved which is explained further in this unit.

The development of various theories of investment is essential from the perspective of an investor as it gives an edge to decide that which investment is going to give better returns. The continuous research in the field of share market provides a detailed study of share and commodity behaviour. It facilitates the future prediction done on the basis of various technical and fundamental factors which could affect the share or the commodity price in future. These theories reduce the complexity of an investment process. Investors depending upon their risk return objectives could take help of portfolio managers. The Efficient Market Theory is one such theory where investors can identify the future price movement on the basis of availability of information which is termed as efficiency.

As soon as any information becomes available to all the investors it is known as the theory of market efficiency i.e. the market is efficient in terms of availability of the

information. Proponents of the efficient market theory believe that there is availability of the perfect information in the stock market which means that whatever information is available about anything related to a market or a stock to one investor is also available to all other investors.

As everyone in the market possesses the same information, the price of the stock will reflect the expectation of all the investors. The crux is that an investor should not be able to outperform the market as there is no other way to identify the future move of the share price. Followers of this theory do not pick stocks that are going to outperform but they invest in such stocks that match to the market's performance. In order to understand behavioral patterns and trends of share and commodity price movements, it is necessary to understand the basic concept of Efficient Market Theory. This unit is going to discuss in detail the Efficient Market Theory and its various aspects.

18.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the concept of Efficient Market Theory.
- Describes evolution of the theory.
- Understanding Random Walk hypothesis
- Elaborate different forms of efficiency.
- Discusses implications of the theory.
- Explains its criticism

18.3 EFFICIENT MARKET THEORY: THE CONCEPT

18.3.1 The Efficient Market Theory:

This theory is also known as Efficient market Hypothesis. According to this hypothesis no single investor or institution can outperform the market as the information is available to everyone in the market. Therefore, current stock prices will reflect all the relevant information.

18.3.2 The Efficient Markets:

An "efficient market" comprises of large number of individual and institutional investors competing against each other with an objective of profit maximization. In the efficient market relevant information is freely available to all the individuals. In other words, in an efficient market at any point in time, the actual price of a security will always indicate its true intrinsic **value**.

Thus, the efficient market hypothesis (EMH) states that financial markets are "informational efficient" i.e. the prices on traded securities such as shares, commodities,

bonds, or property, already reflect all the available information and therefore are unbiased and reflect the collective belief of all the investors.

18.3.3 Information or news

Information or news in the EMH is defined as anything that may affect prices that is unknowable in the present and thus appears randomly in the future.

18.4 EVOLUTION OF EFFICIENT MARKET THEORY

Hayek in 1945 preceded with EMH, argued that the markets are the most actual way of gathering the information disseminated amongst individuals within a market.

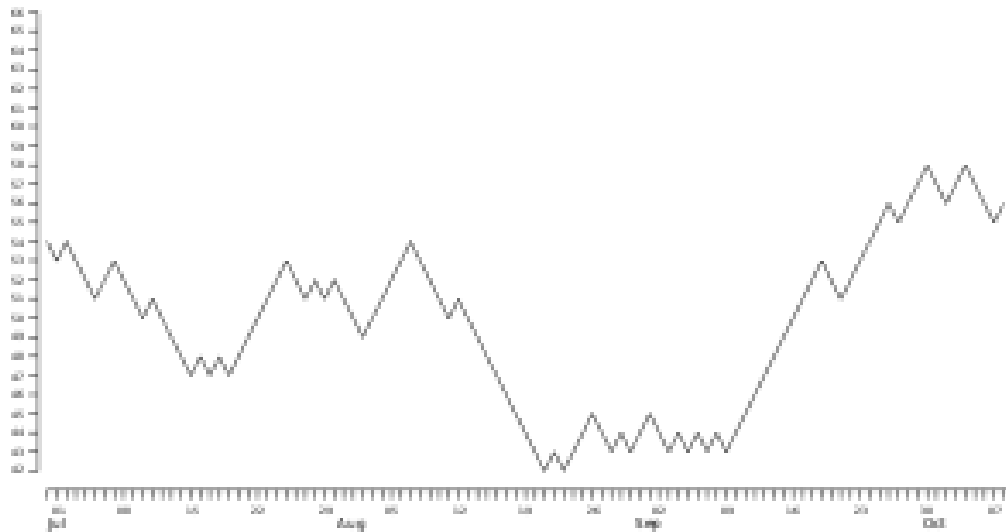
In 1953, Maurice Kendall, a statistician, presented an unusual paper before the Royal Statistical Society in London. He analyzed the series of stock and commodity prices in search of some regular patterns. Instead of discovering regular cycle he found each series to a random one as there was no consistent similar pattern was visible. It was found that efficient markets were the reason behind this random walk. Then in 1960 Professor Eugene Fama developed the efficient-market hypothesis (EMH). The theory claimed that share price always trades at their true intrinsic value, and therefore no individual can buy underpriced security or sell over-priced security as all the securities are reflecting its true values.

18.5 RANDOM WALK HYPOTHESIS

It was noticed by many statisticians in the early century that the security prices follow a similar pattern and that observation led to the random walk hypothesis, developed by French mathematician Louis Bachelier in 1900, which states that stock prices are random. The random walk theory suggests that past prices of any stock cannot be used to predict the future movement of the stock as the stock price changes and are independent of each other. In short, this is the idea that stocks take an arbitrary and erratic path. This theory believes that it is impossible to outperform the market without bearing additional risk. A few studies later appeared in the 1930's, but the random walk hypothesis was studied—and debated—intensively in the 1960's. The consensus is that the random walk is explained by the efficient market hypothesis. The efficient market hypothesis (EMH) states that financial markets are efficient and that prices already reflect all known information concerning a stock or other security and that prices rapidly adjust to any new information. Information includes not only what is currently known about a stock, but also any future potentials, such as earnings or dividend payments. It seeks to explain the random walk hypothesis by positing that only new information will move stock prices significantly and since new information is presently unknown and occurs at random, future movements in stock prices are also unknown and, thus, move

randomly. The random walk theory is the occurrence of an event determined by a series of random movements - in other words, events that cannot be predicted.

Figure 1 Random Walk of stock



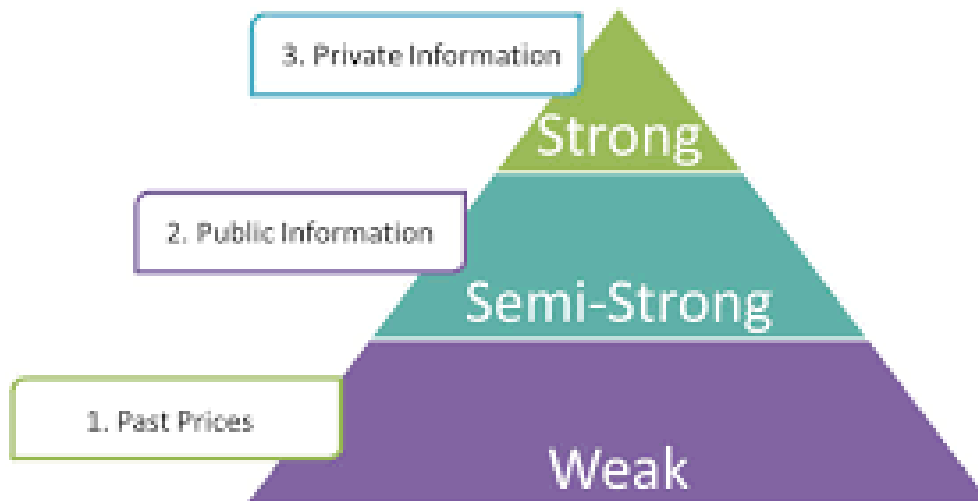
Source: Wikipedia.com\

ASSUMPTION OF EFFICIENT MARKET THEORY

According to this theory when there is some new information arises, some investors may overreact and some may under react. For this theory of EMH to exist, the reaction of investors to the news should follow a normal distribution pattern so that the net effect on market prices will not lead to an abnormal profit. Thus, majority of investors will decide the move of and stock price.

18.6 DIFFERENT FORMS OF EFFICIENT MARKET THEORY

In efficient market theory if markets are efficient, then it is impossible for an investor to beat the market. Even then there will be times when stocks will deviate from their values, either they will be overvalued or undervalued. The theories say that markets are efficient but practically it is evidenced that markets may not be perfectly efficient. There are many sources of the information such as firm itself, competitors, economic indicators and other stakeholders of the firm. Each and every source of information could affect the fair value of the stock therefore informational efficiency should be measured considering each and every source of information. Therefore, the market's informational efficiency is sorted in three different forms.

Figure 2 Forms of Efficiency

Source:Knowledgegrab.com

1. **Strong Form of Efficiency:** In simple words, strong form of efficiency can be defined as the market where all the public and private information is easily available to the investor and therefore no one can outperform the market. Here stock prices will reflect all the information. In case if any such information which can not be shared due to any legal restrictions in that case strong form of efficiency will not exist. This theory also assumes that management' private or insider information is not the right of a few to be benefited from the market. The idea behind strong form efficiency was pioneered by Princeton economics professor Burton G. Malkiel in his 1973 book "A Random Walk Down Wall Street." The book stated two forms of the random walk theory. The efficiency form that describes strong form efficiency states that it is impossible to consistently outperform the market due to the fact that all information, both public and proprietary, is reflected in current market prices, and it is therefore impossible to earn long-term abnormal returns.

2. **Semi-strong form of Efficiency:** The "Semi strong" form declares that all publicly available information is fully reflected in securities prices and investors are not exposed to the private information of the firm. The sources of such public information could be firm's report, economic indicators and other organizational documents which includes annual reports, financial earnings reports, prospectus, announcements etc. Semi strong form of efficiency pay no attention to the private or specialists information possessed by firm's top management, contractors, suppliers, competitors and others. The inconsistent market performance occurs when the important information is withheld from the public and that is the only way to book the profits. As and when the information becomes public, price adjusts immediately and earning profit from such news becomes impossible. Basically the weak and the strong forms of efficiencies define the semi-strong form. The weak form believes in the efficient market hypothesis but also believes the market's analysis abilities are weak and may not be so efficient at times. The strong form considers all public information is known and only insider information can be used to gain advantage over any one market participant. The semi-strong form falls in the middle of strong form of efficiency and weak form of efficiency. It believes the market is efficient with all public information; however, there may be some opportunity to take advantage of market irregularities too.

3. **Weak form of Efficiency:** Weak form of efficiency implies that the information is not freely available to the investors and therefore the only way to predict future stock price depend on technical analysis. Technical analysts believe that weak form of efficiency exists and the value of a stock can be ascertained only through models describing past price behaviour i.e... on the basis of trends of past prices. The weak form of efficiency restricts extraordinary profits to any investor using past prices or current market prices. Weak form of efficiency will give chance to earn abnormal profit to the investors by studying historical or current price behaviour. The technical analysts use particular tools such as trend analysis, moving averages, oscillators etc to forecast the value of a stock. The concept of weak form efficiency was pioneered by Princeton economics professor Burton G. Malkiel in his 1973 book "A Random Walk Down Wall Street." The main belief of weak form efficiency is the unpredictability of stock prices makes it impossible to find price patterns and outperform the market. In weak form of efficiency it is presumed that past earnings does not predict current or future earnings and daily security price movements are completely independent of each other, and it is assumed price momentum does not exist. Weak form of efficiency is also known as Random Walk Hypothesis which states that future securities' prices are random and not influenced by past events.

Figure 3 Weak Form of Efficiency: Random Walk of Stock Price



Check Your Progress-A

Q1. Define Efficient market Theory?

Q2. How efficient market theory evolved?

Q3. How efficient market hypothesis is criticized?

Q4. Write a short note on Random Walk Hypothesis.

18.7 IMPLICATIONS OF EFFICIENT MARKET THEORY

Efficient market theory simply implies that investors have rational expectations with respect to returns and on an average population reacts the same way whenever new information appears in the market. Researches based on the efficient market hypothesis shows the evidence that however inconsistent and uneven the stock prices may be, the market does not create trading opportunities for the investors to earn extraordinary returns.

To nullify the effect of EMH participation of index funds has increased dramatically. Investing in index funds will increase the probability of higher returns as it is based on the concept of diversification.

18.8 CRITICISM OF EFFICIENT MARKET THEORY

- 1. Perfect Information:** Perfect information assumes both complete information and perfect ability to process all of it. Information is always incomplete, often asymmetric, and too abundant to ever be able to interpret perfectly.
- 2. Rational Expectation:** Market as a whole cannot have rational expectations.
- 3. Same personal goals:** All the investors in market cannot have same investment goals. The investment objectives will vary as per the age of the investor and risk.
- 4. Irrational excitement:** It is a situation where economic agents develop confidence in the economy and financial markets. Consumers, bankers and firms become overly confident and expect asset prices to keep rising and

growth to remain strong. Irrational exuberance is a factor behind financial crisis. This leads to: rapid asset price inflation, with prices increasing faster than incomes. Lenders and borrowers take abnormal risks. A tendency to ignore the potential for asset prices to fall or the economy to go into recession. Fall in savings ratio and rise in borrowing levels.

5. **Herding effect:** Behavioural economics places greater emphasis on the irrationality of human behaviour in making economic decisions e.g. herding effect etc.

18.9 SUMMARY

This unit discusses in detail the efficient market theory and its important aspects. The unit explains the concept of efficient market theory that it lays importance on the available news and information. Further it describes the evolution of efficient market theory. The unit throws light on various forms of efficiency i.e.. Strong form of efficiency, semi-strong form of efficiency and weak form of efficiency. This differentiation is done on the basis of availability of information to the investors. The unit also explain the implications of the theory. In the final section of the unit criticism of the theory is described.



18.10 GLOSSARY

- **Information** is that which informs. In other words, it is the answer to a question of some kind which affects the perception of the investors and stimulates them to react in a certain way.
- **Efficiency** is availability of information to the investors. The markets are efficient to the extent of availability of information. The more information available, the more markets are efficient.



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18.13 TERMINAL QUESTIONS

1. Explain the efficient market hypothesis in detail.
2. Write a detailed note on various forms of efficiency.
3. What are the assumptions of efficient market theory

UNIT 19 PORTFOLIO ANALYSIS

- 19.1 Introduction
- 19.2 Objectives
- 19.3 Characteristics of a portfolio
- 19.4 Management of portfolio
- 19.5 Techniques of portfolio analysis
- 19.6 Managed portfolios and mutual funds
- 19.7 Benefits of portfolio analysis
- 19.8 Limitations of portfolio analysis
- 19.9 Summary
- 19.10 Glossary
- 19.11 Answers to Check Your Progress
- 19.12 References/Bibliography
- 19.13 Suggested readings
- 19.14 Terminal questions

19.1 INTRODUCTION

In the previous units we have discussed different forms of investment options and the ways of using them in the financial market. We have learnt about the meaning and nature of different types of analysis. In this unit we shall learn about what a portfolio is all about, and what the methods of analysing a portfolio are. The bunch of securities that provide a certain return over a period of time is called a portfolio. A portfolio management is concerned about measuring the performance of a group of securities, at a certain interval of time. The designing of portfolios is done by fund managers, with an aim of earning a certain return, at a given level of risk tolerance. So, it is important to determine the objectives for which the portfolio is being developed. The analysis of a portfolio is also done, to compare the performance of different securities with similar risk involved in them. In this unit, various techniques of evaluation of portfolio are discussed, by which sound investments can be done.

A portfolio is defined as a set of securities which are combined together, for reduction in the risk of investment and increase the rate of earnings. The selection of securities is done by a portfolio manager, based on the element of risk and return. A portfolio is

diversified in nature, which includes selection of different financial assets, securities, various instruments etc. The selection is done in such a way, so that the risk is minimised up to a minimum level. As per the traditional approach, diversification is not putting all the eggs in one basket, so the basket needs to be diversified with more than one type of financial securities, with difference in the level of risk and return. In order to maintain diversification, there should be an existence of correlation, between different types of securities available in the market. The following techniques must be used by an investor for a diversification process-

1. **Selection process for optimization-** In a portfolio, there must be some adequate number of companies, in which the investor can make an investment. When the number of companies is too less, it becomes difficult to reduce the risk. Whereas, when the number of companies is too large, there will be a group in which the investor may suffer a loss. So, an optimum number of companies must be decided prior to investment.
2. **Adequacy in diversification-** There is no use of making an investment in a large number of companies. If there is no positive correlation between these companies, with changing market conditions, all these homogeneous companies will start moving in the same direction. So, in order to maintain a proper diversification, more than one form of company must be selected to make a sound investment.

19.2 OBJECTIVES

By learning this unit, following objectives must be achieved-

- Enable to understand the meaning of portfolio, and its variation from any other form of investment.
- To understand the nature of securities, in which investment must be done.
- To know about different techniques of evaluating a portfolio.
- To discuss about the process of evaluating a portfolio with its advantages and disadvantages.

19.3 CHARACTERISTICS OF A PORTFOLIO

As compared to any other form of investment, a portfolio has distinctive features, which makes it a hybrid form of investment. These characteristics are as under-

1. **Diversification** - A portfolio comprises a large variety of securities, financial assets and instruments, in which investment can be made at some calculated scale of risk. These securities vary from each other as they consist of shares,

debentures, bonds, bills etc. The features of diversification enable the investor to minimise the risk of investment with an increment in rate of return.

2. **Professional management** -The management of a portfolio is professional in nature, as it is managed by a fund manager. Such professional management aims at selection of those securities, in which a nominal risk can be undertaken. The manager tries to include those securities, which are similar but bear a different rate of interest.
3. **Calculated risk** - In a portfolio, a bunch of securities are included after making a calculation about the amount of risk involved in making an investment. Only those securities, for which the investor has a tendency of bearing risk, are included in the portfolio. So, it balances both debt and equity securities.
4. **Chargeable form of investment**- As compared to any other type of investment, a portfolio is chargeable with an amount to be paid in maintaining the portfolio. Such payment makes a portfolio costly, as compared to any other form of investment.
5. **Rate of return** - The return on a portfolio is fixed over a period of time. Therefore, the fund manager is provided with a target of earning a certain return over a certain period of time. This return acts as a minimum limit for the investor, which he aims at earning over a certain period of time.
6. **Collective investment** - A portfolio is a collective form of investment, in which more than one investor accumulates his savings, to be invested in a bunch of securities. Such investment shall divide risk into various investors, by which each investor bears a nominal part of risk.

19.4 MANAGEMENT OF PORTFOLIO

The management of a portfolio is an on-going process, which involves the activities of investment, carried out by the investor. In this process both securities as well as investments are continuously evaluated. The process involves following task-

- Constructing a profound portfolio, based on the information and data provided by the investor.
- The adjustment in a portfolio is made from time to time.
- Once a Portfolio is created, it is necessary to evaluate the performance of such a portfolio from a certain time interval.

In the management of a portfolio, there are certain elements which are required to be known by the investor. In order to construct a portfolio, the investment policies, priority and the objectives of the investor should be understood. Once investment policy is decided, then the implementation of these strategies is

prepared. The valuation of a portfolio is done by the managers, who will evaluate the performance of the company, on the basis of market conditions. The results of a portfolio are compared, with the decided goals and in case of any deviation, necessary steps are taken.

19.4.1 SCOPE OF PORTFOLIO MANAGEMENT

The scope of portfolio management is quite wider, as compared to any other form of investment. The following activities are carried out for an effective management of portfolio-

1. **Construction of an optimum portfolio-** A portfolio comprising different forms of securities includes shares, debentures, bonds or instruments of the money market. So, the process of allocating funds in various forms of security is called a portfolio. All the securities are combined in such a way that maximum return can be achieved at a minimum risk. A portfolio manager has to undertake following points, while constructing a portfolio-

- The portfolio must give stable and regular income.
- It should also provide marketability and liquidity in securities.
- A good portfolio is the one, which could reduce the liability of tax.
- The portfolio must also help in appreciation of capital as well as generate a good return.
- Various data and information should be analysed, while a portfolio is constructed.

2. **Selection of a Portfolio-** After the study of different portfolios, which are available to an investor, he selects only such a set of securities, which may fulfil his goals. When the selection of a portfolio is done, the investor has to measure both return as well as risk. So, there can be three types of investors who select the optimum portfolio initially. There are such investors, who pay attention to maximum return and minimum risk. Secondly, there are those, who prefer a high return with more risk and lastly are those, who can take a higher return and a higher risk. All these investors shall construct the portfolio, based on the concept of risk and return. It can be also said that the objectives of an investor are influenced by his income, further growth in income, increase in capital invested etc. The drafting of a portfolio also depends on the objectives and aims of the investor.

3. **Revision of a Portfolio-** The portfolio which is once selected, should be reviewed and revised from time to time, as per the predetermined objectives of investors. The revision of a portfolio is also important to analyse the results of securities, which are included in the portfolio. The changes in the composition of the portfolio are subjected to change in market, as well as personal conditions of the investor. For example, if the investor changes his objective from capital appreciation to capital gain, then the composition of securities will also change in the portfolio. Those securities which provide better return

are also preferable even in difficult situations. There must be buying and selling of securities, by which the financial condition of investors can be improved.

19.4.2 FACTORS AFFECTING SELECTION OF A PORTFOLIO

The selection of portfolio by an investor, is an important decision, which involves following considerations-

1. **Growth of income-** The selection of a portfolio and securities depends on the growth of income of the investors. Composition of equity shares may be from 60 to 100%, whereas the composition of debt may be up to 40% in the portfolio. In order to achieve such a goal, an investor has to focus on the appreciation of his invested amount.
2. **Appreciation of capital-** An increase in the amount of investment, over a certain period of time is called capital appreciation. The investment made in real estate shall appreciate the funds rapidly, but it reduces liquidity. Also the investment made in shares provides liquidity, but it has a nominal appreciation of capital.
3. **Safety of principal amount-** In the selection of portfolio, it is also expected that the principal amount should be safe and secure. An increase in its value is expected by the investor, who does not want to lose the principal amount invested. So, such investors would like to make an investment in more debt funds as compared to equity.
4. **Analysis of return and risk-** The generation of higher returns depends, on the level of risk and the ability of tolerance of such risk. The risk is related to interest rate, purchasing power, financial strength, market risk etc. There is a difference in degree of risk, while the portfolio is constructed in order to generate regular income. The investor compromises on risk and no risk factor, with the elements of taxation and liquidity.
5. **Present income of investor-** The investors look after generating stable income, which must be regular in nature. Those investors who look forward to an appropriate future income should include 60% of debt and 40% of equity securities. Such a ratio keeps on changing, with the changing objectives of investors.

19.4.3 APPROACHES FOR PORTFOLIO SELECTION

The selection of a portfolio depends on following two approaches-

1. **Traditional approach-** In the traditional approach of portfolio selection, the selection of securities is based on the choice of investor, and his goals in the financial market. In this approach, the investor is provided with autonomy for making a selection among various investment alternatives available in the market. So, the advantages and disadvantages from the portfolio cannot be well evaluated

by the investor on their own. On the other hand, the investor is not aware about the changes in market conditions, due to which there is a possibility of higher risk with a nominal rate of return from the portfolio. Such an approach could economise the expenses of maintaining a portfolio, but there is a lack of professional management and analysis.

2. **Modern approach-** In the modern approach of portfolio selection, a portfolio manager is being appointed for the maintenance and management of securities in the portfolio. In this approach, the responsibility of risk and return lies in the hands of the portfolio manager, who assures a certain return to the investor? Therefore, the margin of profits under the modern approach is far better, as compared to the traditional approach of portfolio selection. The variety of securities which are available in this approach is also more, which enables the investor to make a selection among a wide variety of alternatives.

19.5 TECHNIQUES OF PORTFOLIO ANALYSIS

The analysis of a Portfolio can be done by the help of various techniques, which can help the investor in understanding the performance of a portfolio. These techniques are as under-

19.5.1 THE FORMULA PLAN

The use of a formula plan is done in understanding rules and regulations, which are required for buying and selling of securities. It enables the investor to assess the total amount, which must be used in purchasing the securities. The amount invested will be divided in fixed and variable ratios, by which the risk and return of investment can be predetermined. There are various assumptions of formula plan which are as under-

- The fixed proportion of income, which is available to the investor, shall be divided between regular income security and common stock. So, the amount of investments made in security will depend on prevailing market conditions.
- It is also assumed that, as the market moves higher, the amount of investment made in stock portfolios shall either decrease or remain constant.
- It is also assumed that the best source of present income is an investment made in bonds.
- When a significant change takes place in the market, there will be purchasing and selling of securities by the investor.
- There is an expectation from the investor that he will abide by the rules and regulations of the formula plan.

- When the price of securities reduces, the investors are expected to purchase the security. Whereas, when the prices are increasing the number of securities are sold.
- In the selection of stock, the investor must select the securities which move along the trend of the market. The securities should reflect the return and risk that involves the market.
- A rational investor is the one, who always maintains some cash with himself. Also, the investor should know that with an expectation of higher risk, there is always an involvement of higher return.

The formula plan provides certain benefits to the investor. It lays down the basic rules for buying and selling of securities, by the use of a formula plan and investors can easily gain higher profit. The buying and selling of securities is completely controlled by such a plan and it is beneficial for taking decisions, at the time of making investment.

The plan also suffers from the limitations that it does not support selection of certain securities. In order to make a selection, fundamental and technical analysis must be implied. These plans are not flexible in nature, so once they are selected; it is not possible to change them. These plans are always beneficial for long term investment programs.

Under the technique of a formula plan, different other forms of plans are used, by which sound investment management can be done. These plans are as under-

1. **Rupee cost averaging plan-** This is one of the most efficient and best used formula plans. It is a technique by which the investor can easily understand the chronological difference between the values of securities. Therefore, he is highly interested in buying such securities that would provide consistent growth. The investor could buy various stocks at different prevailing prices. Those securities for whom the prices will reduce are expected to be sold. Whereas, when the prices of securities keep on increasing, then the investment is held till it provides the highest price. This method has an advantage of generating profits over a long period of time, and reduces the pressure of buying time. The technique is well utilised in both rising and falling markets. On the other hand, rupee cost averaging has a disadvantage, that it is imposing extra transaction cost on selling and buying of securities. It does not indicate an optimum time interval between two buying transactions, so it is not suitable for all the securities.
2. **Constant rupee plan-** This plan shows a constant amount to be invested in the portion of stock under a portfolio. It does not restrict the investor from making a variation in the portfolio, but it is possible to shift the investment from one security to the other. It is also important that investors keep an eye on changes in market forces and prices, so that necessary adjustments could be made in the portfolio. The distinctive feature of this plan is that the investor will keep some amount fixed, whereas surplus is either increased or decreased in the portfolio.

3. **Constant ratio plan-** This plan helps an investor in creating a re-balance in the portfolio, by determining a ratio between aggressive and defensive securities. The proportion of investment in this security is fixed by the investor himself, on the basis of his attitude towards return and risk. A defensive type of investor shall choose bonds or such securities which provide a fixed income. The ratio of maintaining an investment in security can easily be changed, as per the change in market conditions.
4. **Variable ratio plan-** In this plan, the percentage of investment made in stock and bond will be fixed according to their prevailing prices in the market. If the prices of stock keep on increasing, then such securities are sold and a new ratio is maintained in the portfolio. This plan is formulated on the basis of forecasting of the financial market.

19.5.2 SHARPE'S PERFORMANCE MODEL

This model is an effective technique, which is used in the evaluation of a portfolio and ranking the funds according to generation of income. This model is a reward for maintenance of a variability ratio. It helps in the measurement of risk, involved in terms of securities included in the portfolio. The premium of risk is a difference between average return of a portfolio and the rate of risk free return. The calculation made for standard deviation for the complete portfolio indicates the rate of risk.

19.5.3 TREYNOR'S PERFORMANCE MODEL

For understanding this model, the investor must understand the basic concept of the characteristic line. This line indicates a relationship between market return and return of funds. The measurement of performance of a point in the portfolio is done, as per the market performance of securities. A good return of funds will increase at a faster rate, as compared to the overall performance of the market. So, when the market moves upward, the rate of return keeps on reducing slowly. It involves making an investment in money market securities, treasury bills, whose return remains positive. There exists a positive relation between market returns and returns created over funds.

19.5.4 JENSEN'S PERFORMANCE MODEL

The model was developed by Michael Jansen, which is very similar to that of Sharpe and treynor's model of evaluation of a portfolio. This measurement by Jensen provides an absolute measurement of a portfolio against some standard, which shall determine the evaluation of securities. The standard is fixed on the basis of the ability of a manager to predict the market. So, a prediction is successful, only when a higher return is generated. This model is a comparative study, which enables the investor to make a judgement between better investment prospects.

19.6 MANAGED PORTFOLIOS AND MUTUAL FUNDS

In the market, there is an availability of a large number of managed portfolios. But the most common form of a managed portfolio, which is desired by the investor, is a mutual fund. Being an alternative source of investment, mutual funds are proficient in generating an optimum income for the investor.

In order to become a contributory of a mutual fund, the investor is expected to buy some units of these funds. The risk of these funds can be decreased by the help of expert and professional management. They are well traded in the public sector investment, as risks in private sector investments are higher as compared to the public sector.

The advantages which an Investor gets by making an investment in mutual fund portfolio are under-

1. These portfolios provide expert services, better management and expert opinion to the investor.
2. There is a benefit of least paperwork, which could save the investor's time.
3. The investments made in a mutual fund, provided better return in medium as well as long term.
4. There are two ways by which liquidity is available to the investor, one is an open end scheme and another is a closed end scheme. It becomes nominal for the investor to trade in the security in the stock exchange.
5. There is a transparent form of dealing, as entire information about market forces and their changes are available to the investor.
6. It could fulfil distinctive requirements of the investors. So, it is easy to customise these mutual funds.
7. The regulation of funds is done according to SEBI, so they are considered to be safe for investors.

19.6.1 SCHEMES FOR MUTUAL FUNDS

The schemes available to the investor, under mutual funds can be broadly classified into following to form-

1. **Open end scheme-** In this scheme, the investor is free enough to buy and sell the securities continuously. They are provided with enough freedom, of making a change in their portfolio any time during the year. The prices of units in this scheme are based on the net assets value, which may be calculated as per monthly, quarterly or half yearly dividends, announced by the company.
2. **Closed end scheme-** In this scheme, the investors can change his portfolio only at some specific period of time. In this duration, the investor can buy or sell his units in some listed stock exchange. The trading under close end scheme is very similar

to that of dealing in any security in a stock exchange. The profit or loss in a mutual fund is provided to the investor only after a deduction of different management and administrative expenses.



Check Your Progress-A

Multiple Choice Questions

1. The primary focus of portfolio analysis is on:

- a) Analyzing the individual performance of securities
- b) Determining the optimal allocation of assets
- c) Maximizing returns for a given level of risk
- d) Identifying undervalued securities for investment

2. Which of the following is described as a key step in the portfolio management process?

- a) Technical analysis of stock charts
- b) Fundamental analysis of company financials
- c) Asset allocation based on risk tolerance
- d) Market timing to predict future price movements

3. The primary goal of security analysis in portfolio management is to:

- a) Diversify the portfolio to reduce overall risk
- b) Time the market to buy and sell at optimal times
- c) Identify mispriced securities with growth potential
- d) Maximize returns for a given level of risk

Q4. What are techniques of Portfolio Analysis?

Q5. What are the characteristics of a Portfolio?

19.7 BENEFITS OF PORTFOLIO ANALYSIS

By the help of a portfolio analysis, an investor finds it comfortable to evaluate the amount of funds invested in the portfolio. The benefits can be listed as-

1. **Forecast about the income of investors** - By the help of analysis of a portfolio, it becomes easy for the investor to make a forecast about earnings, being generated in the near future. The investor may also understand the fluctuations in the amount of return, based on past performance. These techniques which are used for portfolio analysis are also beneficial to know about alterations made in the portfolio.
2. **Composition of a portfolio**- The basic composition of a portfolio is also subjected to its analysis over a period of time. The investor looks after profitability, which can be generated from a certain set of securities. So, in order to enhance the income, it becomes necessary that the portfolio should be analysed from time to time.
3. **Safety of capital**- Not only an increase in income, but the analysis of a portfolio is also necessary in maintaining the safety of capital invested in such a portfolio. The appreciation of funds can also be achieved, by the help of understanding the performance of a portfolio.
4. **Fulfilment of objectives of investor**- Every investor, who makes an investment in the units of a portfolio, has distinctive desires, by which he aims at earning certain income over a period of time. The objectives can be achieved by continuously evaluating the performance of the portfolio. If necessary, the constituents of the portfolio must be changed, with a change in market forces.
5. **Understanding the effects of market forces**- By the help of a portfolio analysis, it becomes comfortable for the investor to understand the influences of changes in market forces on the amount of investment, invested by the investor. The changes in these forces shall either increase or decrease the earnings of investors, with a change in prices of securities.
6. **Regulatory framework**- By the help of analysis of an investment portfolio, the regulatory aspects of investment can be understood by the investor. He shall come to know, about the guidelines of different authorities towards making optimum investment.

19.8 LIMITATIONS OF PORTFOLIO ANALYSIS

Analysis of a Portfolio suffers from following limitations-

1. **Rigid market structure**- In order to understand a good portfolio, it is essential to know about the conditions of the market. The financial market and its structure is

complex in nature, which makes it difficult for the investor to understand the changes taking place in market forces.

2. Lack of information- There is a limitation in understanding a portfolio, which is lack of information about securities and their investment. In order to create an optimum portfolio, it is necessary for the investor to know about the pros and cons of each security.
3. Access to Mutual Fund- The environment of risk, in case of a mutual fund, is higher than any other form of securities available in the market. So the terms and conditions of including mutual funds in a portfolio must be understood by the investor.
4. Objectives of investment- Those investors who could not clarify about their objective of investment, would suffer from limitation of excess funds in a portfolio. The objective of making an investment must be predetermined by the investor, before making any investment in the market.
5. Inclusion of security- The securities which are added in a portfolio should be selected by the investor, as well as by the fund manager in a very justified way. Any difficulty in selecting the security may create a defaulting portfolio.

19.9 SUMMARY

In the above unit, we have learnt about the meaning of portfolio analysis and different techniques used in the analysis. We have learnt about the techniques and their implication, in the prevailing market condition, about the merits and demerits of portfolio analysis. Apart from portfolios, we have also learnt about mutual funds as an integral part of a portfolio.



19.10 GLOSSARY

Portfolio Analysis- It is the evaluation of securities, to understand their profit earning capacity.

Portfolio Management- To understand the composition of financial securities in a portfolio and their alteration as per change in conditions of financial market.

Mutual Funds- It is the bunch of securities which generates maximum return at minimum risk.



19.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

1. b
2. c
3. c



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19.14 TERMINAL QUESTIONS

1. What is a portfolio? Explain the characteristics of a portfolio.
2. What is meant by the management of portfolio?
3. Explain different techniques of portfolio analysis?
4. Discuss about “managed portfolios and mutual funds”
5. Write a note on benefits of portfolio analysis.
6. Discuss the limitations of portfolio analysis.

UNIT 20 PORTFOLIO SELECTION

- 20.1 Introduction**
- 20.2 Objectives**
- 20.3 Meaning of a Portfolio**
- 20.4 Techniques of selecting a portfolio**
- 20.5 Determination of efficiency of a portfolio**
- 20.6 Diversification and portfolio selection**
- 20.7 Factors affecting selection of a portfolio**
- 20.8 Portfolio Investment Process**
- 20.9 Summary**
- 20.10 Glossary**
- 20.11 Answers to Check Your Progress**
- 20.11 References/Bibliography**
- 20.12 Suggested readings**
- 20.13 Terminal questions**

20.1 INTRODUCTION

The portfolio selection is the process of distribution of funds among various forms of financial assets, securities and its alternatives. The allocation of funds is decided by the objectives of the investor and the basic principles governing the portfolio. The risk of investment can be reduced to minimum by the help of such principles, but it is also true that the amount of risk involved in an investment proposal depends on the amount of income generated out of investment. So, the objective of a portfolio selection is to produce maximum wealth with minimum risk. The objectives of an investor for making investment are to generate regular and stable income along with appreciation of capital, maintain marketability, safety, liquidity, and reduce the liability of tax.

A portfolio manager is allotted with the task of selection of a portfolio, after all of the above objectives have been taken into consideration. It can be said that a portfolio is a combination of all those securities which may fulfil the objectives of an investor and could adapt to the changes in conditions of the market. Before the construction of a portfolio, the characters of all the securities are understood and all the investment alternatives are well analysed. The selection of a group of securities is done by which a maximum return can be generated with an adequate amount of risk.

In the words of Graham, the selection of a portfolio is basically the process of allocation of funds in such financial securities which are available for investment of an investor.

The theory of construction of a Portfolio is based on all those principles and objectives, for which the portfolio must be made.

The basic principle of drafting a portfolio is to find out all the alternative ways of minimising risk and achieving a desired level of return, which should be maximum for the investor in formation of a portfolio. The objectives of investors are prominent key factors, as the portfolio is constructed and selected, after keeping the priorities of the investor in mind. A portfolio of one group of investors varies from the other, as there can be differences in their objectives, amount of investment, level of risk and differences in market conditions. Therefore, it is not essential that two portfolios must coincide each other in terms of risk and return.

20.2 OBJECTIVES

The following objectives are required to be fulfilled by the Scholars after learning this unit-

1. To know the meaning of a Portfolio and the techniques of construction of a Portfolio.
2. To understand traditional techniques of construction of a portfolio and factors affecting the techniques.
3. To know about the modern techniques of portfolio construction and steps in the selection of a portfolio.
4. To know the usability of a portfolio and its benefits to the investor over any other form of investment.

20.3 MEANING OF A PORTFOLIO

A portfolio is said to be a group of securities, which constitutes a combination of those securities and financial assets that help in reducing the risk of investors. The aim of a portfolio is to generate maximum return with minimum risk involved. Therefore, in the selection of a portfolio, it is very important for the investor to understand the conditions of the market, amount of risk involved in securities, factors affecting performance of a company, amount of income to be generated over investment etc. While making the selection of a portfolio, the investor should match his own objectives with the features of securities, by which an optimum portfolio can be generated, with a given amount of risk and return. There are both traditional as well as modern techniques of selecting a portfolio, which are further explained in the unit. These techniques are used by the investor to know the efficiency and effectiveness of the selected portfolio.

Another factor which must be kept in mind while selecting a portfolio is the element of diversification. The term diversification is related to the process by which risk can be

reduced. An investment which is made in one organisation is more risky as compared to investments which are made in multiple organisations. So, it is believed that in a diversified portfolio, more than one form of organisation and more than one form of securities are included, so that both risk and return can be balanced.

In the selection of a portfolio, following two aspects are important-

1. The process of selection needs to be optimised while creating a Portfolio. It must be seen that an adequate number of companies are included in the selection of securities. If the number of organisations is too small, then it involves huge risk and diseconomies. Whereas, if the number is too large then it may result in over capitalisation of the amount.
2. Adequate diversification must be maintained in constructing a portfolio. The diversification should be done among those companies, who provide a wide variety of securities to the investors. The selection should be done among those securities, which move in the same direction with the movement of the market. So, before making a diversification, it must be seen that there is either no or negative correlation between organisations in which securities are selected.

20.4 TECHNIQUES OF SELECTING PORTFOLIO

The selection of a Portfolio is a complex process, which could be done by use of two techniques. It is traditional and a modern technique, by which a portfolio can be selected. The modern technique is also known as efficient Frontier technique.

20.4.1 TRADITIONAL TECHNIQUE

In the traditional techniques of portfolio selection, the decision should be made about which security must be added in the portfolio, so that maximum return can be generated. This technique involves two major decisions, first is determining the objectives of the portfolio. Second is selection of securities which are included in the portfolio.

Before making a decision about the format of the portfolio, the aim of the investor should be well understood and analysed. There should be a well-defined framework within which the objectives of investors are formulated and understood. On the basis of these goals, the selection of securities must be done. Then, the return and risk regarding securities must be considered. The investor undertakes risk in two forms, which is a risk or no risk factor. Following steps are undertaken in a traditional analysis-

1. **CONSTRAINTS ANALYSIS-** The first and the most important step in traditional analysis, is to understand different constraints which are involved in selection of a Portfolio. These constraints are as under
 - **Factor of income-** The first concern for an investor is the need for income, which can be both a current and a fixed income. The need of

current income is for maintaining a living standard. Whereas, a constant income is required to bear uncertainty like inflation. With an increase in inflationary rate, the purchasing power of investors keeps on declining. On the other hand, the planning of funds of an investor totally depends on his current income. So, investment should be made in such securities that provide a higher rate of return and could easily manage with increase in inflationary rate.

- **Maintaining liquidity-** The need for liquidity is considered to be one among individual factors of an investor. Those investors, who prefer to have higher liquidity, should invest in short term funds, which are based on debt. They must include money market funds, such as commercial paper, T bills etc. These investors should always look after meeting their requirements in advance for cash.
- **Security of principal amount-** Apart from regular income and liquidity, the security of principal amount is also a concern in the portfolio selection. There should be an assurance in maintaining the principal amount. The investment in bond or debenture, which is considered to be far safer than shares. Also investments which are made in listed companies are considered to be better than non-listed companies. So the decision of investment is made after undergoing industrial and company analysis.
- **Limitation of tax-** The obligation of tax is also one of the important aspects, as an investor is required to pay income tax on his income. The income which is generated out of investments is subject to income tax, and such investment must be done which reduces the tax liability of investors. Such constraint requires that the financial assets must be included in a portfolio, which reduces the liability of tax.

2. DETERMINATION OF OBJECTIVES

The second step under the traditional approach of portfolio selection is to determine the objectives for which the portfolio is formed. There can be different objectives of different investors, including current income, growth in the income, appreciation of capital, security of principal amount invested etc. In general, an investor is interested in attaining all these objectives, but if it is not possible to achieve all of them, then each investor looks after the appreciation of his basic amount invested. For this purpose, the investor would reduce the inclusion of any risky securities in the portfolio. But it does not guarantee efficiency of investment. So, the investor has to take a certain risk in selecting a portfolio.

3. PRINCIPAL PORTFOLIO SELECTION

In the selection of a portfolio, the investor pays attention to his objectives and must combine all the factors influencing market conditions, in the selection of an optimum portfolio. The following must be considered when a portfolio is selected-

- **Objectives and assets mix-** When the investor is getting adequate current income, then a large part of investment should be made in debt securities, whereas a small amount should be diverted in equity. With an objective of generating better income, investors should always look after debt investments in short term securities.
- **Growth in assets and income** - The investor must look for growth of a certain percentage in the income from his investment. So, for such growth, the portfolio should consist of more than 60% of equity and 40% of debt. Investment in equity is more risky than that of debt. Therefore, while including equity in the portfolio, the investor must include the factor of risk and risk bearing capacity of the investor for making such investment.
- **Appreciation of capital-** Apart from earning certain income, the investor has an objective of improving the basic amount invested. Whereas, the safety of capital is also expected by the investor for fulfilment of capital appreciation. The investor ought to make 90% investment in common securities including equity. Whereas 10% investment should be made in general securities like bonds. The investments made in the real estate will appreciate capital at a faster rate, but it fails in providing adequate liquidity to the investor

4. RISK AND RETURN ANALYSIS

In the traditional analysis, we need to analyse both risk and return, so that an optimum amount of return can be generated with minimum risk. The selection of a portfolio is based on the assumption that the investor is ready to bear enough risk, so as to get surplus income. It is a higher amount of investment that an investor makes, who is interested in generating higher returns. Investors used to make risky investments to achieve such returns, which depend on the composition of assets and capacity of bearing risk. Such risk can be a systematic market risk. It can be the risk of interest rate or business and financial risk.

5. DIVERSIFICATION

After the determination of the mix of assets, risk and return is understood. It becomes important that a portfolio must possess all the qualities of diversification. By the help of such diversification, it becomes easy to reduce financial risk, by making an investment in best quality bonds. The diversification of a portfolio is totally dependent on the ability of an investor to bear risk, and expectation of generation of income. By including convertible securities in the portfolio, it becomes easy to balance financial risk as well as

the purchasing power risk of investors. When a portfolio is made concerning bonds, then it is important to know how to create a balance between short and long term securities. The short term security involves higher risk, but they shall provide a better return. On the other hand, long term securities are best for generating a fixed income.

20.4.2 MODERN APPROACH

This approach is also called the Markowitz model. Under the traditional approach, a comprehensive plan is developed for inclusion and exclusion of securities, and it considers the individual desires of an investor. The investment can be made for housing, pension or Life Insurance. But, financial planning is not considered in the Markowitz model. The modern approach of portfolio selection lays emphasis on the process of selecting a portfolio, more than its constituents. According to this approach, the selection of securities is not done on the basis of appreciation or income, but it totally depends on risk and return that can be borne by an investor.

Under this model, the term return includes both incomes generated from the market as well as dividend provided by the company. The return which is achieved by an investor is the combined total of both incomes from the market as well as dividend from the company. So, there may be selection of such stock, which is listed in exchange and then a calculation is made about expected risk and return from these securities. Those investors who prefer a higher return will always include this kind of securities in the portfolio. In this approach, the final step is about allocation of assets, which are chosen in a portfolio, which provides a higher rate of return to the investor. Those investors who could bear a lower risk shall always select a lower tolerance portfolio.

Once the portfolio is drafted, the investor has to look after its management. So, the management of a portfolio can be done by two ways-

1. **Passive approach-** In this approach, the investor keeps on holding the securities, till the date of its maturity. The risk of holding the securities is provided in the form of a higher income, as compared to any other security in the market. It involves bearing more risk as compared to selling securities before the date of maturity.
2. **Active approach-** In this approach, the investor makes an evaluation about market risk and return, by which he keeps on changing the securities as per his requirement. The investor understands the risk, which is related to the market, group or securities and then changes his requirement as per the change in market conditions.

20.5 DETERMINATION OF EFFICIENCY OF A PORTFOLIO

The level of efficiency of a Portfolio depends on those securities, which are combined and added together to construct a portfolio. In case of multiple portfolios, they must be provided with an order number and then the expected return from every portfolio should be calculated. The risk involved in each kind of a portfolio is calculated by using the formula for standard deviation. So, in order to minimise the level of risk, the investors make an investment in multiple forms of securities. Then, by comparing both portfolios, the decision of including a security in the portfolio is undertaken. Those securities that have lower risk are always a part of the portfolio, whereas such securities which involve higher risk, but provide lower rate of return are excluded.

20.6 CONCEPT OF BETA

Beta is the result achieved by dividing percentage change in return from securities with percentage change in return from market. We can say that, beta helps to establish a relationship between the return of securities and the return generated from the market. The term beta is taken from the Greek alphabet and the use of its coefficient is better done in investment decisions. While selection of a portfolio is done by the investor, he establishes a positive relation between prevailing prices of securities and the value of coefficient in the market. The use of beta is done for reducing the risk, as well as for determining both risk and return of securities and portfolios. When the prices in the market are declining, then the value of the coefficient of beta is always high and positive. This shows that it is a better decision to sell the securities. On the other hand, when prices are declining, the beta coefficient lowers, which means that securities should be sold in order to maintain an optimum amount of liquidity. In order to understand a market and its movement, both positive and negative symbols are used, to know a positive or negative change in the market. Also, for making a prediction in future, the past value of beta must be considered.

The importance of beta is understood in measurement of risk and reducing it with selection of the securities. It also helps in evaluation of those portfolios, which are most profitable to the investor. By using the coefficient of beta, it is possible to reduce systematic risk in the market. It is also used in understanding the sensitivity of assets, and its return towards market conditions. The selection of securities is based on the value of beta, so after the study of beta coefficient, investment decision is undertaken. It also plays an important role in deciding the size of a portfolio. It also helps the investor, in understanding a long term and stable kind of security.

The calculation of the value of beta can be both positive as well as negative. When the prices of securities are increasing in an opposite direction, then beta is said to be negative. Whereas, when the prices of stock keep on fluctuating in the same direction,

then beta is said to be positive. When the value of the coefficient of beta is more than one, then we can say that securities are aggregative in nature. In spite, if the value of beta coefficient is less than 1, then securities are defensive in nature. On the basis of the value of beta, the investors are intended to make a decision about which nature of securities are to be selected and how much amount is to be invested in the forecasted market. On the basis of change in forces of the market, the value of beta is determined.

20.7 DIVERSIFICATION AND PORTFOLIO SELECTION

Diversification is said to be a technique of reducing risk in the portfolio. This process includes all the assets, instruments of investment, securities of the company and government in a way that, total risk of a portfolio is minimised. So, diversification is better used in reducing systematic market risk and shall provide maximum return at a certain level.

In reducing unsystematic risk, the securities of a large number of companies and industries are combined together. So, diversification can be of the following forms-

- It can be in the form of government securities, gold, real estate or private equity.
- It can also be in the form of stock, debentures, general bonds, government bonds and mortgage securities.
- Various types of industries including chemical, engineering, cement, plastic, fertilisers, steel etc. are included in constructing a portfolio.
- The securities from both existing as well as old companies are selected for a well-defined portfolio.

The process of diversification is governed by the principles of, more risk and more return. It is assumed that those companies and industries, which have higher risk involved in them, shall provide a better return. It is also assumed that, investments made in two companies are always less risky as compared to investments made in one company. When two companies or industries have the same demand for their product, then it is riskier to invest in them.

20.7.1 RANDOM DIVERSIFICATION

The technique of simple random diversification is used to reduce the overall risk of making investment in the portfolio. The investor has randomly selected about ten securities, which will have a lower risk as compared to the portfolio, which has three securities. It is because an unsystematic price fluctuation has no correlation with systematic. It is beneficial that a portfolio must include land, number of companies and industries. But it cannot be said that such a portfolio is enough or sufficient. It is because, it needs for making a portfolio diversified-

1. **Selection of industries and companies** - In a usual way, the expectation of risk in a portfolio can be easily reduced, when selection of companies or Industries is

done in a random manner. Such companies and industries are provided with a number, and then the numbers are randomly selected by which the selection of securities can be performed.

2. **Need for adequate diversification-** It is also important that a larger and variety of companies must be included in the portfolio, so enough diversification can be seen. By maintaining an adequate amount of diversification, it is possible to reduce the risk at a minimum level. It should be also kept in mind that selection of securities is an important aspect in maintenance of an optimum portfolio. So, in spite of including a large number of companies, it is important to maintain the right number of securities in the portfolio.
3. **Diversification by Marco units** - According to the macro model, a systematic risk arises due to different policies and performances by the companies. So, the number of stocks and securities, which are included in a portfolio, should neither be too large nor too small. By including an enough number of securities, it is possible to reduce the amount of unsystematic risk.
4. **Selection of a Portfolio by advantage to investor-** There are a large number of companies, who provide an advantage to the investor, involving less risk or reducing the risk at the desired level. When the number of companies is too large, then the investor finds it difficult to analyse securities. Their monitoring and controlling is done in such a way, that the right number of securities is included in the portfolio.
5. **International diversification-** The diversification in a Portfolio is not just required for domestic or national securities, but an investor is free to make a selection in foreign securities or financial assets. Such a portfolio is diversified on an international basis, by which higher return can be generated and level of risk can be controlled in order to include a variety of securities. It is necessary that the financial market should be valid and comprehensive in nature. Also there must be adequate opportunities for investing across countries. It must also be seen that the rate of return should be greater in foreign securities as compared to the domestic market. The economic and business conditions of the international market should be investment friendly whereas the rate of currency should be stable.

20.8 FACTORS AFFECTING SELECTION OF PORTFOLIO

The selection and construction of a portfolio is bound to various factors that an investor should keep in mind. These factors are as under-

1. **An objective of investor-** In the selection of a portfolio, the most important factor which affects the selection of securities, is the objective by which an investor is making an investment in the portfolio. Such investors, who have an objective of earning regular income, are intended to invest in short term

securities. Whereas, in order to earn capital gains, long term securities must be included in the portfolio.

2. **Risk factor-** Risk is one of the most important elements that play a vital role in the construction of a portfolio. When similar kinds of companies are included in a portfolio, which have synonymous demand, then the level of risk is high. Whereas, including diversified securities shall lead to reducing the level of risk. Also, when the investor includes different companies and industries in a portfolio, then it becomes easy to keep a control on the investment and risk.
3. **Relevance in market conditions-** The conditions of a financial market are also responsible in selection of an optimum portfolio. When the market is in a prosperity phase, it becomes more beneficial to invest in a portfolio form of security. The inclusion of bonds and debentures is done, when the market is slow or riskier.
4. **Amount of investment for construction of a portfolio-** It is important that the investor should decide the amount of funds, which should be invested in a portfolio. There must be a correct decision about which kind and how much securities should be included in a portfolio. According to the Markowitz model, it is important that the correct number and right nature of security should be included in a portfolio, to generate maximum return.
5. **Combination of securities-** A portfolio is a group of securities, which are diverted towards earning optimum return with minimum risk. But the selection of securities is subject to the objectives of the investors, as well as privileges provided to the investor in making such an instrument. So, the combination of securities is done for fulfilment of objectives of investors, as well as gaining security of investment.
6. **Management cost -** The maintenance of a portfolio is done by a manager who is professional in nature, and is known as a portfolio manager. The manager shall charge certain remuneration for maintaining the portfolio. Therefore, the selection is also based on the amount paid towards the maintenance, to the portfolio manager.
7. **Changes in Financial objectives:** As there is a change in investors age or their financial situation (e.g., job changes, marriage, children, retirement), their investment goals and risk tolerance may also change. For instance, a young investor saving for a home might prioritise development, whereas, a retiree might focus on income and capital preservation.
8. **Market Conditions:** Economic and market conditions are constantly diverting. Shifts in the economy, rate of interest, inflation, or geopolitical location, can impact the performance of different asset classes. Regular evaluation of a portfolio helps investors to response to these changes by reallocating assets to more favourable investments.
9. **Performance of the Investments:** Over a long time, certain investments within a portfolio may outperform or underperform. Regularly reviewing the

performance of individual assets, can help to identify those assets which are not meeting the expectations and needs to be replaced or rebalanced.

10. **Tax Considerations:** Tax laws and individual tax situations can change which may influence the attractiveness of certain investments. Portfolio selection can help in optimization of tax efficiency. For example, by realising capital losses to offset gains, or by taking advantage of tax-advantaged accounts.



Check Your Progress-A

Q1. Which of the following is most closely related to the portfolio selection process?

- a) Macroeconomic factors
- b) Accounting principles
- c) Security analysis and valuation
- d) Behavioral finance

Q2. The primary goal of portfolio management is to;

- a) Outperform the overall market
- b) Minimize risk at any level of return
- c) Achieve a balance between risk and return
- d) Maximize returns at any level of risk

Q3. Which of the following is identified as a key step in the portfolio selection process?

- a) Forecasting future cash flows
- b) Identifying investment objectives
- c) Calculating the cost of capital
- d) Diversifying the portfolio

20.9 PORTFOLIO INVESTMENT PROCESS

The objective of a portfolio manager is to reduce the risk of investment, by increasing the income for the investor, so that the expected objectives of investment could be achieved on time. It is essential for the manager, to know about the portfolio investment process. The process of management of a portfolio includes various logical steps like implementation of the portfolio and its return in monetary forms. The process of portfolio investment is used by organisations, for their different requirements. The investor must

purchase securities at lower prices and must sell them at the highest available price, as per normal fluctuations in the market. The most important part of the portfolio investment process is, to fulfil the needs and desires of an investor. So, it involves the following steps-

- Planning about an efficient portfolio.
- Implementation of the plan in investment.
- To monitor the performance of a portfolio.

20.9.1 PLANNING ABOUT A PORTFOLIO

In the management of a portfolio, planning is the first and foremost step, in which the portfolio manager is careful about selection of securities. When an investment plan is made, the manager is expected to consider the financial abilities of the investor, as well as the situation of the financial market. After understanding various speculative and investment policies, a plan is made in writing. This written statement is called a statement of investment policy. It includes portfolio objectives, the strategies applicable and investment criteria implied. It is essential that the document of planning should be clearly defined with the allocation of assets. It is also necessary that an optimum combination of various assets must be made, in the most efficient market. The manager should also know to distinguish between actual return of a portfolio and pure investment portfolio. A portfolio planning includes the following-

1. **Conditions of investor-** The foremost statement that must be understood by the portfolio manager, is the purpose of forming a portfolio. It is commonly ignored by the investor in selection of securities. But it is important that the condition of the investor should be reflected in the selection of securities. By understanding trading in securities, it becomes easy to understand the level of liquidity of a portfolio and also the level of risk is predetermined.
2. **Conditions of market-** For a rational investor, before making an investment in a portfolio, he should also know about all the latest developments taking place in the securities market. He should be in a position to understand the future changes taking place in the instruments of the capital market. There can be long and short term expectations of an investor, so in the construction of a portfolio, the investor must look behind an optimum allocation in securities, which may fulfil both of these objectives. The portfolio must be flexible enough, so that it may be changed as per the changes in market conditions.
3. **Speculative policies-** In order to achieve maximum earning from the market, the investor of a portfolio should look after the construction of adequate speculative strategy, by which the management of portfolio becomes comparatively easier. The adoption of speculative strategies also plays an important role in selection of securities. So, marginal investors do not make much investment in mutual funds or in index stock.

4. **Strategic assets allocation-** One of the major decisions to be taken by an investor, is about distribution of different assets in a portfolio. The allocation of assets is the percentage of total amount invested in different classes of securities and financial assets. There can be a wide variety of instruments, including money market instruments, equity, international securities, real estate investments or fixed income securities available to the investor. Allocation of funds in a strategic manner involves distribution of funds, in such a way, that long term balance in a portfolio can be achieved.

20.9.2 IMPLEMENTATION OF PORTFOLIO PLAN

In the implementation of a portfolio plan, there are three major decisions, which are to be made by an investor. It is about the selection of securities, the duration of investment and the amount to be invested in the portfolio. In the implementation of a portfolio plan following two aspects are analysed by the investor-

1. **Assets allocation-** While making an allocation of funds in different assets, the investor must follow a strategic assets allocation policy. Under this strategy, different classes of assets, industries or economic units are being selected, in which a mixture of various assets is selected for making an investment. It is also seen that, the prices must neither be too high nor too low. For making a balance in the portfolio, a variety of securities, financial assets, industries and economic sectors are considered. While making an investment in the traditional layout, only a single class of assets are selected, in which investors use to employ all their funds. But in modern times, highly risky, as well as risk free security are considered to be included in the portfolio.
2. **Selection of security-** Under an active management strategy of portfolio, it is also important that, the selection of securities must be done in a very justified way. The selection must take place from different classes of assets, different forms of industries and from economic units. The strategic assets allocation policy, always focuses on making an investment in diversified assets, in which more than one class of security is included.

20.9.3 MONITOR THE PERFORMANCE OF A PORTFOLIO

Once a portfolio is being planned and the securities are selected in accordance to it, then it comes to monitoring, how the portfolio performs in the market. It is a continuous assessment of performance of a portfolio, according to the development taking place in the securities market. A portfolio manager must always consider choices of investors, conditions of the securities market and the expectations from market fluctuations, as the premises of performance evaluation. By monitoring a portfolio, it is easy to upgrade the activities of market, economy and industry. The conditions of the market largely depend on the policies of the government and any change in such policy, is reflected in the

working of the stock exchange. So in the revision of a portfolio, following factors are considered-

1. Changes which are taking place in government policy.
2. The shifting of one industry to the other industry.
3. The shifting of one company's scrip to another company's scrip.
4. The changes taking place from one financial instrument to another.
5. The analysis of results of the corporate sector, on half yearly or yearly performance.

In the monitoring of a portfolio, it is important to consider the factor of risk and reduce it up to a minimum. Such reduction can be done only by creating a diversified portfolio or making essential changes in the constitution of assets. Such composition can be changed, by maximising the returns of the portfolio, so as to achieve the goals of the investor.

20.10 SUMMARY

In the above unit, we have learnt about the meaning and nature of portfolio and different techniques of selecting a portfolio. We have discussed both traditional and modern techniques with their advantages and disadvantages. The unit also includes the meaning and importance of beta coefficient, along with the role of diversification in portfolio selection. We have also discussed what the factors which affect selection of a portfolio are.



20.11 GLOSSARY

Portfolio- A portfolio is a group of securities, which constitutes a combination of those securities and financial assets that help in reducing the risk of investors.

Diversification – Diversification is the mix of assets, financial securities and bonds. It is important that a portfolio must possess all the qualities of diversification.

Beta - Beta is the result achieved by dividing percentage change in return from securities with percentage change in return from market.



20.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

1. c
2. c
3. b



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20.15 TERMINAL QUESTIONS

1. Explain the meaning and objectives of a portfolio?
2. Discuss different techniques of selecting a portfolio?
3. What are the determinants of efficiency of a portfolio?
4. What do you mean by diversification and portfolio selection?
5. Explain the factors affecting selection of a portfolio?
6. Explain portfolio investment process?

Block IV
Portfolio Management

UNIT 21 CAPITAL ASSET PRICING MODEL

21.1 Introduction

21.2 Objectives

21.3 Risk-free Asset

21.4 Portfolio

21.5 The Capital Market Line

21.6 Risk in Investment

21.7 Beta Factor (a measure of systematic risk)

21.8 Market Portfolio

21.9 Capital Asset Pricing Model

21.10 The Limitations of the CAPM

21.11 Summary

21.12 Glossary

21.13 Answers to Check Your Progress

21.14 References/Bibliography

21.15 Suggested Readings

21.16 Terminal Questions

21.1 INTRODUCTION

The Capital Asset Pricing Model (CAPM) was contributed to by multiple writers. Sharpe was awarded the Nobel Prize in 1990 and is regarded as the pioneer. Treynor created a model on his own that was somewhat close to Sharpe's. Eventually, a few years later, Mossin, Lintner, and Black made contributions. The concept of risk was first included into asset appraisal via this model. It assesses how sensitive the security is to the market and how the asset return compares to the market return. The initial risk-adjusted performance measures originated from it. The Capital Asset Pricing Model (CAPM) is based on a collection of ideas and precepts that came forth. The findings of Markowitz are taken into account by the Capital Asset Pricing Model (CAPM). It makes use of them to determine how systematic risk and the predicted returns of individual securities as well as portfolios relate to one another.

21.2 OBJECTIVES

The objectives of studying the Capital Asset Pricing Model (CAPM) unit are:

- To understand the Relationship Between Risk and Return.
- To calculate Expected Return Using CAPM.
- To analyze Systematic Risk with Beta.

21.3 RISK-FREE ASSET

An asset that has a predetermined future return is considered risk-free. Put differently, an asset that is free of risk is one for which the investor is assured of the asset's value at the conclusion of the holding period and there is no ambiguity about future returns. A risk-free asset's return variance is therefore equal to zero. Government bonds are an excellent illustration of such an asset. Are all kinds of government bonds considered risk-free investments? Because long-term government bonds are subject to many risks, such as inflation and interest rate risk, it is challenging to answer. For example, if an investor has a three-month holding period and a government security has a maturity period of, say, 15 years, the investor does not really know at what market price he will be able to sell the security at the end of his holding period. Any modification to the interest rate structure during the holding period will have an impact on the security's market price. To offer an example, an increase in interest rates will generally result in a decrease in market price, such that the yield-to-maturity of a new issue with a same maturity term compares favourably with the yield-to-maturity of the security acquired at market price. This exemplifies the concept known as "interest-rate-risk." Thus, risk-free securities are what short-term government securities like Treasury Bills are typically referred to as.

Can corporate debentures be regarded as an asset without risk? Definitely not, since they include a default risk in addition to inflation and interest rate risk. Actually, corporate bonds are riskier due to issues with liquidity. They do, however, perform better than stock on risk in comparison. What is the comovement of risky asset (or portfolio of risky assets) returns and risk-free asset returns? Remarkably, it is always zero. The covariance between the returns of the two assets, "i" and "j," as we may remember, is provided by

$$\sigma_{ij} = \rho_{ij} \sigma_i \sigma_j$$

Where ρ_{ij} , σ_i , σ_j are the correlation co-efficient and standard deviation of returns on assets 'i' and 'j' respectively.

If one of the assets is a risk-free asset, say asset 'i', then the risk on the risk-free asset is measure by standard deviation (σ_i) is zero and hence the (relationship between the returns of the two assets "i" and "j") covariance (σ_{ij}) is also zero.

Risk-Free Lending and Borrowing

Investing in risk-free assets is often referred to as "risk-free lending" because investing in such assets means lending directly to the government. An investor should not depend only on their wealth to decide how much to invest in securities. He can borrow to invest as well, and can make use of financial leverage. However, the investor must pay interest on the borrowed funds, and such a loan also assumes the same risk-free interest rate and is therefore considered as a "risk-free loan". Although it may not be practical for an individual investor to borrow at a risk-free interest rate, large funds can safely borrow at an interest rate if not equal at least at a rate close to the risk-free interest rate.

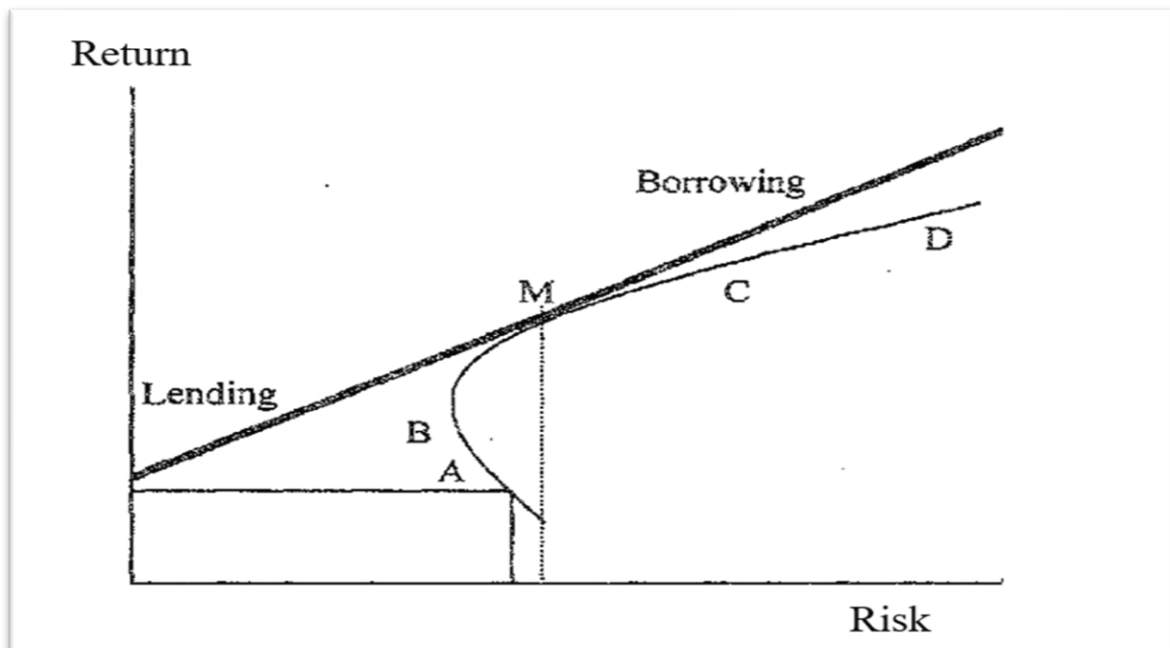
21.4 PORTFOLIO

A portfolio is a grouping of investment instruments and financial assets owned by an investment firm, financial institution, or individual. An investor's portfolio is made up of a variety of different assets. Aside from financial assets, the aforementioned collection may also include items like bonds, cash equivalents, gold, equities, funds, derivatives, property, and so on. People invest in these kinds of assets in order to make money while making sure that the capital or asset's initial equity does not diminish. Depending on their level of experience in the investment world, people might choose to handle their own portfolios or enlist the help of qualified financial counsellors. Financial experts say that one of the most important concepts in portfolio management is diversity.

The process of building an investment portfolio that minimises risk and maximises profits is known as portfolio selection. It is choosing a group of assets with varying expected returns, degrees of risk, and degrees of correlation. Finding the ideal combination of assets that offers the best expected return for a given level of risk, or the lowest risk for a given level of expected return, is the aim of portfolio selection. Harry Markowitz first proposed the idea of portfolio selection in 1952. Markowitz demonstrated that instead of concentrating their investments in a single asset, investors can lower risk by diversifying their holdings over a number of assets. He created the idea of the efficient frontier, which is a collection of ideal portfolios that provide the lowest risk for a given level of expected return or the highest expected return for a given level of risk. The "efficient set" will determine the opportunity set of investments or portfolios available to an investor.

Since an efficient set is a continuous curve, there exists an endless number of efficient portfolios. Any amount of expected return can be found by minimising portfolio risk, also known as return variance, to find an efficient set. We have one point, or a portfolio, on the efficient frontier if we set the return at a certain level and reduce risk. It is then just a matter of the computer employing its graphics capabilities to create the graph of the efficient set, provided that a sufficient number of efficient portfolios have been identified.

A straight line represents the returns-risk graph for portfolio possibilities, which combines the risky and risk-free portfolios on the Markowitz efficient frontier as shown in figure below.



Efficient Set of Portfolios with Risk-Free Asset

Riskier assets are included in the set of efficient portfolios denoted by the points A, B, M, C, and D on the curve. Assume a risk-free asset with a return of R_f . Now compare an investment in a risk-free security with one risky asset in portfolio 'A'. The return on investment in risk-free securities is larger than that of investment in portfolio 'A'. Investments in risk-free securities are therefore preferable to those in A, making A as an inefficient portfolio. The efficient portfolio is now a tangent line traced from R_f via the point A-B-M-C-D in the curve. One portfolio with risky assets, designated as 'M', is the only one that falls under the new efficient frontier. This type of portfolio, known as a "market portfolio," which is made up entirely of riskier assets. With a portion of their money invested in M and the remainder in R_f , investors can now profit from the efficient frontier. An investor who is willing to take on the most risk, for example, would put all of their money into M, but an investor who is risk averse would put all of their money into R_f . A moderately risk-averse investor will allocate 50% of their investment to R_f and the remaining 50% to M. If an investor wants to make more than M, they must borrow money at a risk-free interest rate, invest it in M, and then collect the difference between M and R_f to maximise their return.

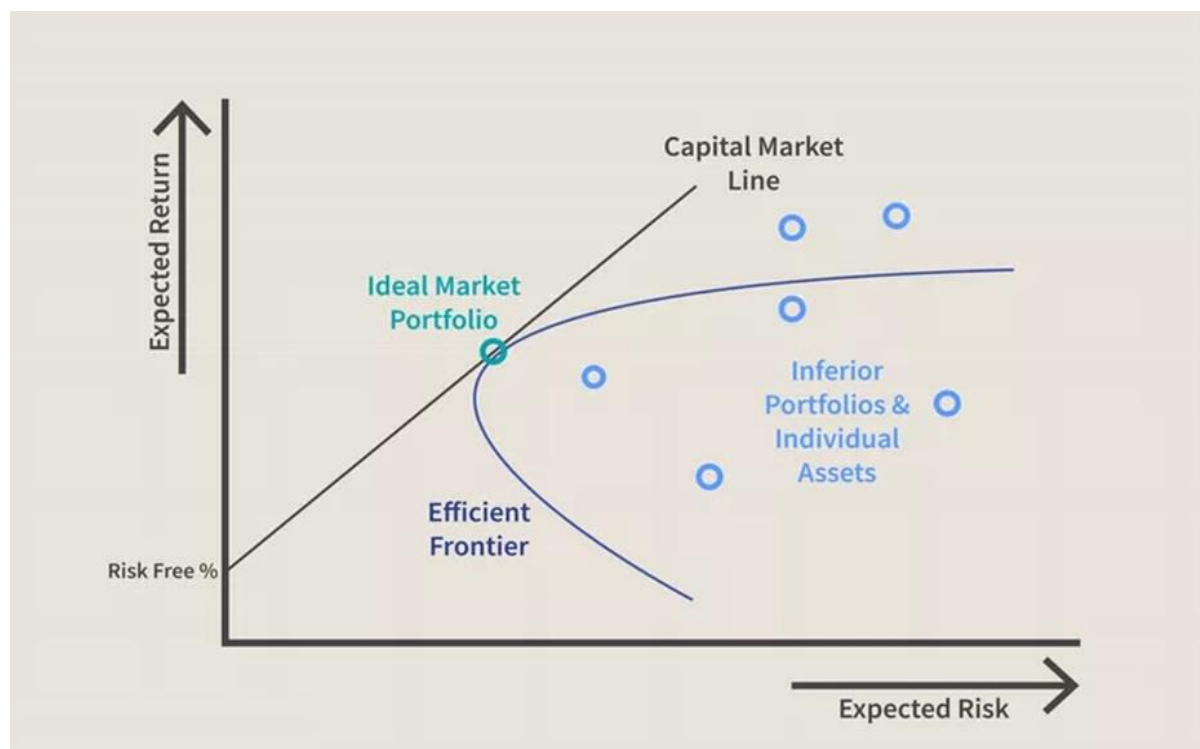
The "market portfolio" is portfolio M, which stands for "optimal combination of risky assets." Each investor will produce the same risk-return graph, as shown in figure 12.1 if their expectations are all the same and they are all exposed to the same risk-free lending and borrowing rate (R_f). Everyone would receive the identical tangency portfolio M,

which they would then use to invest in risk-free lending or borrowing in order to reach their own individualised target overall return and risk ratio.

A leveraged portfolio, which would have a higher risk and return than portfolio M and might be preferred by an aggressive investor. A conservative investor, on the other hand, may like a lending portfolio because it would have a lower risk and return than portfolio M. An investor's choice to maintain or not to maintain a leveraged portfolio is solely based on their "financial decision" making process and risk tolerance. It is unrelated to the choice of whether to hold the combination of risky assets (i.e., the investment choice) that corresponds to the portfolio M.

21.5 THE CAPITAL MARKET LINE

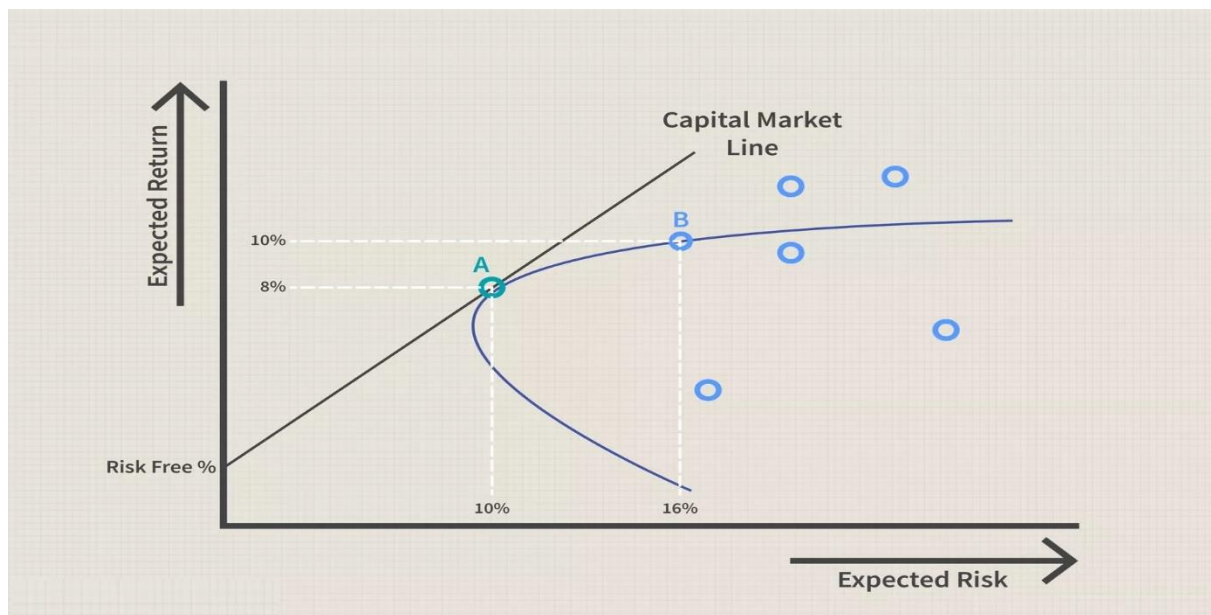
Once M has been identified as the market portfolio, we can designate the straight line that passes through R_f as the "capital market line" (CML). The risk premium resulting from taking on additional risk is shown by this line. By including an asset that yields a risk-free rate of return in the analysis, James Tobin introduced the concept of leverage to Modern Portfolio Theory. A risk-free asset can be combined with a risky asset to create a portfolio with a better risk-return profile than a portfolio on the efficient frontier.



The graph shows how higher expected return (y-axis) means higher expected risk (x-axis). Modern portfolio theory (MPT) suggests that starting from the risk-free interest rate, the portfolio's expected return increases as risk increases. Any portfolio that fits the capital market line (CML) is better than any possible portfolio to the right of it, but at

some point a theoretical portfolio can be constructed on the CML that has the best risk-adjusted return. assumed.

Two portfolios that have been built to fit along the efficient frontier are displayed in the accompanying graphic. Portfolio A has a 10% standard deviation, or risk level, and an estimated 8% annual return. Although Portfolio B has a 16% standard deviation, its annual return is predicted to be 10%. Portfolio B's risk increased more quickly than its anticipated profits.



21.6 RISK IN INVESTMENT

Let us also review once again the concepts of systematic and unsystematic risk before moving towards understanding the Capital asset pricing model. Under certain assumptions, all rational, profit-maximizing investors want to own a fully diversified market portfolio of risky assets, and they lend or borrow to achieve a level of risk consistent with their risk preferences. Under these circumstances, they showed that an appropriate risk measure for an individual asset is its movement with the market portfolio. This change, measured by the market portfolio with the covariance of the asset, is called the “systematic risk” of the asset, the fraction of the total variance of an individual asset due to variation in the entire market portfolio.

Systematic risk is the inherent risk associated with the market as a whole or with market segments. This is sometimes referred to as "market risk" or "un-diversifiable risk". Sources of uncertainty include interest rates, inflation, economic policies, recessions, conflicts, and other Systematic risk, as they have an impact on the whole market and cannot be mitigated by diversification. The risk premium of an individual yielding asset

is a function of the systematic risk of the asset relative to the entire market portfolio of risky assets.

Unsystematic Risk: In addition, individual assets have volatility not related to the market portfolio (non-market volatility of assets) due to the unique characteristics of the asset. It is determined by individual risk unique to a given business or sector. This off-market variance is called “unsystematic risk”. A few instances include work stoppages, shifts in customer tastes, and corporate policies regarding finances and marketing. Risk specific to a company or industry is called unsystematic risk. This risk can be reduced with diversification. Unsystematic risk is also known as "specific risk", "diversifiable risk" or "residual risk". and is generally considered significant because it can be eliminated in a highly diversified portfolio.

It was realised that systematic and unsystematic risk may be separated out of an investment's total risk (the standard deviation of its returns) within a diversified portfolio. Effective diversification can completely eliminate the unsystematic risk whereas the systematic (also known as market risk) cannot be. As a result, it influences the portfolio's total risk. Portfolio analysts were first to see the significance of systematic (market) risk as all rational investors (including management) interested in wealth maximisation should be concerned with individual security (or project) risk compared to the stock market as a whole. It is the one risk, in Tobin's opinion (1958), that people are willing to pay extra to avoid. The necessary return on a risky investment was thus reformulated as the risk-free return plus a premium for risk, based on the suppositions of ideal markets with chances for risk-free investment. This premium is only based on the investment's systematic (market) risk, not the overall risk. Naturally, a financial security's systematic risk (for example, a share of a corporation) may differ from the market's overall risk. Similarly, within a single organisation, the systematic risk associated with a certain project may vary from that of another.

21.7 BETA FACTOR (A MEASURE OF SYSTEMATIC RISK)

A measure of an asset's systematic risk is called its beta. Market risk is another name for systematic risk, which is quantified by beta. Beta is a metric that has been used to lower risk or calculate the risk and return of portfolios and equities. Numerous studies have been conducted to provide beta coefficient indications for stock selection. Beta is a major factor in choosing stocks.

The concept of beta, a measure of a security's systematic risk, has long been a central tenet in the field of finance and portfolio management. The Capital Asset Pricing Model posits that the expected return of an asset is linearly related to its beta, which reflects the asset's sensitivity to the overall market return. However, the empirical evidence on the validity and practical utility of the CAPM has been subject to ongoing debate and discussion.

The beta coefficient, in William Sharpe's estimation, is a measure of how sensitive an asset is to changes in the market portfolio's return. The market portfolio's variance is divided by the securities' covariance to determine the beta coefficient. The predicted return rises in tandem with an increase in the beta component. The correlation between the systematic risk and market risk of a single investment is expressed as (β_j), the beta factor (or coefficient).

$$\beta_j = \frac{COV(j,m)}{VAR(m)}$$

Where, $COV(S,M)$ = Covariance between the return of security S, and the return on the market Portfolio, M also calculated as product of σ_S Standard deviation of the security, S, σ_M Standard deviation of the market portfolio, M and r_{SM} Correlation between the return of the security and the market portfolio.

$VAR(m)$ = Variance of the return of market portfolio, M

This factor equals the covariance of an investment's return, relative to the market portfolio, divided by the variance of that portfolio. The weighted average of the betas of each security in the portfolio represents the betas of the portfolio. A portfolio's risk can be measured using betas of each security and an efficient portfolio can be achieved by appropriate diversification and the removal of unsystematic risk. Beta factors ideally provide projections of how responsive security (or project) returns will be in the future to comparable shifts in the market. Beta factor display the following features:

- Overall, the market has a $\beta = 1$.
- A security with no risk has a $\beta = 0$.
- A stock with systematic risk less than the average for the market has a $\beta < 1$.
- A security having systematic risk higher than the average for the market has a $\beta > 1$.
- A security with a systematic risk of the same as the average for the market has a $\beta = 1$.

Relative to the market, volatility with a beta of +1.0 would suggest an average stock. The stock would be expected to produce a 20% return when the market return is predicted to be 10% when the beta increases to +2.0, disregarding the value offered by alpha. When prices are declining and a 10% decrease is anticipated in the future, a beta of +2.0 indicates that, if the investor holds the stock for an extended period of time, the stock will produce a 20% negative return. By constructing a relationship between the beta coefficient and market prices, an investor can build his portfolio. It is possible to choose large beta coefficients while the market is buoyant. These betas would likewise entail a

high risk, but high risk is anticipated to yield the highest return during the boom time. An investor can be expected to be aggressive if a large beta is present because this suggests an aggressive portfolio. While betas are helpful in stock selection, caution should be used when choosing stocks based on beta methods.

The following presumptions must be taken into account when choosing a portfolio with beta:

(a) The market's movement in both positive and negative directions must be thoroughly analysed; and (b) The historical consideration of beta must be examined in order to forecast beta in the future.

The choice of a portfolio will be erroneous and will not reflect the investor's preferences if it is not based on an accurate assessment of market movement. Between 15% and 65% of the movement of the individual securities can be attributed to changes in the market. Even though the beta approach is helpful, it must be used precisely. Beta can be used for prediction, but thorough analysis is required. Levy's investigation revealed that beta was unfavourable when securities were to be chosen one at a time. They were only marginally helpful when choosing small portfolios, but when it came to large portfolios that investors retained for longer periods of time, portfolio selection by beta was quite helpful.

It has also been discovered that betas undergo change, and that change is correlated with specific circumstances. The economic aspects of a nation are among the most significant variables that have been identified to alter or move betas. It has been discovered that one of the elements influencing the beta's alterations is the information. When beta is measured and the changes in the return of individual securities and the market are connected to the anticipated rate of inflation, it is discovered to be helpful to find a result by predicting beta. It is reasonable to conclude that the correlation between market and security returns serves as a tool for determining changes in beta.

Only after a study of fundamental issues is taken into account can the market movement be taken into account. The following are the essential elements:

- (a) a company's earnings;
- (b) market movement;
- (c) Constant stock value;
- (d) Stock survey, indicating whether it represents big or small, well-established or up-and-coming enterprises;
- (e) Historical firm growth; and
- (f) The firm's capital structure.

By allocating probability for the occurrence of the specific components, these factors are to be projected together with the movements of the stock. These essential elements would also stand for variations in the securities' earnings structures over time, fluctuations in

returns over time, and the success that is achieved. When valuing stocks, a company with consistently high market valuation will be seen as a good stock. Unlike an established organisation, a small firm's analysis will indicate if its stock is safe or risky, and the financial structure will reveal information about the type of operations a firm engages in with regard to its liquidity position and the coverage of fixed charges.

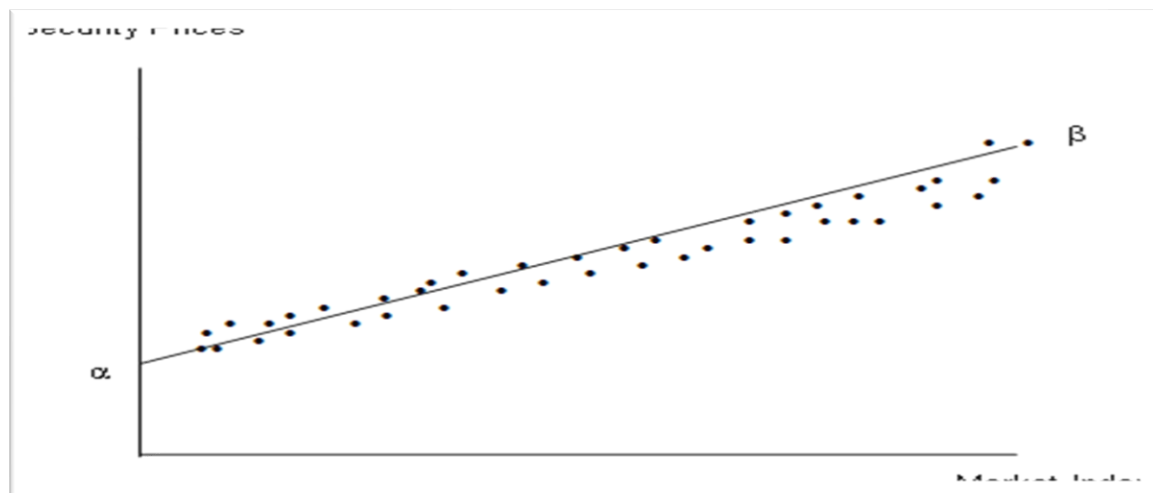
21.8 MARKET PORTFOLIO

Market Portfolio: A market portfolio is a theoretical portfolio of investments that includes all asset types available for investment in financial markets, with each asset weighted relative to its total market share. The expected return of the market portfolio is the same as the expected return of the entire market. The difference between the predicted market return and risk-free interest multiplied by the beta component is the market portfolio return. Assume that a share chosen for a portfolio occurs to have a higher price during an upswing in the equity market. The amount that unsystematic risk—which is diversifiable—instead of systematic risk—which is not diversifiable—caused the share price to rise is of utmost significance to investors. Using an adequate all-share stock market index, one practical way to solve the problem is to isolate systematic risk by examining historical trends between changes in individual share prices and movements in the market.

Consequently, we could draw a "scatter" diagram that links percentage changes for:

- The chosen share price (vertical axis).
- Total market prices plotted on the horizontal axis with respect to a pertinent indicator.

There is unsystematic risk when observations are "spread." By regressing previous share prices against the total market over the given time period, we were able to construct our line of "best fit," which indicates systematic risk. This linear regression is known as the share's **characteristic line** since it was created using the statistical technique of least squares.



The Relationship between Security Prices and Market Movements (The Characteristic Line)

If there is no movement in the market, the average percentage movement in share price is measured by the vertical intercept of the regression line, also known as the alpha factor (α). It shows the degree to which the price of a single share deviates from what we would anticipate given the systematic risk of the market. A share that has outperformed the market is indicated by a positive alpha, and vice versa.

The *beta factor* (β), which is determined by dividing the share's covariance (instead of individual securities) by the market's variance, determines the slope of our regression line with respect to the horizontal axis. This adjusts a share price's volatility in relation to changes in the market. For the time being, let's just state that the share's performance is more erratic and its systematic risk is larger, the steeper the characteristic line. Furthermore, (β) will be greater than 1.0 if the Characteristic Line has an extremely steep slope. The line might not be that deep if we did a similar analysis for another security. There will be little systematic risk associated with the security in this scenario. Compared to the market portfolio, it is significantly less volatile, and β will be smaller than 1.0. It goes without saying that a security's price has "tracked" the market as a whole and shows no volatility when $\beta = 1.0$.

21.9 CAPITAL ASSET PRICING MODEL

Modern financial theory is based on two assumptions: (1) securities markets are highly competitive and efficient (in other words, relevant information about firms spreads and is absorbed quickly and generally); (2) These markets are dominated by rational, risk-averse investors who seek to maximize their satisfaction with investment return. The first assumption assumes that financial markets have highly sophisticated, well-informed buyers and sellers. The second premise describes investors who care about wealth and hold more rather than less. In addition, the hypothetical investors of modern financial theory demand a reward in the form of higher returns for the risks taken. The Capital Asset Pricing Model (CAPM) is one of the most widely used financial model that aims to determine the expected return on an investment based on its risk. The Capital Asset Pricing Model (CAPM) is an idealized representation of how financial markets value securities and thus determine the expected return on capital investments. The model provides a method to quantify risk and convert risk into stock return expectations.

Assumptions of CAPM

Developed by William Sharpe in the 1960s, the CAPM is founded on several key assumptions and components that help investors understand the relationship between risk and return in a portfolio. Firstly, the model assumes that investors are rational and risk-averse, seeking to maximize returns while minimizing risk. Secondly, it assumes perfectly competitive markets with no transaction costs, implying that all assets are perfectly divisible and tradeable. Thirdly, the CAPM assumes that all investors have access to the same information, allowing for efficient markets where prices reflect all

available information. These assumptions form the basis of the CAPM and influence its calculations and predictions. It requires a mix of securities made up of both risky and risk-free assets. The investor can use the CAPM theory to determine if the stocks in a portfolio are overpriced or underpriced.

In order to arrive at its conclusion, capital market theory makes the following assumptions.

- (a) Investor decisions are based on their assessment of the risk and return of the securities, which are quantified using standard deviations.
- (b) Every investment has limitless divisibility and is freely tradable on the open market. As such, an investor has the option to switch to any preferred security.
- (c) In the stock market, shares may be sold short at any moment and without any restrictions.
- (d) The price of a security is not influenced by individual investors. Every investment competes perfectly with one another.
- (f) Transaction expenses do not exist.
- (f) The investor investigates securities without accounting for the tax implications.
- (g) The investor can purchase or lend any amount of money at any moment at a riskless rate.

CAPM Model

The Capital Asset Pricing Model (CAPM) is a model used to determine the theoretically appropriate required rate of return for an asset and to make decisions about adding assets to a well-diversified portfolio. The Markowitz portfolio theory is considered to be the foundation of the Capital asset pricing Model (CAPM) model. The CAPM is based on beta, whereas Markowitz theory is based on total risk. According to CAPM theory, a security can have an impact on portfolio risk only through systematic risk. Investors can assess the risk associated with each security in their portfolio using the CAPM.

The model considers the asset's sensitivity to non-diversifiable risk (also called systematic risk or market risk), which is commonly represented in the financial sector by the amount beta (β), in addition to the market's expected return and the expected return of an asset that is theoretically risk-free. Every security is subject to a distinct level of systematic risk, which fluctuates depending on how sensitive the specific security is to changes in the market. Financial theory defines risk as the possibility that the actual return will deviate from the expected return. The size of the possible variations determines the amount of risk.

The CAPM deals with the risks and returns of financial securities and defines them precisely, if arbitrarily. The return an investor receives by buying common stock and holding it for a period of time is equal to the cash dividend received plus the holding period's capital gain (or less capital loss) divided by the purchase price of the stock.

While investors may expect a certain return when they buy a particular stock, they may be disappointed or pleased as variations in stock prices may lead to variable returns. Due to variability in returns, common stocks are considered as risky securities. In contrast, since some securities, such as government bonds, do not deviate from the expected return, they are considered as risk-free securities. The idea that risky equities can be merged to create a portfolio that is less risky overall than any of its individual components serves as the foundation for the capital asset pricing model (CAPM).

Let's assume that on an island which has two seasons in a year viz, summer & rainy and there are two companies whose main field of activity is tourism. One of the company manufactures sunscreen products. Its stocks predictably perform well in sunny season and poorly in rainy season whereas the stock of the another company, which manufactures umbrellas perform equally poor in sunny season and well in rainy season. Each company earns an average return of 15%. By buying both stocks, investors take a high risk that the stock price would fluctuate due to changes in weather conditions. However, putting half of the funds into sunscreen stocks and half into umbrella stocks will yield a 15% return regardless of weather conditions. Portfolio diversification thus turns two risky stocks, each with an average return of 15%, into a risk-free portfolio that is sure to return an expected return of 15%.

An individual security or portfolio can be priced using the CAPM model. To illustrate how the market should price individual securities with respect to their security risk class, we use the security market line (SML) and its relationship to expected return and systematic risk (beta). We can determine every security's reward-to-risk ratio in comparison to the market as a whole using the Security Market Line (SML). For each given security in the market, the reward-to-risk ratio is equal to the market reward-to-risk ratio when the expected rate of return is reduced by the beta coefficient of that asset. In essence, the market risk premium is represented by the market reward-to-risk ratio and the following equation is used to express CAPM.

$$R_S = I_{RF} + (R_M - I_{RF}) \beta$$

where,

R_S = The expected return from a security

I_{RF} = The risk-free rate

R_M = Expected return of market portfolio

β = Measure of systematic risk of security

Risk-free rate: I_{RF} is the risk-free rate of return that an investor gets out of money invested by him.

Systematic risk: This is measured by Beta and it shows the risk of a specific security relative to other securities.

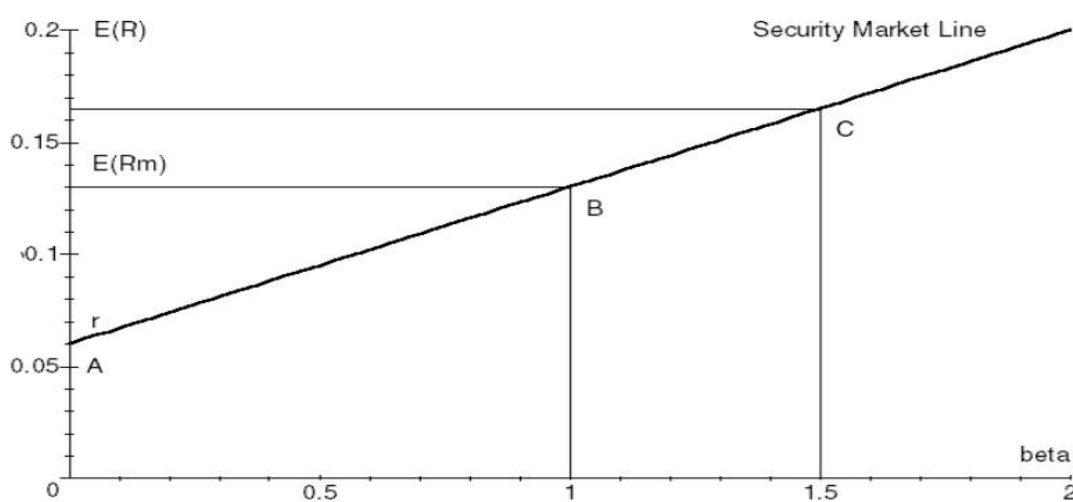
Risk premium: This is the premium for investing in securities which have a systematic risk. This is represented by $(R_M - I_{RF}) \beta$

Systematic risk quantifies how sensitive a security's price is to changes in the market. It estimates the systematic risk's volatility. This indicates that risk rises as the gap between R_M and I_{RF} increases, and the investor receives a bigger return on his investment in exchange for his increased risk. Thus, if Beta is three and the security's price will increase by 30% if the market index increases by 10%. The price of the security drops by 30% if the market index drops by 10%. On the other hand, if beta equals 1, then price volatility will mirror that of the market index.

Security market line

The relationship between a security's or portfolio's beta factor and required rate of return is explained by the security market line. It is the CAPM in graphical form. A security's market risk, also known as its systematic risk, is measured by its beta. A security with a high beta will see significant price fluctuations in response to shifts in the market index. This will cause the security's returns to have a larger standard deviation, which will suggest a higher level of uncertainty regarding the security's performance in the future.

Draw a graph with the β of various securities on the X-axis and their expected returns on the Y-axis. We already know that β is a linear measure of risk and if we assume that a linear relationship exists between risk and return, only two points will be enough to draw a straight line on this graph. A line that represents the relationship between risk and expected return which can be called as the security market line. Under equilibrium conditions, all other securities will also be in this line. Higher β securities will have correspondingly higher expected returns and vice versa. Figure below represents the security market line for different beta and expected rate of return.

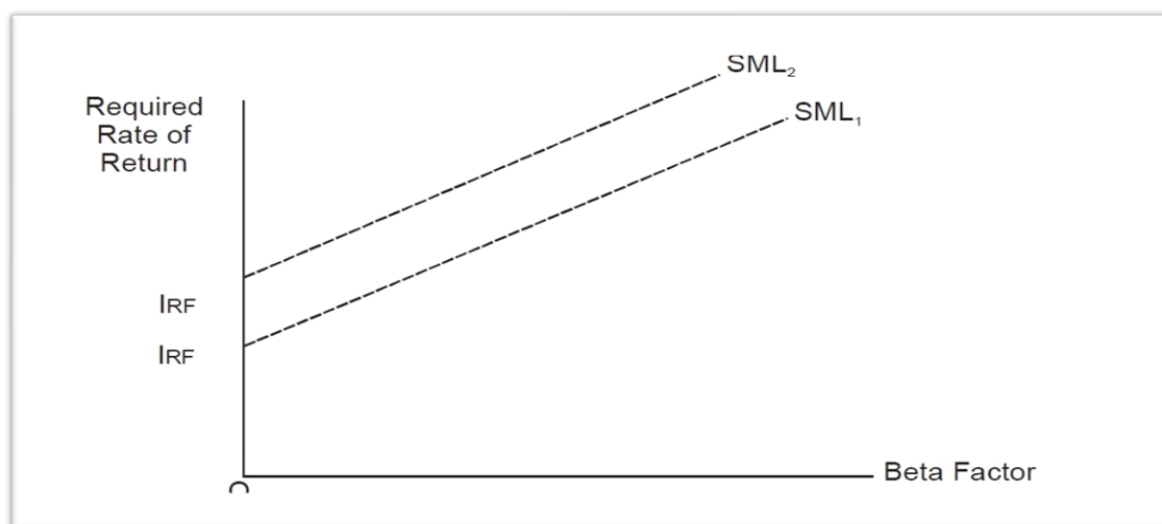


Security Market Line

The market's beta is always equal to 1. Beta will be greater than 1 for assets with higher-than-average risk and less than 1 for securities with lower risk. A riskless security has a beta of 0 on this scale. These assets will yield a riskless rate of return, or r . The Treasury bill is an example of this type of security.

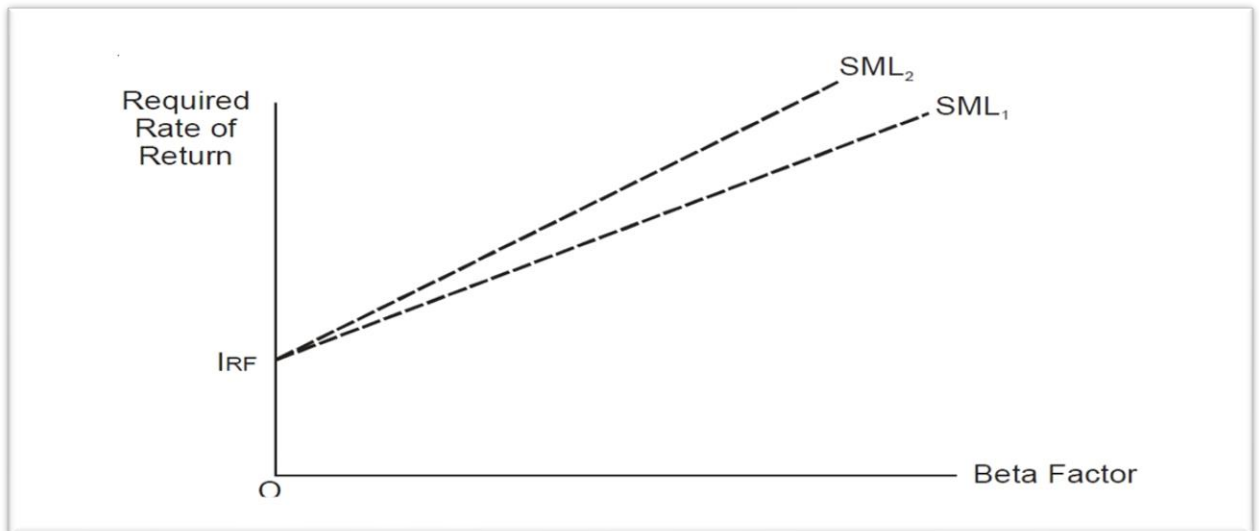
Assets are classified as defensive up to $\beta 1$ and as aggressive securities above $\beta 1$. Securities with $\beta < 1$ are considered defensive since they do not carry any risk. $\beta > 1$ indicate higher market risk relative to the securities. They are known as aggressive securities for this reason. Consequently, SML has a positive slope, indicating that as beta grows, so does the projected return.

Figure 17.2 (A) illustrates how the security market line (SML) will take on a new level or shape in response to a change in any one of the variables. The security market line will likewise move to a new level, SML₁ to SML₂, if the risk-free rate shifts from IRF₁ to IRF₂.



A Location and Slope of Security Market Line

As seen in Figure 17.2 (B), the shift in the SML's slope brought about by the switch from IRF₁ to IRF₂. The portion of the risk that cannot be diversified has been mapped by the SML in terms of return. The variation in beta is correlated with and measures this difference. As previously said, a linear relationship exists between the expected return and beta, meaning that any security with a high beta will have a greater expected return. The systematic portion of the risk is estimated by beta.



Location and Slope of Security Market Line

A lot of weight has been placed on beta in portfolio analysis. It's a metric that's been used to assess portfolio and stock risk and return. Beta provides a stock selection indicator.



Check Your Progress-A

Q1. The CAPM assumes that investors are:

- a. Risk-averse and seek to maximize their expected return.
- b. Risk-neutral and only care about the expected return.
- c. Risk-loving and willing to take on high-risk investments.
- d. Indifferent to risk and only care about the asset's liquidity.

Q2. Which of the following factors does the CAPM use to determine the required rate of return for a risky asset?

- a. The asset's volatility and the expected market return.
- b. The risk-free rate of return and the asset's beta.
- c. The asset's dividend yield and the risk-free rate.
- d. The asset's liquidity and the expected inflation rate.

Q3. According to the CAPM, which type of risk is the only one that investors are compensated for?

- a. Unsystematic risk

- b. Systematic risk
- c. Idiosyncratic risk
- d. Diversifiable risk

21.10 THE LIMITATIONS OF THE CAPM

Roll (1977) developed an argument against the CAPM. The primary objection pertains to the impossibility of quantifying the actual market portfolio. Roll demonstrated how the mean-variance efficiency of the market portfolio was implied by the CAPM relationship. He concluded that demonstrating the efficiency of the market portfolio was necessary in order to evaluate the model's validity. The actual market portfolio, however, cannot be noted, as it needs to include all assets that carry risk, even those that are not traded.

The index used as a rough representation of the market portfolio affects the outcomes of empirical studies. This portfolio's efficiency leads us to the conclusion that the CAPM is reliable. In the event that it isn't, we shall declare the model invalid. However, we are unable to determine whether the underlying market portfolio is indeed efficient using these tests. Roll draws the conclusion that an empirical validation of the CAPM is not feasible. However, this does not imply that the model is invalid.

The performance measuring models (Treyner and Jensen) that were derived from the CAPM were affected by this argument. The performance outcome of the portfolio will be influenced by the index if the index utilised to approximate the market portfolio is not efficient because the relative ranking of the portfolios is not always maintained when the index is changed. The selection of a portfolio that is not representative of the market causes estimation mistakes in the betas. Some writers, including Shanken (1987, 1992), offer techniques for adjusting measurement inaccuracies resulting from our failure to see the actual market portfolio.

The Limitations of the CAPM model are summarised further below:

1. It is unrealistic to use the CAPM approach's premise that investors incur no transaction costs when buying and selling assets.
2. It looks just at market risk, emphasising systematic or beta risk, and looks at the market portfolio's historical results. Because of this, beta is challenging to gauge for upcoming returns until it is upgraded.
3. It is unrealistic for the investor to be able to borrow or lend money at the risk-free rate for any length of time or amount, as assumed by the CAPM theory.
4. The CAPM makes the assumption that all investors have access to the same information and possess it on an equal basis however on a realistic basis even if the market is operating at a high level of efficiency information is not consistent and cannot be provided to all investors at the same time.

21.11 SUMMARY

The Capital Asset Pricing Model (CAPM) is a fundamental theory in finance that helps investors understand the relationship between expected return and risk for an asset. It is based on the principle that investors need to be compensated for both the time value of money and the risk associated with an investment. CAPM introduces the concept of systematic risk, which cannot be eliminated through diversification and is represented by beta (β). Beta measures an asset's sensitivity to market movements. The formula for CAPM is:

$$\text{Expected Return} = \text{Risk-Free Rate} + \beta \times (\text{Market Return} - \text{Risk-Free Rate})$$

where the risk-free rate represents the return on a risk-free asset, and the market risk premium is the additional return expected from the market over the risk-free rate. CAPM assumes that markets are efficient, all investors are rational, and there are no transaction costs. Despite criticisms regarding its assumptions, CAPM remains widely used for estimating the cost of equity and guiding investment decisions.



21.12 GLOSSARY

Capital Asset Pricing Model (CAPM): A model that describes the relationship between the expected return of an asset and its systematic risk. CAPM is widely used to determine the appropriate required rate of return on an asset, factoring in its risk level relative to the overall market.

Expected Return: The anticipated return on an investment, given its risk. In CAPM, expected return is calculated as the sum of the risk-free rate and a risk premium based on the asset's beta.

Market Return (R_m): The expected return of the overall market. It represents the average return that investors expect from a diversified portfolio of assets.

Market Risk Premium ($R_m - R_f$): The difference between the expected return on the market and the risk-free rate. It represents the additional return investors expect from taking on the average risk of the market rather than a risk-free asset.

Beta (β): A measure of an asset's sensitivity to market movements. A beta of 1 indicates that the asset's returns will likely move in line with the market. A beta greater than 1 means higher volatility than the market, while a beta less than 1 means lower volatility.



21.13 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

1. a
2. b
3. b



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21.16 TERMINAL QUESTIONS

- Q1. Explain the Capital Asset Pricing Model (CAPM) and its assumptions.
- Q2. How does CAPM help in determining the expected return of an asset
- Q3. Explain the practical applications of CAPM in corporate finance and investment decision-making.
- Q4. How do companies and investors use CAPM in real-world scenarios?

UNIT 22 PORTFOLIO REVISION AND PORTFOLIO INVESTMENT PROCESS

22.1 Introduction

22.2 Objectives

22.3 Meaning of portfolio revision

22.4 Need for portfolio revision

22.5 Constraints in revising a portfolio

22.6 Strategies of portfolio revision

22.7 Various techniques of revision of a portfolio

22.8 Investment policy statement

22.9 Methods of portfolio revision

22.10 Challenges of portfolio revision

22.11 Summary

22.12 Glossary

22.13 Answers to Check Your Progress

22.14 References/Bibliography

22.15 Suggested Readings

22.16 Terminal Questions

22.1 INTRODUCTION

In the previous unit, we discussed how to construct a portfolio and the influence of risk on it. A portfolio is affected by both systematic and unsystematic market risk. There are a large number of investors, who are interested in investing in a portfolio, but there are very few investors who are keen to understand the performance of the amount invested.

The process of understanding profitability of a portfolio is known as revision of a portfolio. It is a process in which securities included in a portfolio are revised, on the basis of return and risk, so that best opportunities from the market can be used. In the management of a portfolio, large emphasis is implied on selection of optimum securities, by which the return can be maximised. So, the revision of a portfolio is as necessary as the construction of a portfolio. The process of revision includes an adjustment or the

combination made of securities, which are included in an investment portfolio and their continuous revision as per changes in the market conditions. The revision can be achieved by making a replacement in existing securities, with those which are profitable as per market conditions. After the revision, it is possible to make a change in these securities through various analyses, which may be fundamental analysis, evaluation of market and the consideration strategy of investors along with tolerance of risk.

The revision of a portfolio is analysis of selling and buying of securities, which are based on factors, including objectives of the investors, risk tolerance, outlook of investor towards market and features of securities. We can also say that, the aim of portfolio revision is very similar to that of portfolio selection. Therefore, the investor aims at reducing the risk against maximising the return from the portfolio. It must also be seen, that the portfolio remains parallel to the long-term objectives of the investor.

Portfolio revision is a crucial aspect of investment management, which includes adjusting the mix of assets in an investment with a portfolio, to adjust with the investor's objectives, risk tolerance, and market conditions. This continuous process helps investors to maintain a balanced and diversified portfolio, which can optimise returns and reduce risk over time.

Portfolio revision is an important process for maintaining a well-balanced and goal-oriented investment portfolio. By regularly reviewing and adjusting the investments, investors can better implement changes in financial goals, market conditions, and performance dynamics. Therefore, it requires a careful evaluation of costs, implication of tax and potential bias. A thoughtful approach to portfolio revision can significantly enhance an investor's ability to achieve their financial goals over time.

22.2 OBJECTIVES

After learning this unit following objectives must be undertaken-

1. Understand the meaning and process of revision of portfolio.
2. To know about various strategies of portfolio revision.
3. Enable to know about various practises and constraints necessary in the portfolio revision.
4. To know about various forms of formula plans implied in portfolio revision.

22.3 MEANING OF PORTFOLIO REVISION

The revision of a portfolio is a process of analysis of securities, in a portfolio on the basis of their profitability. Such analysis is done by the investor, who plans a portfolio according to his personal objectives and supply of funds. The comparison between

planning a portfolio and its actual return is the outcome of a portfolio revision. The process of revision is technical in nature, as it involves a large number of distinctive analyses to be done by the investor. It involves fundamental as well as technical, industrial and company analysis, so as to understand the actual return from securities.

A portfolio is a group of securities, in which various financial assets, physical assets as well as public and private securities are included. Therefore, the range of profitability of investment depends on market forces, policies of the government and funds diverted by investors. So, each security which is included in the portfolio has its own reward and risk. The inclusion or exclusion of these securities depends on its comparative study of risk and return. A rational investor always looks after considerable risk, whereas maximum return is required to be generated. So, public sector government securities, especially government bonds, are always preferred by the investor.

While revision of a portfolio is undertaken, new securities must be included and existing securities can be removed, based on their performance in the market and generation of income for investors. Revising a portfolio is one of the essential steps of portfolio management, which is done by keeping in view the objectives of risk and return. In the dynamic environment of investment, it is not possible that the selected portfolio shall always provide the highest return. But there can be chances of incurring a loss or even depreciation of capital. Therefore, it is necessary that there must be a change in the existing combination of different securities in a portfolio. The adoption of an active portfolio revision strategy, lays emphasis on reallocating the funds among different securities, companies, industries or financial assets. There can be both active and passive revision strategies, by which an investor can easily change the composition of a portfolio. Under the passive revision strategy, different formula plans are used, by which maximum income can be generated from the portfolio. Whereas, in an active strategy, the actual performance of securities are evaluated on certain premises developed by the investor.

22.4 NEED FOR PORTFOLIO REVISION

One of the basic reasons for revising a portfolio is to imply the changes in a financial market in creating a portfolio. The market in which investment is made is dynamic in nature; also there are changes in valuation of assets, rate of interest and the environment of investment. So it becomes essential for an investor to revise the portfolio over a period of time, so that his objectives may be accomplished. There are certain factors which affect the process of revision of a portfolio, which includes risk tolerance capacity of the investor, his financial objectives and the need of maintaining liquidity.

The plan made for a portfolio is not essentially required to be successful in the dynamic financial environment. There is no certainty in the achievement of investment plans. In context to managing a portfolio, it is necessary to enforce all the changes taking place in internal and external forces. The requirements of revising a portfolio are directly related to the changes taking place in construction of a portfolio. The basic goal of portfolio

revision is to ensure that the portfolio continues to satisfy the financial goals of investors. These goals may change over time, due to various factors such as changes in financial circumstances, risk tolerance, investment horizon, or conditions of market. A regular revision of the portfolio allows investors to adapt to these changes, ensuring that their investments remain parallel with their objectives. Following factors are responsible for revising a portfolio from time to time-

- The need to achieve additional wealth from limited resources.
- Involvement of additional capital in the existing portfolio.
- Changes taking place in the risk bearing capacity of investors.
- Certain changes in investment goals of investors.
- To maintain the liquidity in a portfolio, so as to provide funds when required by the investor.
- To attain both short and long run objectives of investors.
- To balance with fluctuations in the price taking place in the market.

It is necessary for an investor to revise and adjust the portfolio, as per the strategies of investment and changes in the situation of the investor. There may be a change in needs and requirements of investors from both market and portfolio. Therefore, by revision of a portfolio, it becomes easy for the investor to revise his preferences and financial status.

22.5 CONSTRAINTS IN REVISING A PORTFOLIO

The revision of a portfolio is management of adjustment, which is necessary for change in securities. In the composition of a portfolio, the adjustment involves both purchase and sale of securities, by which certain problems may arise which are called the constraints in a portfolio. These constraints are under-

1. **Implication of tax-** One of the most important parts for an investment is, payment of taxes over income earned from the portfolio. Such tax is paid on the amount of capital gains, earned by the investor on the sale of securities. There are various conditions, that long-term capital gains are usually less than short-term capital gains. Therefore, in order to manage for a long term capital gains, it is essential for an investor that he must hold the securities for not less than 12 months, before they are being sold out. The frequency of trading in securities can lead to continuous revision of a portfolio and such adjustment will result in short term capital gain, on which rate of tax is usually more than long term capital gain. Therefore, a higher tax on short term capital gain, acts as a limitation on revising a portfolio.
2. **Cost of transaction-** The purchase and selling of securities in a financial market are subjected to payment of certain charges which is the cost of transaction. This cost includes brokerage as well as commission, which adds to an increase in

burden over investors. If frequent adjustments are made in the portfolio, it leads to increase in transaction cost, by which the gain of investors is continuously reduced. Due to heavy transaction costs the investors find it difficult to revise their portfolio from time to time.

3. **Statutory considerations-** There are a large number of companies making an investment, as well as, in mutual funds who can manage their portfolios in many countries including India. They help in providing for certain professional management, as well as expert advice provided to the investor, in maintaining their portfolios. These agencies are important in providing a diversified range of securities and financial assets, in the financial market. They work combine to generate both internal and external economies, by which their income could be increased. Such types of institutional investors act as the limitation in the path of revising a portfolio, as their work is stipulated over some specific period of time.
4. **Costly affair-** The revision of a portfolio is both time consuming and costly. Also, the methods followed for revising a portfolio are not clearly mentioned and prescribed. There are various approaches, which are used and considered in revision, which are generally based on objectives of investment, time factor, outlook of investor etc. Due to all of these difficulties, it becomes difficult for an investor to revise the portfolio.
5. **Quality of an investor-** Apart from market forces, the personal features of an investor are also essentially required for an efficient revision of the portfolio. There are different types of investors, who have their own objectives in drafting a portfolio. Some may look for generating regular income, whereas others may invest for generating gains of capital nature. These requirements of investors provide different dimensions to revise a portfolio.

22.6 STRATEGIES OF PORTFOLIO REVISION

The revision of a portfolio by the investor can be done, by following these strategies-

1. **Passive revision strategy-** In a passive strategy of revision of a portfolio, only small and non-recurring adjustments are required to be made in a portfolio, over a certain period of time. Those who practise a passive strategy, have a complete belief on efficiency of a market and on the future expectation of investors. There are a large number of investors, who are not interested in making a periodic revision of their portfolio. So, under a passive strategy, various adjustments are made in a portfolio as per the predetermined rule, which is also known as a formula plan. The formula plan is useful for making a portfolio, being adjusted to the changes in a financial market.

2. **Active revision strategy-** In an active revision strategy, the most frequent and necessary adjustments are made in a portfolio. Such revision includes a detailed analysis of securities, which is to be included in the portfolio. Such strategy involves fundamental analysis, industrial, company and technical analysis, by which the verification of a portfolio can easily be done, by a combination of time, resource and skill. The results of this strategy are far better than any other form of a strategy. The intensity of trading through an active strategy is higher, as compared to the passive strategy, but it results in a large transaction cost of operating in a portfolio.

22.7 VARIOUS TECHNIQUES OF REVISION OF A PORTFOLIO

Portfolio revision involves various techniques, which are used by the investors for understanding the need for making an adjustment in the portfolio. These techniques are used by different investors, as per their distinctive features and changes taking place in the financial market. Some prominent techniques of revision of portfolio are listed as under-

22.7.1 Formula plan- Formula plan is one of the most common techniques, used by investors, which is a part of passive revision strategy. The plan operates on the assumption that every portfolio is different from one another and their effectiveness depends on a set of various securities. Under this, a portfolio may consist of those securities which have lower risk with lower return, as well as higher risk with higher return. The lower risk combination is called a conservative portfolio, whereas a higher risk portfolio is an aggressive portfolio. A higher risk and higher income portfolio usually include shares, whereas a lower risk portfolio always includes debt securities and bonds.

The revision of a portfolio includes changes to the composition of securities, on the basis of the total amount, which is invested in the portfolio. There may be a change in aggressive as well as conservative components, which is done on the basis of objectives of a portfolio. Such portfolios, which have an objective of growth, largely depend on aggressive components. Whereas the portfolios that look after guaranteed income have a majority of conservative instruments in them. By the help of a formula plan, it becomes easy for an investor to distribute funds in either type of components. Both aggressive and conservative components are expected to behave in an indirect manner. At a certain period of time, the plan indicates that the investor should purchase securities at lower prices and sell them when prices keep on hiking. All the stocks have a tendency of fluctuating due to various market causes. So, the investors hesitate to buy at a lower price, as they suffer from the fear that there can be further reduction in the prices. On the other hand, investors also find it difficult to sell at higher prices, as they expect to

generate maximum profits from the market. It needs to have a better skill for both buying and selling financial securities in the market, so that maximum profits can be generated. In order to understand these prices, modern revision techniques have been developed, so that it becomes easy for the investor to understand the limit in which price may fluctuate. Such techniques of understanding market changes, as per prices of security are called formula plans. The formula plan has three distinctive forms which are constant value plan for dollar, constant ratio plan and variable ratio plan.

22.7.2 ASSUMPTIONS OF A FORMULA PLAN

- It is assumed in a formula plan, that there is always an upward and downward movement in the market, which constantly keeps on moving in a circular manner.
- The upward moment in the market leads to fall in stock, whereas a decline in the market leads to inclusion of more aggressive securities in the portfolio.
- The investor makes an allocation of his funds in certain common stock and in fixed income securities. Such a proportion can change with a change in market conditions.
- The investor always follows a single formula plan, and they never change it as per change in conditions.
- The buying and selling of securities will take place only when there is a marginal change in prices in the market.
- Those securities are selected by the investors, whose price reflects the market conditions, concerning risk and return.
- The prices of stock and bonds always move in the inverse direction.
- It is not easy for the investor, to forecast about the next change which may take place in the market. It is due to lack of skill and forecasting ability to understand the market.

By the help of a formula plan, it becomes easy for the investor to allocate his funds into different types of portfolios, which may be aggressive and conservative in nature. A portfolio of aggressive components includes the majority part of stock. On the other hand a conservative portfolio includes both borrowed funds and bonds in them. The use of a formula plan is particularly done to understand distribution and fund transfer between aggressive and conservative forms of portfolios.

The advantages of a formula plan can be listed as under-

1. By the help of a formula plan, it becomes easy to follow rules and regulations of investment and overcome the emotions of investors.
2. The plan also provides general guidelines for buying and selling of the securities.
3. It is also a strategy adopted by investors, by which he can easily achieve his investment objectives.

4. By the help of a formula plan, the investor finds it safe and easy to determine the best timing necessary for investment.
5. It keeps a constant control over buying and selling of securities.
6. The plan helps to invest in maximising revenue with minimum risk.

The limitation of a formula plan is as under-

1. There is no adjustment possible in a formula plan, due to rigidity of rules and regulations.
2. It does not allow the investor to make a forecast about the changes taking place in the market. On the basis of technical or fundamental analysis changes can be adopted.
3. Being a part of passive revision strategy, the formula plan involves a higher transaction cost that may increase the amount of investment.
4. It is not possible for the investor to make a selection of optimum security, by the help of a formula plan.

22.7.3 TYPES OF FORMULA PLAN

The revision of a portfolio is a process in which financial securities are analysed and adjusted as per the desires of the investor. There can be a general revision of securities in which they are compared as per the provisions of the financial market or the securities may be provided with certain weight for their evaluation. The techniques of revision through formula plan can be done in the following forms-

1. **Constant Rupee value plan-** The objective of this plan is to create a balance between the conservative and aggressive portfolio form, and to allocate the funds in such a way that the target value expected by an investor can be achieved. The fixation of such value is done in the preferred proportion of investors. For example- it is possible for the investor to invest 100000 each in conservative and aggressive portfolios. The ratio may be changed as 60000 and 40000, depending on the preferences of investors. A variation of such composition is done under a constant rupee value plan, in which an initial value of investment is fixed. Later on, any shortfall in aggressive components can be compensated through shifting funds from conservative types of portfolios. Similarly, if the funds are to be invested in conservative portfolios, then the composition of aggressive portfolios must be reduced. The objective of this plan is to maintain a constant and stable investment in an aggressive portfolio, so that the investor could generate his desired level of income. In order to maintain consistency in a portfolio, the investor continuously keeps on monitoring the changes in composition of the portfolio and shall keep on revising the structure as per the requirements.

The constant rupee value plan has an advantage of automatic adjustment with the market conditions, and it helps in selection of securities on individual preferences of investors. It also suffers from the drawback of fund allocation from stock to bonds, as the prices of security are subject to market fluctuations.

2. **Constant ratio plan-** In a constant ratio plan, the investment strategy of an investor involves construction of a portfolio based on those assets, which can be adjusted over a certain period of time. When the market is at an upswing, then the funds are diverted from over performing assets to underperforming assets. So, it can be said that no single type of asset has dominance in the portfolio. The plan explains that the ratio between aggressive portfolios, to that of conservative portfolio will always remain constant, as per the pre decided structure of the market. So it motivates the investor to sell the securities at an increasing rate, so as in maintaining a balance between aggressive and conservative portfolios. The investor is also bound to transfer the fund from conservative to aggressive portfolio when the prices of security keep on reducing.

The constant ratio plan is considered to be better as it helps in making an adjustment in the portfolio, as per the cyclic changes in the market. But it suffers from the limitation of allocating funds in the most profitable assets.

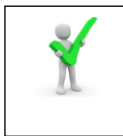
3. **Rupee cost averaging plan-** This is a strategy which depends on the principle of averaging out, which is used in mathematics. The investor intends to buy securities in the market, without any influence of fluctuation in the prices, as they purchase securities for building an optimum portfolio. The buying of securities is subject to increase or decrease in the prices. When the investor experiences a decline in prices of security, then they will buy larger quantities. Whereas, when prices keep on increasing, small quantities of securities are purchased. The ultimate goal of an investor is, to increase their wealth, by achieving a secured return from the market. In order to achieve an extension in the portfolio, there can be certain rise or fall in the investment percentage of the portfolio.

The benefit of rupee cost averaging plan is that, it can easily reduce the pressure of buying and selling of securities at different market fluctuations. It also decreases the average cost of buying a security. Also the plan can be easily implied on both, increasing and decreasing phases of prices. The method suffers from the limitation, of not providing any scope to sell the security at its best prices. It could not generate profit for the investor during a down fall. Also there is an extra transaction costs involved, a continuous purchasing of security. It is best used for those securities that show movement in a cyclic pattern. The plan does not indicate any certain interval between purchases of security.

4. **Variable ratio plan-** This plan provides a better flexibility to the investor, for making an adjustment in the components of the portfolio. In case of decrease in the prices of securities, the investor is free to select a reallocation of his funds from conservative to aggregative components of the portfolio. The adjustment

between both components depends on the flexibility provided to the investor, for revising his portfolio. When the prices of securities keep on increasing, then the investor shall allocate his investment, so as to create a balance in the portfolio.

The advantages of variable ratio plan are that, it creates an adjustment in the portfolio as per the changes in price level. Also, the investor is not affected emotionally by changes in prices of securities. This plan can make a better forecast about the market, so it is better used, as compared to a fixed ratio plan. The limitation of the plan is about selection of securities, which must be initially analysed by the investor. It is also essential that the investor must form an appropriate trend, for making an alteration in the components of the portfolio.



Check Your Progress-A

Q1. The portfolio revision process is necessary because:

- a) Investors' financial goals and risk tolerance can change over time.
- b) Market conditions and economic factors are constantly fluctuating.
- c) Diversification strategies need to be regularly rebalanced.
- d) All of the above

Q2. A key step in the portfolio investment process is:

- a) Conducting detailed research on individual securities.
- b) Determining the optimal asset allocation for the portfolio.
- c) Implementing the portfolio and monitoring its performance.
- d) Calculating the expected return for each investment.

Q3. The portfolio revision process primarily focuses on:

- a) Maximizing returns by identifying underperforming securities.
- b) Adjusting the portfolio to align with changing investment objectives.
- c) Reducing risk through the diversification of investments.
- d) Reallocating assets to different sectors or industries.

22.8 INVESTMENT POLICY STATEMENT

An investment policy statement (IPS) is the prime step, required in management of a portfolio. It is a road map, which shows the path to an investor, for the fulfilment of his investment goals. It helps in specification of goals, objectives, preferences, constraints and risk involved in an investment portfolio. The preferences of investors keep on changing over certain period of time. So, it is necessary to make a revision of the investment policy statement. It creates an ecosystem, by which resource allocation becomes easy and as per the requirement of investors.

22.8.1 NEED FOR INVESTMENT POLICY STATEMENT

In Planning of a portfolio, an investment policy statement is one of the major tools, by which an optimum portfolio can be created. It involves a disciplinary system, in which assets can be maintained, so as to reduce risk and uncertainty. The major purpose of investment policies statement is as under-

- Enable the investors, to achieve their expected return.
- To understand the formation of an effective investment strategy.
- Provides a framework for the portfolio manager in context to risk and return.
- Helps in protection of investor, against unethical behaviour of portfolio managers.

22.8.2 CONSTRAINTS OF INVESTMENT POLICY STATEMENT

In the formation of an investment policy statement, there are certain constraints which are as under-

1. **Liquidity constraint-** Various types of investors have different types of liquidity preferences from the investment proposal. The requirement of cash for older people is more, as compared to younger ones. People may need to have funds for medical or health concerns, or even for maintaining their living standard. It is also necessary to have funds for meeting day to day expenses, or even for contingency requirements. So the liquidity of an investor can be in the form of emergency cash, as well as in the form of flexibility of the investment. There are various investors, who maintain some part of their investment in the form of cash and other in the form of securities. This enables them to meet both short term and recurring expenses of investors.
2. **Regulatory constraint-** In the drafting of a portfolio, it is important that the regulatory framework is considered by the investor. These regulations are drafted by both, the central government as well as by the Reserve Bank of India. Therefore, in the exchange of cash, or in the purchase or sale of securities, such regulatory aspects must be maintained.

3. **Tax constraint-** The implication of tax is one of the major concerns for the investor in making an investment. It also plays a vital role for the portfolio manager to create a diversification in the portfolio. There are different taxes charged at different rates, for income generated from various avenues. Therefore, income like interest, dividend or rent is all a form of capital appreciation. So it is necessary that all these incomes are charged with different forms of taxes.
4. **Needs and preferences of investor-** In planning for an investment policy statement, the needs and preferences of investors with their personal, social, cultural beliefs are important to be known. The form of securities selected by the investor clearly reflects his needs and desires from investment. Therefore, when the policy statement is drafted, then the needs of investors are a determinant factor for the portfolio managers.
5. **Limits of different sectors-** The investments made in different sectors as well as in various classes of assets have their own limitations. As per the regulatory framework of SEBI, the agreement made between portfolio manager and investor should clearly define the limit in which investment can be made. Considerations of objectives of investor with the ability of risk bearing, their needs of liquidity as well as the time factor of investment are all necessary to be kept in mind before drafting a policy statement.

22.9 METHODS OF PORTFOLIO REVISION

There are several approaches to select a portfolio, which includes-

1. **Rebalancing:** This involves adjusting the proportions of different assets in a portfolio to maintain a desired asset allocation. For instance, if stocks have outperformed and now constitute a larger portion of the portfolio than intended, an investor might sell some stocks and buy bonds to restore the original allocation.
2. **Strategic Adjustments:** This involves making changes based on long-term views of economic and market conditions. For example, if an investor believes that technology stocks will outperform over the next decade, they might increase their allocation to that sector.
3. **Tactical Adjustments:** These are shorter-term adjustments based on current market conditions. For example, if interest rates are expected to rise, an investor might reduce their exposure to long-duration bonds.

22.10 CHALLENGES OF PORTFOLIO REVISION

Revising a portfolio is not without its challenges. Key issues include:

1. **Transaction Costs-** Buying and selling investments can incur costs such as brokerage fees, bid-ask spreads, and taxes. These costs can erode returns, making it essential to balance the benefits of revision against these expenses.

2. **Behavioural Biases-** Investors may be influenced by biases such as overconfidence, loss aversion, or bias, which can impact decision-making. It's crucial to approach portfolio revision objectively and avoid emotional decision-making.

3. **Market Timing-** Trying to time the market by making frequent adjustments based on short-term market movements can be risky and often counterproductive. A disciplined, long-term approach is generally more effective.

22.11 SUMMARY

In the above unit we have learnt about the meaning and process of revision of a portfolio, along with various factors to be kept in mind for the revision. We have also learnt about the process of portfolio management, with steps involved in the process. We have also discussed in the unit about investment policy statements and different constraints in the path of investment. After learning this unit we will be able to understand the need and importance of portfolio revision and process of investment management.



22.12 GLOSSARY

Portfolio Revision- It is the evaluation of changes in the composition of a portfolio, as per change in market condition.

Portfolio Investment Process- It is the process of making investment in different financial assets.

Investment Policy Statement- It is the guideline of making sound investment so as to earn maximum profit.



22.13 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

1. d
2. c
3. b



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22.16 TERMINAL QUESTIONS

- Q1. Explain the meaning and objectives of portfolio revision?
- Q2. Discuss the need for portfolio revision?
- Q3. What are the constraints in revising a portfolio?
- Q4. Explain different strategies of portfolio revision?
- Q5. Discuss various techniques of revision of a portfolio.
- Q6. Explain the methods and challenges of portfolio revision?
- Q7. Write a note on, Investment policy statement.

UNIT 23 PORTFOLIO EVALUATION AND PERFORMANCE MANAGEMENT

23.1 Introduction

23.2 Objectives

23.3 Need for Evaluation

23.4 Evaluation Perspective

23.5 Evaluation Techniques

23.6 Risk Adjusted Performance Evaluation Measures

23.7 Summary

23.8 Glossary

23.9 References

23.10 Suggested Reading

23.11 Terminal Questions

23.1 INTRODUCTION

Portfolio evaluation is the last but an integral part of the portfolio management. Portfolio analysis, selection, construction and revision are done with the aim of maximizing return and minimizing risk from a portfolio. But portfolio evaluation is the stage where investors come to know how well the portfolio has performed in terms of return. Basically, portfolio evaluation is done to measure the portfolio performance or to know how well investor/ investment manager has performed compared to others. Portfolio evaluation is very much important for individual as well as for institutions who had invested their personal funds. Without portfolio evaluation, portfolio management would be incomplete. Portfolio evaluation has evolved over the last two decades as an important aspect of portfolio management. Acceptance of modern portfolio theory has changed the evaluation process from barely calculation of return to the risk return adjusted measures. Two decades ago evaluation was not an integral part for many organizations. But now most investment companies incorporate evaluation as an integral part of their decision making process. Throughout this unit the discussion on performance evaluation will be with reference to the mutual fund's studies. Mutual fund is a trust which manages the client's funds. In this unit we will discuss various performance evaluation techniques.

23.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the meaning and need of performance evaluation.
- Understand the different perspective of performance evaluation.
- Know about Systematic Risk and Non-Systematic Risk
- Study different risk adjusted performance methods
 - Sharpe Ratio
 - Treynor Ratio
 - Jensen Alpha (α)
 - Fama's decomposition

23.3 NEED FOR EVALUATION

Individual investors invest their personal funds in the market securities. The funds available with the investor may not be large enough to create a well-diversified portfolio of securities. Also most of the investors feel insecure in managing their own investments, because they consider themselves inefficient to perform this delicate task successfully. Often investors feel that they have not the enough time, skill, foresightedness and other resources required for the proper handling of the portfolio. But on the other hand, institutional investors such as mutual funds and investment companies are better to create and manage portfolio in a professional way. Hence, small investors prefer to entrust their funds with mutual funds and other investment companies to avail the benefits of their professional services and thereby achieve maximum return with minimum risk and effort. Evaluation is an appraisal of performance. Whether the investment in securities is made by individual himself or through the investment companies, different situation arises where evaluation of performance becomes very crucial. These situations are discussed below.

Self-Evaluation

When individual investor constructs and manages his portfolio by his own. He makes investment in the securities of different companies and construct portfolio with his own skills and understanding. In such situation, an investor would like to evaluate the performance of his own portfolio in order to identify the mistakes he had committed during the formation of portfolio. The self-evaluation will enable him to improve his skills and achieve better performance in future.

Evaluation of Portfolio Managers

A mutual fund or investment companies create different set of portfolios for the investors having different objectives. As some investors are risk averse, they do not want to take risk. In such case investment companies make their investment in safe securities like government securities or money market instruments. On the other hand some investors

are ready to take risk. So, investment companies make investment in equity securities which are considered to be risky and construct their portfolio accordingly. Such investment companies engage professional managers who are responsible for the investment decisions of such particular portfolio entrusted to them. In such a situation organization would like to evaluate the performance of each portfolio so as to compare the performance of different portfolio managers.

Evaluation of Mutual Funds

In India there are 44 mutual funds as also investment companies are operating both in public and private sector. They compete with each other for mobilizing of the funds from individuals and organization by offering them high returns, low risk, liquidity, transparency and diversification. Individuals and organizations desirous of investing their funds in these investment companies evaluate the performance of the investment company and then accordingly choose the best mutual fund or investment company.

23.4 EVALUATION PERSPECTIVE

A portfolio comprises several individual securities. At the time of building up of a portfolio several transactions of purchase and sales of securities take place. Thus, several transactions in several securities are needed to create and to revise a portfolio of securities. Hence, evaluation carried out from different perspectives or viewpoints such as a transactions view, security view or portfolio view.

Transaction View: An investor may evaluate its securities at the time of purchase and sale of securities. Whenever a transaction related to purchase and sale of securities take place that transaction can be evaluated regards to its profitability and correctness.

Security View: Each security in the portfolio can be acquired at the different time period and at different price. At the end of holding period, the market price of security can be more or less than the purchase price. Further, during the holding period interest and dividends might be received in respect of security. Thus, it may be possible to evaluate the profitability of holding each security separately. This is evaluation from security viewpoint.

Portfolio View: Portfolio is not a simple aggregation of random group of securities. It is such a carefully selected securities that the return can be maximized and risk can be minimized from them. An investor can evaluate the performance of portfolio as whole without individually evaluating the performance of individual security. Such an evaluation is from the portfolio view. Though the evaluation may be attempted at the transaction level and from the security level but such evaluations are considered to be incomplete, inadequate and often misleading. Investment is an activity that involves the risk. Proper evaluation of an investment involves return along with the risk involved. Risk is best defined at the portfolio level than at the security level. Hence, the best perspective for evaluation is the portfolio view.

23.5 EVALUATION TECHNIQUES

Performance evaluations mean the evaluating the performance of portfolio. It is the process of comparing the returns of portfolio with one or more portfolios or with the benchmark portfolio. Portfolio evaluation comprises two functions, performance measurement and performance evaluation. Performance measurement is the accounting function which measures the return earned on the portfolio during the particular time period. Performance evaluation on the other hand states whether the performance was superior or inferior, whether the performance was due to skill or luck etc.

While evaluating the performance of a portfolio, the return earned on the portfolio has to be evaluated in the context of the risk associated with that portfolio also. One approach would be to compare the return of portfolios of the same risk class. An alternative approach would be to specifically adjust the return for the riskiness of the portfolio by developing risk adjusted measures and use these for evaluating portfolio across differing risk levels. In either case, it is necessary to be more precise about what is meant by risk and return.

1. **Returns:** A well-managed portfolio is constructed of different securities, the benefit of which is meant for the unit holders who invest their funds. NAV and its movement measure the performance of portfolio/mutual funds. The returns generated by a mutual fund over the holding period or over the long run period can be measured in form of percentage return. These returns are the appreciation recorded in the NAV over a period. Returns over the holding period can be calculated as follows:

$$\text{Returns} = \frac{(\text{NAV}_t - \text{NAV}_{t-1}) + \text{Dividends}}{\text{NAV}_{t-1}} \times 100$$

NAV represents net asset value per unit. It indicates value of the assets netted against the liabilities held by a mutual fund under a particular scheme at a point of time. This is the expected value, which might be paid and received at the time of purchase and sale/redemptions. NAV_t means current value of the unit. NAV_{t-1} means previous value.

2. **Risk:** Risk of mutual fund/ managed portfolio is the variability of returns over a significant period. It may be measured in the form of standard deviation of the returns. This risk can be classified in to two types.
 - Systematic Risk
 - Non-Systematic Risk

Systematic Risk – By systematic risk we means the non-diversifiable risk. The risk which cannot be eliminated. Such risks are uncontrollable and broadly affect investments. Systematic risk is measured by Beta coefficient. Systematic risk covers:

- Market risk
- Interest rate risk

- Purchasing Power risk
- Political risk

What is Beta

Beta is a measure of any individual stock's risk (or movement) relative to the overall stock market risk (or movement). It's sometimes referred to as financial elasticity. It's just one of several values that stock analysts use to get a better feel for a stock's risk profile. Beta values are fairly easy to interpret. If the stock's price experiences movements that are greater or more volatile than the stock market, then the beta value will be greater than 1. If a stock's price movements, or swings, are less than those of the market then the beta value will be less than 1. Since increased volatility of stock price means more risk to the investor, we'd also expect greater returns from stocks with betas over 1. The reverse is true of a stock's beta is less than 1 - we'd expect less volatility, lower risk, and therefore lower overall returns. Although beta allows you to understand if the price of that security has been more or less volatile than the market itself - and that's certainly a good thing to understand about a stock one is planning to add to one's portfolio.

We can calculate Beta either using daily return of mutual funds (i.e. daily NAV) or on monthly returns (monthly NAV) of mutual funds (how to calculate the returns using NAV we have discussed above in this unit). The results should be the same because it is on the relative basis.

The formula for calculating Beta of stock is:

$$B_i = \frac{\text{Covariance } R_m \times R_i}{\text{Variance } R_m}$$

Where

B_i = Risk measure of Stock

R_m = Return from the market portfolio

R_i = Return on the particular stock that is being evaluated

The above formula would be identical if we replace a particular stock i with a portfolio of stocks like a mutual fund p .

$$B_P = \frac{\text{Covariance } R_m \times R_p}{\text{Variance } R_m}$$

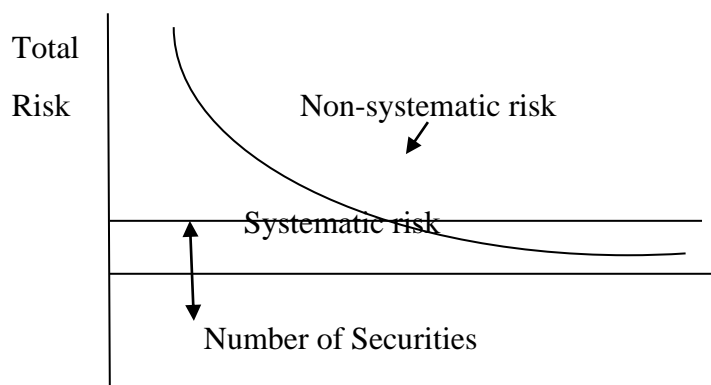
Unsystematic Risk - Unsystematic risks arises out of the uncertainty surrounding a particular firm or industry due to some factors. This kind of risk can be eliminated or minimized by adopting risk management techniques. Unsystematic risk covers:

- Business Risk
- Financial Risk

So, the total risk of an investment consists of two components: diversifiable and non-diversifiable risk. Diversifiable or unsystematic risk is that portion of an investment risk that can be eliminated by holding enough securities. Unsystematic risk is a unique to a firm, or industry and is caused by factors like labour strike, irregular disorganized management policies and consumer preferences. Non diversifiable or systematic risk is external to an industry and business and is attributed to the factors, such as war, inflation and political events etc. The effect of these factors is to put pressure on all securities in such a way that the prices of the securities will move in the same direction. The relationship between total risk, diversifiable risk and non-diversifiable risk is given by the equation:

Total risk = Non-systematic risk + Systematic risk

Fig - 1



Studies have shown that by carefully selecting as few as fifteen securities for a portfolio can almost eliminate the diversifiable risk whereas non-diversifiable risk/ systematic risk is unavoidable, and each security possesses its own level of non-diversifiable risk, measured using the beta coefficient. Total risk is measured by the standard deviation of return, whereas systematic risk or undiversifiable risk is measured by the Beta coefficient. Having discussed risk and return, it is appropriate to look at techniques for examine portfolio performance.

**Check Your Progress-A**

Q1. What is portfolio evaluation?

Q2. Why portfolio evaluation is necessary?

Q3. What is portfolio diversification?

Q4. What are the factors causes of systematic risk?

Q5. What are the factors causes of unsystematic risk?

Q6. Can an investor/ investment manager can eliminate unsystematic risk? If yes, how?

23.6 RISK ADJUSTED PERFORMANCE EVALUATION MEASURES

Different methods have been developed to evaluate the performance of mutual funds/ managed portfolio. All these methods have one common element- these are risk adjusted methods, in the sense that the performance is evaluated in terms of return per unit of risk.

Risk free rate of interest is the return that an investor can earn by investing in the riskless assets i.e. govt. securities etc. The return earned over and above the risk free rate is the risk premium that is the reward for bearing risk. If the risk premium is divided by a measure of risk, we get the risk premium per unit of risk. Thus, the reward per unit of risk for different portfolios or mutual funds may be calculated and the funds may be ranked in descending order of the ratio. A higher ratio indicates better performance. Two methods of measuring the reward per unit of risk have been proposed by William Sharpe and Jack Treynor respectively in their work on evaluation of portfolio performance.

The most important and widely used measures of performance are;

1. Sharpe's Ratio
2. Treynor's Ratio
3. Jensen Alpha
4. Fama's Decomposition

1. Sharpe Ratio (Reward-to-Variability)

Sharpe ratio (1966) states that the performance of a mutual fund can be reflected in terms of excess returns over the risk-free return during the particular period. These excess returns are further weighed against risk of the portfolio in terms of standard deviation of the returns.

The measure can be presented as: -

$$\text{Sharpe Ratio} = \frac{(R_p - R_f)}{\sigma_i} = \frac{\text{Risk Premium}}{\text{Standard Deviation}}$$

Where

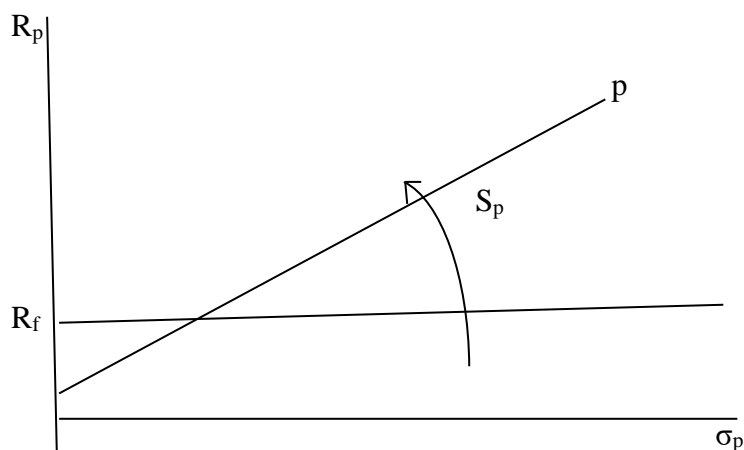
R_p = Portfolio return

R_f = risk free return

$(R_p - R_f)$ = Excess returns that the fund earns over the risk free returns

σ_p = Standard deviation of the fund .

Fig-2



(Graphical presentation of the Sharpe Index, S_p)

Graphically, the index S_p , measures the slope of line emanating from the riskless rate outward to the portfolio in question (see fig-2). Thus, Sharpe index summarizes the risk and return of a portfolio in a single measure that categorizes the performance of the fund on risk adjusted basis. The larger the S_p , the better the portfolio has performed.

There is no absolute definition of a 'good' or 'bad' Sharpe ratio, beyond the thought that a fund with a negative Sharpe would have been better off investing in risk-free government securities. But clearly the higher the Sharpe ratio the better: as the ratio increases, so does the risk-adjusted performance. In effect, when analyzing similar investments, the one with the highest Sharpe has achieved more return while taking on no more risk than its fellows – or, conversely, has achieved a similar return with less risk. Investors are often advised to pick funds with high Sharpe ratios.

2. Treynor's Ratio (Reward-to-volatility)

Treynor (1965) introduced a risk-adjusted measure of portfolio performance called the reward- to-volatility ratio, or Treynor ratio. Treynor ratio assumes that portfolio is well diversified, so the diversifiable risk is ignored and total risk can be represented by the systematic risk. Based on CAPM, Treynor ratio is the slope of the security market line. Therefore, the higher the slope, the better the portfolio performs. This is useful for assessing the excess return from each unit of systematic risk, enabling investors to evaluate how structuring the portfolio to different levels of systematic risk will affect returns

The ratio is defined as:

$$\text{Treynor ratio} = \frac{(R_p - R_f)}{\beta} = \frac{\text{Risk Premium}}{\beta_{\text{eta}}}$$

Where

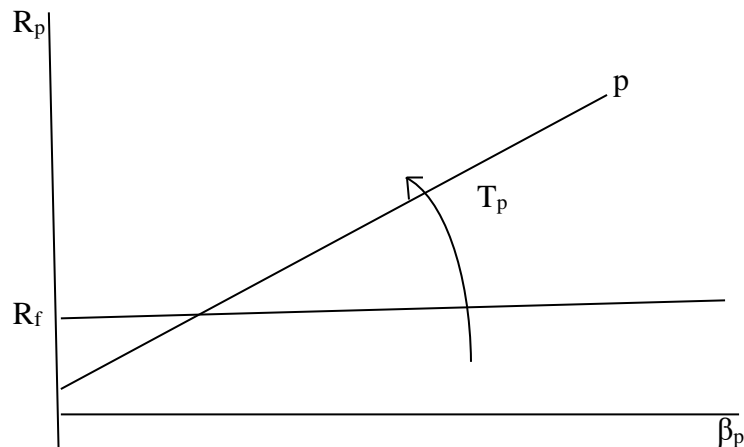
R_p = portfolio return

R_f = Mean risk free return

B_p = Systematic risk

$(R_p - R_f)$ = Excess Returns

Fig-3



(Graphical presentation of the Treynor Index, T_p)

Graphically (Fig-3), the Treynor measures the slope of the line emanating outward from the riskless rate to the portfolio under consideration.

To understand the above ratios let us consider an example. The return and risk figures of two mutual funds and market index is given below in the table.

Illustration 1

Fund	Return	Standard Deviation (σ)	Beta (β)
A	13%	19%	0.7
B	18%	26%	1.2
X (Market index)	16%	22%	1

The risk free rate of return is 7%

The Sharpe ratio for the three funds is given below:

$$A = \frac{13\% - 7\%}{19\%} = 0.316$$

$$B = \frac{18\% - 7\%}{26\%} = 0.423$$

$$X = \frac{16\% - 7\%}{20\%} = 0.41$$

From the ratios given above, B has performed better than fund A and also outperformed the market index (benchmark) X.

The Treynor ratios of three funds are given below;

$$A = \frac{13\% - 7\%}{0.7} = 8.57$$

$$B = \frac{18\% - 7\%}{1.2\%} = 9.17$$

$$X = \frac{16\% - 7\%}{1} = 9$$

As per the Treynor ratio also fund B has performed better than fund A and benchmark index X. whereas A has performed worse than fund B and benchmark index X.

Treynor Vs. Sharpe Measure

The Sharpe ratio uses the Standard Deviation of returns as a measure of risk, while the Treynor uses the Beta (Systematic risk) as a measure of risk. The Sharpe measure, therefore, evaluates the portfolio manager on the basis of return performance, but also takes into account how well diversified the portfolio was during this period. If the portfolio is well diversified (does not contain any unsystematic risk), then both the ratios would give the identical rankings because the total variance would be a systematic variance. If a portfolio is poorly diversified, it is possible that on the basis of Treynor ratio portfolio has higher ranking, but much a lower ranking on the basis of Sharpe ratio. The difference is attributable to the poor diversification of the portfolio. Sharpe pointed out that if one is dealing with a well diversified group of portfolios, such as mutual funds or Exchange Traded Funds (ETFs), the two ratios will provide very similar rankings. Because Sharpe felt the variability due to unsystematic risk was probably transitory, he felt that Treynor ratio might be a better measure for predicting future performance, and his results generally confirmed this expectation.

3. Jensen Alpha (α)

Another type of risk adjusted performance measure is Jensen measure or ratio. This ratio has been developed by Michael Jensen (1968). This ratio measures the differential between the actual return earned on a portfolio and the return expected from the portfolio at a given level of risk.

The CAPM model is used to measure the expected return. The difference between the return actually earned from a portfolio and the return expected from the portfolio is a measure of the excess return or differential return that has been earned over and above what is mandated for its level of systematic risk. The differential return (α) is an indication of portfolio manager's predictive ability or

managerial skills. Using CAPM model, the expected return of the portfolio can be calculated as follows;

$$E(R_p) = R_f + \beta_p (R_m - R_f)$$

Where,

$E(R_p)$ = Expected return on portfolio

R_f = Risk free rate of return

β_p = Systematic risk of the portfolio

R_m = Market return

The differential return is calculated as follows;

$$\alpha_p = R_p - E(R_p)$$

Where,

α_p = Differential return

R_p = Actual return earned on portfolio

$E(R_p)$ = Expected return on portfolio

Thus, α_p represents the difference between the actual return and expected return. If α_p is positive, it indicates that superior return has been earned due to superior management skills. when α_p is zero, it means that the portfolio manager has done just well as an unmanaged randomly selected portfolio. A negative value of α_p indicates that the portfolio's performance has been worse than that of the market or a randomly selected portfolio of equivalent risk due to worst management skills.

Let us consider two mutual funds A and B. The actual returns realized from the funds are 12% and 18% respectively with Beta coefficient 0.7 and 1.2 respectively. The market return is 15% and the risk free rate is 8%. The expected return from the two mutual funds can be calculated as shown below;

$$E(R_p) = R_f + \beta_p (R_m - R_f)$$

$$\begin{aligned} \text{A mutual fund } E(R_p) &= 8 + 0.7(15-8) \\ &= 8 + 0.7(7) = 12.9\% \end{aligned}$$

$$\begin{aligned} \text{B mutual fund } E(R_p) &= 8 + 1.2(15-8) \\ &= 8 + 1.2(7) = 16.4\% \end{aligned}$$

The differential return or α is shown below;

$$\alpha_p = R_p - E(R_p)$$

$$\text{A } \alpha_p = 12 - 12.9 = -0.9$$

$$\text{B } \alpha_p = 18 - 16.4 = 1.6$$

The negative value of α for mutual fund A indicates that its performance has been inferior. The positive value of α for fund B indicates that its performance has been superior, due to superior management skills of its portfolio managers.

Illustration 2: Suppose an investor has limited funds and he can invest in only two portfolios out of given four. Use the risk adjusted methods Sharpe, Treynor and Jensen (α) which will help you to make a relative evaluation and help him to decide which of the two portfolios an investor should invest in on risk adjusted basis.

Portfolios	σ_p	β_p	R_m	R_f	Expected Return $E(R_p)$	Actual Return (R_p)
Portfolio1	0.12	0.76	12.20%	8%	11.19%	12.32%
Portfolio2	0.15	1.02	12.20%	8%	12.28%	17.38%
Portfolio3	0.1	0.75	12.20%	8%	11.15%	12.28%
Portfolio4	0.18	1.16	12.20%	8%	12.87%	1.32%

Solution:

Portfolios	σ_p	B_p	R_m	R_f	Expected Return $E(R_p)$	Actual Return (R_p)	Sharpe Ratio $(R_p - R_f) / \sigma$	Treynor Ratio $(R_p - R_f) / \beta$	Jensen (α) $R_p - R_f + \beta (R_m - R_f)$
Portfolio1	0.12	0.76	12.20%	8%	11.19%	12.32%	0.36	0.056	1.13%
Portfolio2	0.15	1.02	12.20%	8%	12.28%	17.38%	0.62	0.091	5.10%
Portfolio3	0.1	0.75	12.20%	8%	11.15%	12.28%	0.42	0.057	1.13%
Portfolio4	0.18	1.16	12.20%	8%	12.87%	12.32%	0.24	0.037	-0.55%

Calculations;

Sharpe Ratio

$$\text{Sharpe Ratio} = \frac{(R_p - R_f)}{\sigma_i}$$

$$\text{Portfolio 1} = \frac{(12.32\% - 8\%)}{0.12} = 0.36$$

$$\text{Portfolio 2} = \frac{(17.38\% - 8\%)}{0.15} = 0.62$$

$$\text{Portfolio 3} = \frac{(11.28\% - 8\%)}{0.1} = 0.42$$

$$\text{Portfolio 4} = \frac{(1.32\% - 8\%)}{0.18} = 0.24$$

As per Sharpe ratio calculation the investor should choose portfolio 2 and portfolio 3 because both have the higher Sharpe ratio out of the four portfolios given. Although the standard deviation (σ) of portfolio 2 is higher than portfolio 1 which means portfolio 2 has higher risk but investor can take risk and go ahead with portfolio 2.

Treynor Ratio

$$\text{Treynor ratio} = \frac{(R_p - R_f)}{\beta}$$

$$\text{Portfolio 1} = \frac{(12.32\% - 8\%)}{0.76} = 0.056$$

$$\text{Portfolio 2} = \frac{(12.32\% - 8\%)}{1.02} = 0.091$$

$$\text{Portfolio 3} = \frac{(12.32\% - 8\%)}{0.75} = 0.057$$

$$\text{Portfolio 4} = \frac{(12.32\% - 8\%)}{1.16} = 0.037$$

As per the Treynor ratio portfolio 2 and portfolio 3 has the highest ratio. Although the Beta value of portfolio 2 is second highest among all the portfolios given. But its actual return and then Treynor ratio is highest among other portfolios. So we suggest investor to opt portfolio 2 and 3 for investment. Portfolio 4 is completely rejected because its Treynor ratio is lowest among all the four portfolios.

Jensen (α)

$$\text{Jensen } (\alpha) = R_p - R_f + \beta(R_m - R_f)$$

$$\text{Portfolio 1} = 12.32\% - 8\% + 0.76(12.20\% - 8\%) = 1.13$$

$$\text{Portfolio 2} = 17.38\% - 8\% + 1.02(12.20\% - 8\%) = 5.10$$

$$\text{Portfolio 3} = 12.28\% - 8\% + 0.75(12.20\% - 8\%) = 1.13$$

$$\text{Portfolio 4} = 12.32\% - 8\% + 1.16(12.20\% - 8\%) = -0.55$$

As per the Jensen Alpha out of four portfolios the investor would not be suggested to invest in Portfolio 4 because Jensen alpha is negative. Portfolio 2 is the winner with higher Jensen alpha. Although Portfolio 1 and portfolio 3 has same Jensen alpha. Now it's a real challenge that what we should choose between portfolio 1 and 3. To do that we can see the results of previous calculated ratios. So, From the Sharpe and Treynor ratio portfolio 3 should be suggested to investor. As portfolio 3 has both higher Sharpe and Treynor Ratio.

4. Fama's Decomposition

Till now we have discussed the various measures of the performance of a fund, the next task is to identify the sources of that performance. Eugene Fama has provided an analytical framework that allows a detailed breakdown of a fund's performance into different components of performance. This is known as the Fama decomposition of total return. The total return on a portfolio can be firstly divided into two components, namely risk free return and the excess return. Thus,

Total risk = Risk free return + Excess return

The excess return arises from different factors or sources, such as risk bearing and stock selection. Hence the excess return, in turn, may be decomposed into two components, namely risk premium or reward for bearing risk and return from stock selection known as return from stock selectivity. Thus,

Excess return = Risk premium + Return from stock selection.

The risk of a security is of two types: systematic risk and unsystematic risk or diversifiable risk. When a portfolio of securities is created, most of the unsystematic risk or diversifiable risk would disappear. But, in practice, no portfolio would be fully diversified. Hence, a portfolio would have both systematic risk and a small amount of diversifiable risk.

Hence, the risk premium can be decomposed into two components, namely return for bearing systematic risk (market risk) and return for bearing diversifiable risk.

Thus,

Risk premium = Return for bearing systematic risk + Return for bearing diversifiable risk.

Thus, the total return on a portfolio can be decomposed. This involves the breaking down the total return into various components. Thus the total return on a portfolio can be decomposed into four components.

Return on Portfolio =

Riskless rate + Return from market risk + Return from diversifiable risk + Return from pure selectivity

This may be represented as:

$$R_p = R_f + R_1 + R_2 + R_3$$

Each component can be calculated.

The risk free rate of return (R_f) is the return available on the risk free securities such as government assets.

The return from market risk (R_1) is calculated as;

$$R_1 = \beta_p (R_m - R_f)$$

Where R_m is return on market index.

The return from diversifiable risk (R_2) is calculated as;

$$R_2 = [(\sigma_p / \sigma_m) - \beta_p] (R_m - R_f)$$

Where

σ_p = Portfolio standard deviation

σ_m = Standard deviation of market index

The return from pure selectivity is the additional return earned by a portfolio manager from his superior selection ability. It is the return earned over and above the return mandated by total risk of the portfolio as measured by standard deviation.

Mathematically, this can be calculated as difference between the actual return on a portfolio and return mandated by its total risk. This is also known as *fama's net selectivity measure*. The following formula may be used for calculating the measure.

$$\begin{aligned} \text{Fama's net selectivity } (R_3) &= R_p - (R_f + R_1 + R_2) \\ &= R_p - [R_f + (\sigma_p / \sigma_m) (R_m - R_f)] \end{aligned}$$

Where ;

R_p = Actual return on portfolio

R_f = risk free rate

R_m = Return on market index

σ_p = standard deviation of portfolio return

σ_m = standard deviation of market index return

Illustration 3 : We can illustrate Fama's decomposition of portfolio return using the following data on a portfolio;

$$R_p = 22\% \quad \sigma_p = 16\%$$

$$R_m = 17\% \quad \sigma_m = 13\%$$

$$R_f = 11\% \quad \beta_p = 0.86$$

Fama's decomposition may be stated as :-

$$R_p = R_f + R_1 + R_2 + R_3$$

$$R_f = 11\%$$

$$R_1 = \beta_p (R_m - R_f)$$

$$= 0.86(17-11)$$

$$= 5.16\%$$

$$R_2 = [(\sigma_p / \sigma_m) - \beta_p] (R_m - R_f)$$

$$\begin{aligned}
&= [(16/13)-0.86] (17-11) \\
&= (1.23-0.86) (6) \\
&= 0.37 \times 6 \\
&= 2.22\%
\end{aligned}$$

$$\begin{aligned}
\mathbf{R_3} &= \mathbf{R_P} - (\mathbf{R_f} + \mathbf{R_1} + \mathbf{R_2}) \\
&= 22 - (11 + 5.16 + 2.22) \\
&= 22 - 18.38 \\
&= 3.62\%
\end{aligned}$$

$$\begin{aligned}
\mathbf{R_p} &= \mathbf{R_f} + \mathbf{R_1} + \mathbf{R_2} + \mathbf{R_3} \\
&= 11 + 5.16 + 2.22 + 3.62 \\
&= 22\%
\end{aligned}$$

Thus, alternatively Fama's net selectivity can be directly calculated as;

$$\begin{aligned}
\text{Fama's net selectivity (} R_3 \text{)} &= R_p - [R_f + (\sigma_2 / \sigma_3) (R_m - R_f)] \\
&= 22 - [11 + (16/13)(17-11)] \\
&= 22 - [11 + (1.23)(6)] \\
&= 22 - [11 + 7.38] \\
&= 22 - 18.38 = 3.62\%
\end{aligned}$$

The return from net selectivity can be negative. This can be happened when actual return is less than that mandated by the total risk of the portfolio. This indicates that due to the poor selection of the stocks the portfolio has not earned the return expected from it commensurate with its total risk.

So it can be said that decomposition of total return is useful in identifying the different skills involved in active portfolio management. A portfolio manager who attempts to achieve the higher return than the market return assumes higher risk and it completely depends upon his superior stock selection ability to achieve the higher return. If he is successful, the return due to pure selectivity would be positive.

Solved Examples

Example-1 An investor owns a portfolio that over the last four years has produced 17.8% annual return. Portfolio Beta for that time period was 1.10. Further, the risk free rate and market return averaged 7.4% and 15.2% per year respectively. How would an investor evaluate the performance of the portfolio?

$$\begin{aligned}
\text{Treynor Ratio (TR) for the portfolio} &= \frac{(R_p - R_f)}{\beta} \\
&= \frac{(17.8 - 7.4)}{1.10}
\end{aligned}$$

$$= 9.45$$

$$\begin{aligned} \text{Treynor Ratio (TR) for market index} &= \frac{(R_m - R_f)}{\beta_m} \\ &= \frac{(15.2 - 7.4)}{1.0} \\ &= 7.8 \end{aligned}$$

The ratio of market index can be taken as benchmark for evaluation. The Treynor ratio or reward to volatility of portfolio is higher than the market index. It means the portfolio has performed better than the market index.

Example-2 Information regarding two mutual funds and market index is given below;

Fund	Return	Standard Deviation	Beta
Gold	8%	16%	0.73
Platinum	17%	36%	1.34
Market Index	11%	25%	1.0

Assuming risk free return is 6%. Calculate differential returns for two funds.

Solution: Differential return, as per Jensen ratio, is calculated as:

$$\alpha_p = R_p - E(R_p)$$

The expected return of the portfolio, $E(R_p)$, can be calculated using the CAPM formula.

$$E(R_p) = R_f + \beta(R_m - R_f)$$

$$\begin{aligned} \text{Gold Fund } E(R_p) &= 6 + .73(11-6) \\ &= 6 + 3.65 \\ &= 9.65\% \end{aligned}$$

$$\begin{aligned} \text{Platinum fund } E(R_p) &= 6 + 1.34(11-6) \\ &= 6 + 6.7 \\ &= 12.7\% \end{aligned}$$

Differential Return

$$\begin{aligned} \text{Gold fund} &= R_p - E(R_p) \\ &= 8 - 9.65 \\ &= -1.65\% \end{aligned}$$

$$\begin{aligned} \text{Platinum Fund} &= 17 - 12.7 \\ &= 4.3\% \end{aligned}$$

Example 3 From the information given in Example 2 calculates net selectivity measure for the platinum fund using Fama's framework of performance components.

Solution: Information given is:

$$\begin{aligned} R_p &= 17\% & \sigma_m &= 36\% \\ R_m &= 11\% & \sigma_{m^2} &= 25\% \\ R_f &= 6\% & \beta(p) &= 1.34 \end{aligned}$$

Fama's decomposition may be stated as;

$$R_p = R_f + R_1 + R_2 + R_3$$

$$R_1 = \beta_p (R_m - R_f)$$

$$= 1.34 (11 - 6)$$

$$= 1.34(5)$$

$$= 6.7 \%$$

$$R_2 = [(\sigma_p / \sigma_m) - \beta_p] (R_m - R_f)$$

$$= [(36/25) - 1.34] (11 - 6)$$

$$= [1.44 - 1.34] (5)$$

$$= 0.1 \times 5$$

$$= 0.5\%$$

Now, we have

$$R_2 = 0.5$$

$$R_1 = 6.7$$

$$R_p = 17$$

$$R_f = 6$$

SO,

$$R_3 (\text{net selectivity}) = R_p - (R_f + R_1 + R_2)$$

$$= 17 - (6 + 6.7 + 0.5)$$

$$= 17 - 13.2$$

$$= 3.8\%$$

Example-4 Following information provide the historical performance of a capital market and a mutual fund:

Year	Mutual Fund Beta	Mutual fund return %	Return on market index %	Return on Govt. Securities
1	0.9	-3	-7.5	6.5
2	0.98	1.45	4.5	6.5
3	0.95	5.5	8	5.75
4	0.99	10.8	11.5	5.75
5	1	15	13.5	6
6	0.88	11.5	11	6
7	0.94	18.5	14.5	5.5
8	0.85	20	12	5.5
9	0.75	25	20	6
10	0.72	30	15	6

Calculate the following risk adjusted return measures for the mutual fund:

- Reward-to-variability ratio
 - Reward- to-volatility ratio
- Comment on mutual fund's performance.

Solution : Before calculating the ratios, the first step is the calculation of average values of the four variables given above.

The averages are as follows:

Mutual fund beta = 0.896

Mutual fund return= 13.47

Return on market index = 10.25

Return on Govt. securities = 5.95

- Now , Reward –to- variability ratio or Sharpe ratio

$$\text{Sharpe Ratio} = \frac{(R_p - R_f)}{\sigma_i}$$

For the calculation of this ratio, σ_p , or mutual fund's standard deviation of return's is required.

Calculation of Standard Deviation

Year	Mutual fund return X	X ²
1	-3	9
2	1.45	2.1025
3	5.5	30.25
4	10.8	116.64
5	15	225
6	11.5	132.25
7	18.5	342.25
8	20	400
9	25	625
10	30	900
TOTAL	134.75	2782.493

$$\begin{aligned}\sigma_P &= \sqrt{\frac{N \sum X^2 - (\sum X)^2}{N^2}} \\ &= \sqrt{\frac{(10 \times 2782.493) - (134.75)^2}{10 \times 10}} \\ &= \sqrt{\frac{27824.93 - 18157.5625}{100}} \\ &= \sqrt{96.67} \\ &= 9.83 \%\end{aligned}$$

$$\begin{aligned}\text{Sharpe Ratio} &= \frac{(R_p - R_f)}{\sigma_i} \\ &= \frac{(13.47 - 5.95)}{9.83} \\ &= 0.76\end{aligned}$$

$$\begin{aligned}\text{Treynor Ratio} &= \frac{(R_p - R_f)}{\beta} \\ &= \frac{(13.47 - 5.95)}{0.896} \\ &= 8.39\end{aligned}$$

To compare the mutual fund performance, we will calculate the Sharpe and Treynor ratio of the market index to be used as the benchmark.

To calculate the Sharpe ratio of market index, the standard deviation of returns on the market index has to be calculated.

Calculation of the Standard Deviation

Year	Market return %	index X	X ²
1	-7.5		56.25
2	4.5		20.25
3	8		64
4	11.5		132.25
5	13.5		182.25
6	11		121
7	14.5		210.25
8	12		324
9	20		400
10	15		225
	102.5		1735.25

$$\begin{aligned}\sigma_M &= \sqrt{\frac{N \sum X^2 - (\sum X)^2}{N^2}} \\ &= \sqrt{\frac{(10 \times 1735.25) - (102.5)^2}{10 \times 10}} \\ &= \sqrt{\frac{17352.5 - 10506.25}{100}} \\ &= 8.27 \%\end{aligned}$$

Sharpe ratio and Treynor ratio for market index

$$\begin{aligned}\text{Sharpe Ratio} &= \frac{(10.25 - 5.95)}{8.27} \\ &= 0.52\end{aligned}$$

$$\begin{aligned}\text{Treynor Ratio} &= \frac{(10.25 - 5.95)}{1} \\ &= 4.3\end{aligned}$$

Now the ratios of the mutual fund and the market index may be tabulated as

Ratio	Mutual Fund	Market Index
Sharpe ratio	0.76	0.52
Treynor Ratio	8.39	4.3

Sharpe ratio and Treynor ratio of mutual fund is greater than its benchmark market index.



Check Your Progress-B

Q1. Would you invest in a mutual fund whose Jensen alpha is negative?

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Q2. If portfolio returns is less than risk free return, than what other investment avenues an investor have?

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Q3. What are risk free securities?

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Q4. As an investor, you have the option to invest in one of the following three portfolios;

	Portfolio 1	Portfolio 2	Portfolio3
Return	14.0%	13%	14.0%

Which of the above portfolio would you choose to invest in? Is the information available enough to take a decision?

Q5. An investor has gathered the following information about the mutual funds.

Mutual Funds	Return %	Risk % (σ)	β
A	15	5	1.3
B	12	3	.50
C	14	6	1.50
D	11	7	1
E	19	5	1.70

Risk free rate of return is 6% and market rate of return is 18%. Rank all these mutual funds using Sharpe, Treynor and Jensen method.

Q6. What is the meaning of alpha value in Jensen Model?

20.7 SUMMARY

Portfolio evaluation completes the cycle of activities comprising portfolio management. Without portfolio evaluation portfolio management cannot be completed because it provides the mechanism for identifying the weaknesses in the investment process and for improving the deficient areas. Thus, portfolio evaluation serves as a feedback mechanism for improving the portfolio management process. In the present unit learners will come to know various risk adjusted performance evaluation measures techniques. These risk-adjusted techniques will help them to identify whether their portfolio has performed better than some other portfolios or whether it is successful in beating the market index.



23.8 GLOSSARY

Risk Free Rate of Return; Risk free return (R_f) means minimum returns on investment with no risk of losing the investment. Government securities are considered as the risk free rate.

Portfolio Diversification: Portfolio diversification is the process of investing money in different asset classes and securities in order to minimize the overall risk of the portfolio.

Standard Deviation: Standard deviation measures the variability of expected return of the portfolio.

Beta: The β is a sensitivity measurement, indicating the relationship between prices of a share and market in general. It is the way to represent the association of the share price with the index of the market. It is used to indicate the level of systematic risk of a share.



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23.11 TERMINAL QUESTIONS

Q1. What is the essential difference between the Sharpe and Treynor ratio of portfolio performance? Which do you think is preferable? Why?

Q2. ABC and XYZ are the two portfolios. ABC has mean of success 13% and XYZ has mean of success 18%. ABC having double the beta at 2.0 as portfolio XYZ. The standard deviations are 15% and 19% respectively for portfolio ABC and XYZ. The mean return for market index is 12%, while the risk free rate is 8%.

- a) Compute the Jensen index for each of the portfolio. What does it indicates?
- b) Compute the Treynor ratio for both the portfolios. Interpret the results and compare it with Jensen.
- c) Compute the Sharpe index for the funds and the market.

Q3. Portfolio need to be evaluated regularly in order to ensure that their performance is in accordance with the expectations of the investor. This can be done by using different measures- Explain the statement.

UNIT 24 VALUE AT RISK (VaR) AND RISK MANAGEMENT

- 24.1 Introduction
- 24.2 Objectives
- 24.3 The Concept of Risk Management in Finance in Global Context
- 24.4 Risk Management in Finance in Indian Context
- 24.5 Understanding Value at Risk (VaR), Its Definition and Explanation
- 24.6 Historical Context of VaR
- 24.7 Importance of Value at Risk (VaR) In India
- 24.8 Different Types of VaR
- 24.9 Advantages of Using VaR
- 24.10 Limitations and Criticisms of VaR
- 24.11 The Methodologies for Calculating VaR
- 24.12 Case Studies: VaR in Action
- 24.13 Future Trends in VaR and Risk Management
- 24.14 Summary
- 24.15 Glossary
- 24.16 Check Your Progress
- 24.17 References
- 24.18 Suggested Readings
- 24.19 Terminal Questions

24.1 INTRODUCTION

A robust risk management framework is essential in the increasingly complex and linked global financial sector. The world economy is seeing increased volatility due to quick changes in regulations, geopolitical unpredictability, and technology. Under such circumstances, thorough risk management procedures are required to protect the stability of the financial system and guarantee long-term growth. This unit is an overview of Value at Risk (VaR) and Risk Management. This will enable you to understand about Value at Risk (VaR) and Risk Management. There are some case studies inserted in this unit which will facilitate you to develop better understanding of this very concept.

24.2 OBJECTIVES

After learning this unit, you will be able to:

- Comprehend concept of Value at Risk (VaR) and Risk Management;
- Various Aspects of Value at Risk (VaR) and Risk Management;

- Elucidate the meaning of VaR, importance, advantages and, limitations;
- Understand different methodologies of its calculation.

24.3 THE CONCEPT OF RISK MANAGEMENT IN FINANCE IN GLOBAL CONTEXT

Global risk management systems were shown to have serious weaknesses as a result of the financial crises of the last 20 years, chief among them the global financial crisis of 2008. Because of the insufficient evaluation of the risks related to intricate financial products and market dynamics, institutions suffered significant losses. As a result, regulatory agencies throughout the globe have stepped up their inspections and placed strict obligations on financial institutions to improve their risk management procedures.

More advanced risk measurement and mitigation strategies, such Value at Risk (VaR), which offer insights into possible losses and assist in decision-making, have become popular as a result of this change.

Moreover, the COVID-19 pandemic has highlighted how important it is to implement adaptive risk management strategies. Unexpected occurrences have the potential to set off a chain reaction in the financial markets that results in capital shortages and liquidity crises. As a result, the creation of robust risk management frameworks that not only address present weaknesses but also foresee potential threats is becoming increasingly important to enterprises. Encouraging confidence among stakeholders and guaranteeing the long-term sustainability of financial institutions necessitate this proactive approach.

In conclusion, the complexity and volatility of the global financial landscape highlight the pressing need for strong risk management systems. To properly manage uncertainty and preserve financial stability, institutions need to adopt comprehensive strategies that include cutting-edge risk measuring methods like VaR.

24.4 RISK MANAGEMENT IN FINANCE IN INDIAN CONTEXT

Since the economy was liberalized in the early 1990s, there has been an apparent transformation of the Indian financial markets. Increased involvement from external investors, easier access to funds, and the emergence of a wide range of financial instruments are the outcomes of the markets' opening up. Although this liberalization has accelerated economic development and prosperity, it has also brought along a plethora of new difficulties and complications that need for efficient risk management strategies.

The financial industry in India has developed quickly as a result of technological breakthroughs and the spread of digital platforms, which have aided in the development of new financial services and products. But this growth has also increased vulnerability to a number of hazards, including as operational, credit, liquidity, and market risks.

These risks are further increased by the interconnection of the domestic and global markets, thus explaining why sophisticated risk management strategies are essential for Indian financial institutions to use.

For Indian banks and other financial institutions, the global financial crisis of 2008 served as a wake-up call, exposing the shortcomings in risk assessment and management frameworks. The Reserve Bank of India (RBI) has responded by taking major actions to improve risk management procedures in the banking industry. The main goals of regulatory activities have been to raise the standard of risk management frameworks, increase the precision of risk measuring methods, and promote a risk-aware culture inside financial institutions.

Moreover, a comprehensive approach to risk management needs to be adopted due to the advent of new hazards, including as cyber threats and the effects of climate change. For Indian financial institutions to successfully detect, evaluate, and reduce these changing risks, they need to take a proactive approach. This means using cutting-edge technologies, including artificial intelligence and data analytics, to improve risk assessment skills and guarantee regulatory compliance.

In conclusion, the necessity to handle a variety of risks and the increasingly complicated financial markets in India highlight how crucial it is to have strong risk management techniques. To protect their interests and promote sustainable growth, Indian financial institutions should give top priority to the creation and use of strong risk management frameworks that comply with international best practices.

24.5 UNDERSTANDING VALUE AT RISK (VaR), ITS DEFINITION AND EXPLANATION

An investment portfolio's risk of loss over a certain length of time for a specific confidence interval is measured statistically using Value at Risk, or VaR. It gives important information about the degree of risk connected with financial assets by estimating the highest possible loss an investor may experience in a typical market scenario. Value at Risk (VaR) has become a widely recognized instrument for risk management among asset managers, financial institutions, and regulators. An investment portfolio's possible loss within a certain time period and confidence level is quantified by Value at Risk (VaR), a commonly used risk management indicator. Because VaR offers a clear and succinct picture of risk exposure and speeds up decision-making processes, it is very helpful for financial institutions.

For example, let us suppose a ₹10 crore stock portfolio. The portfolio has a 5% probability of losing more than ₹2 crores on any one day if the value at risk (VaR) is determined to be ₹2 crore during the course of a single day at a 95% confidence level. Portfolio managers may use this statistical indicator to assess the risk of their investments and make well-informed decisions about how to allocate their assets and reduce risk.

Quantifying the possible loss of an asset or portfolio's value with a certain probability over a given time horizon is the basic idea underlying value at risk, or VaR. A VaR of ₹1 crore, for instance, with a 95% confidence level over a one-day horizon means that there is a 5% possibility that the portfolio would lose more than ₹1 crore on that particular day. Financial institutions can use this statistical method to make well-informed judgments on capital allocation, risk exposure, and risk mitigation techniques.

24.6 HISTORICAL CONTEXT OF VAR

In the 1990s, as financial institutions looked for more sophisticated methods to measure and manage risk, the idea of Value at Risk first surfaced in the late 1980s and gained popularity. Because financial products and markets have grown more complicated, there has been a demand for standardized risk measuring techniques, which is where VaR comes from.

Financial institutions began to realize the significance of evaluating and managing market risk following the 1987 stock market collapse. The sector searched for efficient risk management frameworks because of the substantial financial instability caused by the incapacity to predict possible losses. VaR was developed as a useful technique for risk quantification because of the conditions that set it up.

VaR became widely used as a standard measure of market risk in the mid-1990s after being introduced by banks and financial institutions. A statistically based VaR calculation methodology was created in 1994 by the RiskMetrics Group, a branch of J.P. Morgan. Numerous financial companies adopted this paradigm because it gave institutions a methodical way to measure prospective risks.

The increasing focus on risk management strategies by regulators served as a further catalyst for the creation of VaR. In order to guarantee sufficient capital buffers against prospective losses, the Basel Committee on Banking Supervision published guidelines in 1996 urging banks to adopt risk measuring frameworks, including VaR. The regulatory drive cemented VaR's standing as an essential part of risk management procedures in the banking industry.

Even though VaR was widely used, after the 2008 global financial crisis, it came under fire. The validity of VaR as a risk measuring instrument has been called into doubt by the fact that many institutions found themselves unable to face the severity of market downturns. Opponents said that VaR's inability to identify severe market occurrences and tail risks was due to its dependence on past data and normal distribution assumptions.

Financial institutions and regulators started looking for complementary risk management techniques, such as scenario analysis and stress testing, to add to VaR in response to these complaints. VaR is still evolving as organizations attempt to improve their frameworks for assessing risk and adjust to the shifting nature of the financial markets.

24.7 IMPORTANCE OF VALUE AT RISK (VaR) IN INDIA

For a variety of factors, Indian financial institutions are incorporating VaR into their risk management procedures increasingly. Firstly, banks and other financial institutions must put in place extensive frameworks for risk measurement and management due to the constantly changing regulatory environment. VaR is one popular option for quantitative risk assessment, which the RBI has stressed is necessary for institutions to implement.

Secondly, sophisticated risk measuring instruments are required due to the increasingly complicated financial markets in India, which are being seen by a rise in the involvement of international and institutional investors. Indian financial institutions may measure their exposure to market volatility, evaluate how well their capital buffers are working, and ensure regulatory compliance via VaR.

Adoption of VaR also improves financial institutions' accountability and transparency. Institutions are able to better communicate their risk profiles to investors, regulators, and clients by putting a number on possible losses. This increases people's faith and confidence in the organization's capacity for risk management.

VaR is therefore essential to Indian financial institutions' risk management strategies since it helps them stay compliant with regulations while navigating the intricacies of the constantly changing market landscape.

In other words, Value at Risk, or VaR, measures the highest possible loss that may be incurred by an investment portfolio at a particular degree of confidence over a predetermined period of time. Value at Risk (VaR) is a financial measure of the possible loss an organization might incur in a typical market.

Calculation of VaR: The calculation of VaR can be expressed mathematically as:

$$\text{VaR}_\alpha = -\inf\{x: P(X \leq x) \geq \alpha\}$$

Where:

- VaR_α is the Value at Risk at confidence level α (e.g., 95% or 99%).
- $P(X \leq x)$ represents the cumulative distribution function of the portfolio returns.

Example: Suppose a financial institution employs a 95% confidence threshold to determine the equity portfolio's 1-day VaR of ₹10 million. This suggests that, in a typical market, there is only a 5% risk that the portfolio would lose more than ₹10 million in a single day.

24.8 DIFFERENT TYPES OF VaR

Parametric VaR

Variance-covariance VaR, or parametric VaR, is a technique that makes the assumption that asset returns have a normal distribution. This method calculates possible losses within a certain confidence interval by using statistical metrics, namely the mean and

standard deviation of returns. Financial institutions often use the parametric technique because of its simplicity, especially in times of stable markets.

The steps that follows are usually involved in order to determine Parametric VaR:

1. **Calculate the Mean Return:** Determine the average return of the asset or portfolio over a specified time period.
2. **Calculate the Standard Deviation:** Measure the volatility of the asset's returns by calculating the standard deviation.
3. **Determine the Confidence Level:** Establish the desired confidence level (e.g., 95% or 99%).
4. **Calculate VaR:** Apply the following formula:

$$\text{VaR} = \text{Mean Return} - Z \times \text{Standard Deviation}$$

Where Z represents the Z-score corresponding to the selected confidence level.

For an example, let us consider a mutual fund that has a 1% standard deviation and a mean daily return of 0.2%. Approximately 1.645 is the Z-score at 95% confidence level, if the fund management wishes to compute the VaR at that level. As a result, the following formula would be used to get the Parametric VaR for a day:

$$\text{VaR} = 0.002 - (1.645 \times 0.01) = -0.01445$$

This indicates a potential loss of approximately 1.445% in the fund's value over one day.

Historical Simulation VaR

Historical Simulation VaR is a non-parametric method that examines past market movements to estimate possible losses. This approach simulates the distribution of possible outcomes by utilizing real historical returns. Through the application of historical performance to the present portfolio, organizations may make empirical predictions about future risks.

Usually the following steps are taken in order to calculate Historical Simulation VaR:

1. **Collect Historical Data:** Gather historical return data for the asset or portfolio over a defined time horizon (e.g., the past year).
2. **Calculate Portfolio Returns:** Calculate the returns of the portfolio based on historical data.
3. **Rank the Returns:** Rank the calculated returns from lowest to highest.
4. **Determine VaR:** Identify the VaR by selecting the return at the desired percentile. For example, if a 95% VaR is sought, the return at the 5th percentile will be selected.

Let's take an example where a portfolio has returns of -5%, 2%, -3%, 1%, 4%, -2%, 0%, 6%, -4%, 3% during the previous 10 days. The 5th percentile return (-4%) would be used as the VaR after the returns were graded in order to calculate the Historical Simulation VaR.

When attempting to capture non-linear correlations and the impact of major market events, historical simulation VaR is very helpful. Its dependence on previous data, however, can make it more difficult for it to correctly forecast future hazards, especially when market conditions change.

Monte Carlo Simulation VaR

Through the simulation of several future market situations, Monte Carlo Simulation VaR uses sophisticated statistical modeling to estimate possible losses. Based on the statistical properties of asset returns, this method creates a large number of random samples, enabling a thorough examination of possible outcomes.

The following steps are required to calculate VaR for Monte Carlo Simulation:

1. **Define the Model:** Establish a model that captures the statistical properties of asset returns, including correlations and volatilities.
2. **Generate Random Samples:** Use random number generation techniques to produce a large number of simulated return paths for the assets in the portfolio.
3. **Calculate Portfolio Value:** Compute the portfolio value for each simulated return path.
4. **Determine VaR:** Analyze the distribution of simulated portfolio values and identify the VaR at the desired confidence level.

A bank may use Monte Carlo simulation, for example, to determine the VaR of a complex derivatives portfolio. The bank can predict the probability of various loss situations and make well-informed judgments regarding risk management by modeling thousands of possible future price movements.

One of the advantages of Monte Carlo Simulation VaR is its ability to identify tail risks more accurately than other approaches and to simulate complicated interactions between assets with flexibility. However, financial institutions may face difficulties because to its high computing demand and reliance on model assumptions.

24.9 ADVANTAGES OF USING VAR

Indian financial institutions can benefit from using Value at Risk (VaR) as a risk management tool in a number of ways:

Standardized Risk Measure: VaR provides a consistent and measurable way to quantify risk, making it easier to compare various asset classes and portfolios. Decision-making and risk evaluation are aided by this uniformity.

1. **Regulatory Compliance:** VaR is a useful tool for compliance as regulatory frameworks are emphasizing more and more the necessity for strong risk management procedures. By using VaR techniques, financial firms may show that they are complying with regulatory obligations.
2. **Risk Communication:** VaR enhances transparency by giving a lucid and understandable picture of risk. Financial institutions may cultivate confidence and trust by successfully communicating their risk profiles to stakeholders, such as investors and regulators.
3. **Portfolio Optimization:** VaR enables institutions to evaluate the trade-off between risk and reward related to various investment strategies. Portfolio managers can decide on asset allocation and risk-reduction tactics with knowledge of possible losses.
4. **Integration with Other Risk Measures:** VaR may be used with other risk measures, such the Sharpe Ratio, to give an all-encompassing picture of performance that has been adjusted for risk. The efficiency of risk management techniques is improved by this all-encompassing strategy.

Scenario Analysis: Financial institutions can assess the impacts of various market circumstances on their portfolios by using VaR as the foundation for scenario analysis. This knowledge facilitates stress testing and the creation of backup plans.

In summary, VaR is a useful tool for Indian financial institutions negotiating the intricacies of the financial environment because of its standardized character, benefits related to regulatory compliance, and efficacy in risk communication.

24.10 LIMITATIONS AND CRITICISMS OF VAR

Despite its extensive use, Value at Risk (VaR) has also several limitations and criticisms, particularly in the context of Indian financial institutions:

1. **Assumption of Normality:** VaR frequently assumes that asset returns have a normal distribution, which could not be a fair representation of how financial markets actually are. Extreme events or fat tails have the potential to cause a large underestimating of risk.
2. **Inability to Capture Tail Risks:** Value at Risk (VaR) provides insight into possible losses up to a given confidence level, but it is unable to quantify losses

above that point. During times of market stress, this constraint may give rise to a false sense of security.

3. **Static Measure:** VaR is a snapshot of risk at a particular point of time and does not take dynamic portfolios or shifting market circumstances into consideration. Because of its static nature, risk assessment may become inaccurate, especially when there is volatility.
4. **Sensitivity to Input Assumptions:** The assumptions made about input parameters like volatility and mean returns have a significant impact on the accuracy of VaR estimates. Risk estimates can be seriously distorted by inaccurate assumptions.
5. **Potential for Misuse:** VaR's ability to simplify risk could result in its misuse. Institutions run the danger of taking on more risk if they use VaR as their only risk measure and ignore other relevant considerations.
6. **Historical Data Dependence:** Historical Reproduction VaR mostly depends on past data, which might not be able to anticipate future risks with enough accuracy, especially in market situations that are changing quickly.
7. **Regulatory Challenges:** VaR is frequently accepted in regulatory frameworks; yet, compliance may be difficult due to the restrictions in its computation. To guarantee a thorough grasp of risk, regulators could demand further steps.

In conclusion, VaR is a useful tool for risk management, but it's important to be aware of its limits. To successfully handle these difficulties, Indian financial institutions should use a comprehensive approach to risk management and supplement VaR with other risk assessment approaches.

24.11 THE METHODOLOGIES FOR CALCULATING VAR

1. There are several methods for calculating Value at Risk (VaR), each having advantages and disadvantages. The particular needs of the financial institution, the portfolio's complexity, and the state of the market all influence the approach chosen. The three main approaches are as follows:
 1. **Parametric VaR:** With this method, potential losses are estimated using statistical parameters on the assumption that asset returns have a normal distribution. Although it is simple and computationally effective, risk may be oversimplified.

2. **Historical Simulation VaR:** The estimation of potential losses in this non-parametric technique is based on real historical returns. Although it represents actual market behavior, its applicability and quality may be constrained by past data.
3. **Monte Carlo Simulation VaR:** This sophisticated technique uses statistical modeling and random sampling to simulate a variety of potential future market conditions. Although it provides a thorough evaluation of risk, it is computationally demanding and susceptible to model assumptions.

Parametric VaR Calculation

The following steps are typically taken to calculate Parametric VaR:

1. **Determine the Mean and Standard Deviation:** Calculate the mean and standard deviation of the asset returns over a specified period.
2. **Select the Confidence Level:** Choose the desired confidence level (e.g., 95% or 99%).
3. **Calculate the Z-Score:** Identify the Z-score corresponding to the selected confidence level.
4. **Calculate VaR Using the Formula:**

$$\text{VaR} = \text{Mean Return} - (Z \times \text{Standard Deviation})$$

Historical Simulation VaR Calculation

The following steps are generally taken to compute Historical Simulation VaR:

1. **Collect Historical Data:** Gather historical return data for the asset or portfolio over a defined time horizon.
2. **Calculate Daily Returns:** Calculate the daily returns of the portfolio based on historical data.
3. **Rank the Returns:** Rank the calculated returns from lowest to highest.
4. **Identify VaR:** Determine the VaR by selecting the return at the desired percentile. For instance, if seeking a 95% VaR, select the 5th percentile return.

Monte Carlo Simulation VaR Calculation

The Calculation of Monte Carlo Simulation VaR involves the following steps:

1. **Define the Statistical Model:** Establish a model that captures the statistical properties of the assets in the portfolio.
2. **Generate Random Samples:** Use random number generation techniques to produce a large number of simulated return paths.
3. **Calculate Portfolio Values:** Compute the portfolio value for each simulated path.

4. **Determine VaR:** Analyze the distribution of simulated portfolio values and identify the VaR at the desired confidence level.

Comparison of Methodologies

When comparing the methodologies, it's essential to consider factors such as:

- **Simplicity vs. Complexity:** VaR from parametric simulation is more sophisticated and computationally efficient than VaR from Monte Carlo simulation, although the latter offers a more thorough evaluation of risk.
- **Data Dependency:** While Monte Carlo Simulation VaR and Parametric VaR can integrate more sophisticated statistical models, Historical Simulation VaR mainly depends on historical data.
- **Risk Capture:** While parametric VaR might overlook severe events, Monte Carlo Simulation VaR is better at catching tail risks. In conclusion, the financial institution's unique requirements, the portfolio's complexity, and the state of the market all influence the approach used to calculate VaR.

Advanced Risk Management Techniques

To improve their ability to identify, assess, and mitigate risks, financial institutions use a variety of sophisticated risk management strategies in addition to Value at Risk (VaR). These techniques consist of:

1. *Stress Testing:* The Evaluation of the impact of extreme market conditions on a portfolio's performance.
2. *Scenario Analysis:* The Analysis of the potential outcomes of specific market events or changes in economic conditions.
3. *Risk-adjusted Performance Metrics:* The Assessment of performance based on risk-adjusted returns, such as the Sharpe Ratio and Sortino Ratio.
4. *Integration of VaR with Other Risk Measures:* Integrating VaR with other risk metrics to develop a comprehensive risk profile.

Stress Testing

Simulating the impact of extreme market events on a portfolio's value is known as stress testing. Financial institutions may assess their resistance to unfavorable circumstances with this method. Stress tests may be designed around real-world situations, fictitious events from history, or legal requirements.

Importance of Stress Testing

Identifying Vulnerabilities: Stress testing assists in locating potential vulnerabilities in portfolios and helps institutions establish suitable countermeasures.

Regulatory Compliance: In order to make sure financial institutions have sufficient capital buffers, regulators frequently require that they do stress tests.

Enhancing Decision-Making: Institutions may make informed decisions about risk management strategies and capital allocation by comprehending how portfolios function under pressure.

Scenario Analysis

Assessing the potential impact of particular market events on a portfolio's performance is known as scenario analysis. Financial institutions may assess the implications of several scenarios, such interest rate changes, economic downturns, or geopolitical crises, using this method.

Benefits of Scenario Analysis

Comprehensive Risk Assessment: Compared to typical risk metrics, scenario analysis provides a more nuanced view of potential risks.

Informing Strategic Decisions: Institutions may develop contingency plans and inform their strategic decision-making processes by examining different scenarios.

Risk-adjusted Performance Metrics

metrics that take into account the risks incurred in order to obtain returns are used to evaluate portfolio performance. Typical metrics consist of:

1. Sharpe Ratio: which is determined by dividing the difference between the portfolio return and the risk-free rate by the standard deviation, represents the additional return per unit of risk.
2. Sortino Ratio: This ratio, which compares the excess return to the downside deviation, is similar to the Sharpe Ratio but concentrates on downside risk.

Significance of Risk-adjusted Performance Metrics

Performance Evaluation: Financial organizations can assess how well investment strategies perform in relation to the risks they incur by using these indicators.

Informed Investment Decisions: Institutions may improve their overall risk management frameworks and make better investment decisions by concentrating on risk-adjusted returns.

Integrating VaR with Other Risk Measures

Combining VaR with other risk metrics makes risk evaluations more thorough. Financial organizations may create a comprehensive understanding of their risk profile by

combining VaR with scenario analysis, stress testing, and risk-adjusted performance indicators.

Advantages of Integration

Comprehensive Risk Assessment: Organizations may evaluate risks from a variety of angles by combining several risk metrics.

Informed Decision-Making: Having a deeper comprehension of hazards enables more intelligent choices to be made about capital allocation and risk management techniques. In conclusion, sophisticated risk management strategies are essential to improving Value at Risk (VaR) as a risk assessment instrument. For financial institutions to effectively traverse the intricacies of the financial world, they need take a multidimensional approach to risk management that includes several strategies.

Regulatory Framework and Compliance

Overview of Regulatory Frameworks

Over the past two decades, the regulatory framework for governing risk management methods has changed dramatically, with a focus on strengthening financial institutions' resilience. Regulatory frameworks are designed to make sure that institutions have sufficient capital reserves, employ strong risk management procedures, and encourage openness in their business dealings. Important legal frameworks that affect risk management consist of:

1. **Basel Accords:** A collection of international banking laws created with the intention of strengthening the stability of the world banking system by the Basel Committee on Banking Supervision (BCBS).
2. **The Dodd-Frank Act:** This federal law was passed in the United States in reaction to the 2008 financial crisis with the goals of lowering systemic risks and increasing financial system transparency.
3. **Reserve Bank of India (RBI) Guidelines:** The RBI has released guidelines to improve risk management procedures in Indian financial institutions and banks.

Basel Accords

The Basel Accords—Basel II and Basel III in particular—have had a big impact on global risk management methods. A risk-based capital framework known as Basel II mandated that banks have a certain amount of capital in relation to their risk exposures. It underlined the necessity of strong frameworks for risk management and measurement, particularly the application of Value at Risk (VaR) for market risk evaluation. By enforcing stronger capital requirements, improving risk management procedures, and establishing new liquidity norms, Basel III substantially reinforced the regulatory environment. Basel III's essential components include:

Capital Conservation Buffer: A mandate that banks keep a reserve of capital to cover losses in times of severe financial strain.

Liquidity Coverage Ratio (LCR): It is a measure designed to make sure banks have enough liquid assets on hand to cover their immediate liabilities. \

Leverage Ratio: A metric used to minimize excessive leverage that compares a bank's capital to its entire exposure.

Dodd-Frank Act

With the goal of improving transparency and lowering systemic risks in the US financial sector, the Dodd-Frank Act instituted important changes. Among the Dodd-Frank Act's main provisions are:

Volcker Rule: A regulation that prohibits banks from investing in hedge funds and private equity, as well as from engaging in proprietary trading.

Stress Testing Requirements: Large financial institutions are required to do periodical stress tests in order to evaluate their capital sufficiency in the event of unfavorable economic conditions.

Enhanced Reporting Requirements: Financial institutions now have to provide more information about their risk exposures and financial performance.

Reserve Bank of India (RBI) Guidelines

The RBI has released a number of guidelines to improve risk management practices in Indian banks and financial institutions. Important directives consist of:

Risk Management Framework: In accordance with RBI regulations, banks must set up a thorough framework for managing risks, which must involve identifying, assessing, and keeping an eye on a range of risks, such as liquidity, credit, market, and operational risks.

Capital Adequacy Requirements: To ensure that they have enough capital to cover any losses, Indian banks must maintain minimum capital ratios in accordance with Basel standards.

Stress Testing Framework: To evaluate the effects of unfavorable market circumstances on banks' risk profiles and capital sufficiency, the RBI has required stress testing practices.

Importance of Regulatory Compliance

For financial institutions to be resilient, to keep investor trust, and to reduce systemic risks, they must adhere to regulatory frameworks. The benefits of regulatory compliance include as following:

Enhanced Risk Management Practices: Organizations are compelled by regulations to put strong risk management frameworks in place, which results in better approaches to risk assessment and mitigation.

Increased Transparency: Investor and stakeholder trust is increased when regulatory compliance encourages openness in financial reporting.

Systemic Risk: Robust risk management techniques, propelled by adherence to regulatory standards, augment the general steadiness of the financial system.

In conclusion, the regulatory framework significantly influences how financial firms manage risk. Institutional resilience and systemic risk mitigation depend on adherence to regulatory frameworks like the Basel Accords and RBI directives.



Check Your Progress-A

Fill in the Blanks

1. Value at Risk (VaR) is primarily used to estimate the potential _____ of an investment over a defined period at a specified confidence level.
2. The Monte Carlo Simulation method generates random samples to predict the behavior of _____ prices over time.
3. A significant advantage of using VaR is its ability to provide a _____ measure of risk that can be easily communicated to stakeholders.
4. The Basel III framework emphasizes the importance of maintaining adequate _____ to safeguard against financial instability.
5. The Historical Simulation VaR method analyzes past market data to estimate potential _____ in investment portfolios.
6. Stress testing evaluates how extreme market conditions can impact a financial institution's _____ and overall risk profile.
7. One major limitation of VaR is that it does not adequately account for _____ risk, which can lead to significant underestimations of potential losses.

Multiple Choice Questions

1. What is the primary purpose of Value at Risk (VaR)?
 - A) To calculate expected returns on investments
 - B) To predict future asset prices
 - C) To evaluate market efficiency
 - D) To estimate the maximum potential loss over a specific time frame

2. Which method of calculating VaR relies on historical price movements?
- A) Historical Simulation VaR
 - B) Parametric VaR
 - C) Monte Carlo Simulation
 - D) Value at Risk with Adjusted Tail Expectations (VaR-ATE)
3. Which of the following is a key limitation of VaR?
- A) It provides a detailed analysis of tail risks.
 - B) It does not capture losses beyond the confidence level.
 - C) It is too complex for practical use.
 - D) It relies solely on subjective estimates.
4. The implementation of Basel III is aimed at improving the _____ of banks in response to financial crises.
- A) Profitability
 - B) Risk management
 - C) Market share
 - D) Operational efficiency
5. Which risk measure is often used alongside VaR to assess potential extreme losses
- A) Standard deviation
 - B) Sharpe ratio
 - C) Conditional VaR (CVaR)
 - D) Alpha
6. Stress testing is crucial for financial institutions as it helps assess the impact of _____ scenarios on their portfolios.
- A) Optimistic
 - B) Hypothetical adverse
 - C) Historical
 - D) Predictable
7. Which approach uses random sampling to project potential future losses and is particularly useful for complex portfolios?
- A) Parametric VaR
 - B) Historical Simulation
 - C) Monte Carlo Simulation

- D) Backtesting
- C) Monte Carlo Simulation

24.12 CASE STUDIES: VAR IN ACTION

Case Study 1: VaR Implementation in an Indian Bank

Background: An established Indian bank sought to improve its risk management procedures in light of the rising volatility of the market. The bank made the decision to put in place a Value at Risk (VaR) framework to evaluate its exposure to market risks.

Implementation Steps:

1. *Data Collection:* For its trading portfolio, which included derivatives, bonds, and stocks, the bank collected historical price data.
2. *Methodology Selection:* Making use of the bank's vast historical data, the risk management team chose the Historical Simulation VaR method.
3. *Calculation:* To ascertain the VaR with a 95% confidence level, the group rated and computed daily returns.
4. *Stress Testing:* To evaluate the effect of extraordinary market occurrences on its portfolio, the bank performed stress tests in addition to value-at-risk calculations.
5. *Outcome:* By giving the bank a consistent way to estimate market risk, VaR allowed for improved risk assessment and decision-making. The bank might improve its regulatory compliance and successfully inform stakeholders of its risk profile.

Case Study 2: VaR in a Global Investment Firm

Background: Value at Risk (VaR) was employed by a multinational investment firm to evaluate portfolio risk across several asset classes as part of its all-encompassing risk management framework.

Implementation Steps:

1. *Integration with Other Metrics:* The firm combined VaR with scenario analysis and stress testing to develop a comprehensive risk profile.
2. *Monte Carlo Simulation:* The firm used Monte Carlo simulation to determine potential losses in intricate derivatives portfolios.
3. *Regulatory Reporting:* The firm demonstrated compliance with Basel III criteria by using VaR calculations for regulatory reporting.

The outcome: By combining VaR with cutting-edge risk management strategies, the investment business was able to efficiently control risks throughout its diverse portfolio.

The firm kept up strict regulatory compliance while being open and honest with investors about its risk exposure.

Case Study 3: VaR Limitations during the 2008 Financial Crisis

Background: Many financial institutions used Value at Risk (VaR) as their primary risk assessment technique during the 2008 financial crisis. However, because of the extraordinary volatility of the markets, many people suffered large losses.

Challenges Faced:

1. *Normal Distribution Assumption:* Many institutions used parametric variance of return (Parametric VaR), which failed to take into account the extraordinary occurrences that were typical of the crisis.
2. *Underestimation of Risk:* During times of increased volatility, prospective losses were underestimated due to the static nature of VaR.
3. *Regulatory Scrutiny:* Regulators questioned the efficacy of risk management techniques due to the dependence on VaR.

The outcome: During the crisis, the shortcomings of VaR were made clear, which led to an assessment of risk management frameworks by the institutions. In order to better identify and reduce risks, many embraced more thorough strategies that included scenario analysis and stress testing.

24.13 FUTURE TRENDS IN VAR AND RISK MANAGEMENT

7.1 Evolving Market Dynamics

A number of trends are expected to influence how risk management techniques and Value at Risk (VaR) are implemented in the future as financial markets continue to evolve:

1. *Increased Complexity of Financial Instruments:* More advanced risk management strategies, such as improved VaR procedures, are required due to the growth of complex financial instruments, such as derivatives and structured products.
2. *Integration of Technology:* It is anticipated that technological developments, such as machine learning and artificial intelligence, would be crucial to risk assessment and modeling, increasing the precision and effectiveness of VaR computations.
3. *Focus on Tail Risk:* Financial institutions are expected to implement more comprehensive risk management frameworks that supplement VaR, such as stress testing and scenario analysis, as a result of the increased awareness of tail risks, especially in the wake of incidents like the COVID-19 pandemic.

Regulatory Developments

Regulatory frameworks continually evolve to deal with fresh risks and improve the stability of the financial system. Potential future regulatory tendencies might be:

1. *Enhanced Reporting Requirements:* Authorities will probably enforce more stringent reporting guidelines for risk management techniques, stressing the need of openness and responsibility in risk evaluations.
2. *Integration of ESG Risks:* The incorporation of environmental, social, and governance (ESG) risks is becoming more and more important when making investment decisions. Financial institutions may be required by evolving regulatory frameworks to evaluate and report the effects of ESG risks on their portfolios.
3. *Global Standardization:* Attempts to bring regulatory norms from different countries closer together might result in more uniform methods of risk management, such as the use of VaR.

Continuous Improvement of Risk Management Practices

It is anticipated that financial institutions would always improve their risk management procedures in order to adjust to shifting market dynamics. Important areas of focus might be:

1. *Holistic Risk Frameworks:* In order to provide a complete picture of risk exposure, institutions are expected to shift toward more integrated risk management frameworks that take into account credit, market, operational, and liquidity concerns.
2. *Enhanced Stress Testing and Scenario Analysis:* By using these cutting-edge methods, institutions will be better able to evaluate their resilience in the face of unfavorable market conditions.
3. *Dynamic VaR Models:* Improving decision-making procedures and increasing the accuracy of risk assessments will be possible with the creation of dynamic VaR models that can adjust to shifting market conditions.

In summary, the future of risk management and Value at Risk (VaR) is expected to undergo substantial change due to changing market conditions, new laws, and an ongoing effort to improve risk management procedures. To effectively traverse the intricacies of the financial world, financial institutions need to continue being proactive and nimble in their adaptation to these developments.

24.14 SUMMARY

Financial institutions now rely heavily on Value at Risk (VaR) to help them manage market risk. The development, methods, benefits, and drawbacks of risk assessment highlight how difficult it is in the fast-paced financial world of today. VaR provides a consistent way to quantify risk, but its usefulness depends on how well its assumptions and limits are understood.

For institutions looking to enhance their risk management frameworks, including cutting-edge risk management strategies and responding to regulatory developments will be essential as the financial landscape continues to change. Financial institutions may effectively negotiate market complexity and maintain their resilience in the face of unpredictability by adopting a comprehensive strategy to risk management that incorporates risk-adjusted performance indicators, scenario analysis, and stress testing.

In the fast evolving financial landscape, stability and sustainable growth in the context of Indian financial institutions would be greatly aided by a grasp of the subtleties of value at risk (VaR) and how it applies to risk management. Indian financial institutions may have a competitive edge in the global financial landscape by consistently improving their risk management practices and adjusting to new developments.



24.15 GLOSSARY

Value at Risk (VaR): a statistical metric for estimating the potential loss of an asset's or portfolio's value over a certain time period for a specific confidence range. It calculates the most loss a portfolio may experience from market swings in a typical market.

Monte Carlo Simulation: A technique for risk management that estimates the likelihood of various outcomes in a process that is difficult to anticipate because of uncertainty by using statistical modeling and random sampling.

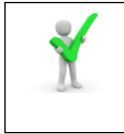
Stress Testing: A technique of risk management that estimates the likelihood of various outcomes in a process that is difficult to anticipate because of uncertainty by using statistical modeling and random sampling.

Basel III: A set of international banking regulations developed with the intention of bolstering risk management, oversight, and regulation in the banking industry by the Basel Committee on Banking Supervision. Basel III introduced new standards for leverage and liquidity as well as more stringent capital requirements.

Risk Appetite: The kind and extent of risk an organization is ready to accept in order to achieve its goals. It is an essential part of a company's risk management plan and is frequently stated in terms of exposure levels or monetary loss.

Historical Simulation VaR: A technique for estimating Value at Risk that models possible future losses by utilizing previous data on market prices and returns. It uses historical performance to evaluate risk without making any assumptions about distribution.

Sharpe Ratio: A performance metric that assesses the risk and return of an investment. It provides information on risk-adjusted returns by dividing the excess return of the portfolio above the risk-free rate by the standard deviation of the portfolio.



24.16 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Answers: (1) Loss (2) Asset, (3) Single, (4) Capital reserves, (5) Losses, (6) Portfolio, (7) Tail

Answers: (1) D (2) A, (3) B, (4) B, (5) C, (6) B, (7) C



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24.19 TERMINAL QUESTIONS

Short Answer Type Questions

1. What is the primary function of Value at Risk (VaR) in finance?
2. Identify one advantage of using VaR for risk management in financial institutions.
3. What does the term "stress testing" refer to in the context of risk management?
4. How does Monte Carlo Simulation differ from Parametric VaR?
5. What is the significance of Basel III for banks in India?
6. Explain the concept of "risk appetite" in risk management frameworks.
7. Name a key limitation of VaR when measuring potential losses.
8. What historical financial event led to the popularization of VaR in the 1990s?
9. What role do regulatory bodies like the RBI play in risk management for Indian banks?
10. How can artificial intelligence enhance risk management practices in financial institutions?

Essay-Type Long Questions

1. Discuss the importance of risk management in the global financial context and how it impacts financial institutions' stability. Provide examples of recent events that highlight the need for robust risk management frameworks.
2. Explain the different methodologies used to calculate VaR, including Parametric, Historical Simulation, and Monte Carlo Simulation. Discuss the advantages and disadvantages of each approach.
3. Analyze the evolution of VaR since its inception in the 1990s. How has it adapted in response to various financial crises, and what lessons have been learned?
4. Critically evaluate the limitations and criticisms of VaR as a risk management tool. Provide specific examples of how these limitations have affected financial institutions, particularly in the Indian context.

5. Discuss the integration of technology in risk management, focusing on the role of big data analytics, artificial intelligence, and machine learning. How can these technologies improve the accuracy and efficiency of risk assessments?
6. Examine the impact of regulatory frameworks, such as Basel III and the Dodd-Frank Act, on risk management practices in Indian banks. How have these regulations shaped the way banks approach risk?
7. Explore the concept of scenario analysis in risk management. Provide examples of potential risks that Indian financial institutions face, including economic, political, and market risks.
8. Investigate the case study of the "London Whale" incident and its implications for risk management practices in India. What lessons can Indian banks learn from this incident to enhance their risk governance?
9. Discuss the emerging trends in risk management and how these trends will shape the future of risk management practices in the finance sector.
10. Reflect on the continuous improvement of risk management practices. How can financial institutions ensure that their risk management frameworks evolve to meet changing market conditions and regulatory requirements?

UNIT 25 SAP-AN INTRODUCTION

- 25.1 Introduction
- 25.2 Objectives
- 25.3 Introduction to SAP
- 25.4 Historical Milestones
- 25.5 History and Evolution of Sap
- 25.6 Core Components of Sap
- 25.7 Benefits Of Sap for Organizations
- 25.8 Challenges And Considerations
- 25.9 Future Trends and Innovations
- 25.10 The Role of Sap in Portfolio Management
- 25.11 Summary
- 25.12 Glossary
- 25.13 Check Your Progress
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- 25.15 Suggested Readings
- 25.16 Terminal Questions

25.1 INTRODUCTION

In this unit you will study about SAP (Systems, Applications, and Products in Data Processing) which will enable you to gain comprehensive and an in-depth understanding of enterprise resource planning (ERP) software, that unifies disparate corporate operations and functions into a single system. Learning SAP can help you become more adept at managing data, streamlining processes, and making wise decisions for their companies. Your chances of landing a job in finance, supply chain management, or human resources are improved by this knowledge, which also gives them useful skills to promote creativity and efficiency in any type of corporate environment.

25.2 OBJECTIVES

After learning this unit, you will be able to:

- Understand Sap, its meaning and history
- Explain its different version
- Benefits of SAP
- Role of SAP in Portfolio Management

25.3 INTRODUCTION TO SAP

Systems, Applications, and Products in Data Processing, or SAP, is a key player in the global corporate software market. Dietmar Hopp, Hasso Plattner, Claus Wellenreuther, Hans-Werner Hector, and Rudolf Ferber, five former IBM workers, founded SAP in 1972. Since then, the company has expanded from a modest startup to a significant participant in the business software market. The company's goal was to develop integrated software solutions that addressed the shortcomings of the disjointed data systems that were then common in enterprises.

SAP R/1, SAP's initial product, transformed financial accounting thanks to its real-time processing powers. Businesses that used disconnected systems and batch processing had difficulties that this innovation addressed. The success of SAP R/1 paved the way for SAP's development and growth into an all-encompassing suite of products that address a range of corporate needs. The company's development is a reflection of its dedication to innovation and meeting the shifting demands of companies across the globe.

25.4 HISTORICAL MILESTONES

Several significant turning points have occurred along SAP's journey from its early days to its current status as a top supplier of enterprise software:

- **SAP R/1 (1973):** The primary objective of the company's initial product was to optimize financial accounting procedures. For its time, the single-tier architecture it had was revolutionary.
- **SAP R/2 (1980s):** Beyond financial accounting, this multi-tier system also included production planning and materials management. Stronger data processing capabilities were made possible by the usage of mainframe computers.
- **SAP R/3 (1992):** A client-server design was introduced by SAP R/3, enabling the system to operate on several operating systems, including Windows and Unix. Because of its scalability and versatility due to its modular design, it was widely adopted.
- **SAP NetWeaver (2004):** This technological platform facilitated customizability and integration. It allowed for the creation of unique applications and supported a number of different technologies.
- **SAP S/4HANA (2015):** SAP S/4HANA provided simplified data models and real-time analytics by utilizing in-memory computing. It was a noteworthy development for SAP's ERP products.
- **SAP Business Technology Platform (BTP) (2020):** This platform offers a holistic solution for digital transformation by combining analytics, application development, and data management.
- **Global Presence and Impact**

SAP has a wide global presence, with its solutions being used in many different countries and sectors. A network of partners, consultants, and support services helps the organization maintain its global presence. SAP's global reach allows it to cater to a wide range of needs for SMBs and international firms alike. Global behemoths like Siemens, Coca-Cola, and Microsoft, for example, use SAP solutions to handle their intricate operations. These businesses use SAP's integrated systems to optimize their workflows, boost productivity, and extract insightful information from their data. Businesses may overcome regional obstacles and seize worldwide opportunities with SAP's assistance and tailored solutions.

25.5 HISTORY AND EVOLUTION OF SAP

Early Beginnings

The establishment of SAP in 1972 marked the beginning of a revolutionary path for enterprise software. The goal of the founders was to provide a remedy for the shortcomings and inefficiencies of the current data processing infrastructure. At first, the main goal was to create a system that could manage financial accounting in real-time, which was a very new idea. The promise of integrated software solutions was proved by SAP R/1's early success. The foundation for SAP's future development and entry into other business areas was laid by this original solution. The company's development was greatly aided by its capacity for innovation and adaptation to shifting technological trends.

Expansion with SAP R/2

When SAP R/2 was first released in the 1980s, it marked a major improvement in the company's product line. In addition to financial accounting, this multi-tier system also handled sales order processing, manufacturing scheduling, and materials management. SAP R/2's ability to manage massive data volumes and deliver reliable performance for big businesses was made possible by the usage of mainframe computers. The success of SAP R/2 can be attributed to its capacity to combine multiple business processes into one cohesive system. Organizations were able to manage their operations more effectively thanks to this integration's increased accuracy and efficiency. The foundation for the creation of subsequent SAP products was established by the system's capacity to support intricate business operations.

The Era of SAP R/3

A significant turning point in the history of SAP was the release of SAP R/3 in the 1990s. The client-server design of SAP R/3 gave the system more scalability and flexibility by enabling it to operate on several platforms. Organizations were able to integrate specific functionalities according to their needs because to SAP R/3's modular design. Because of SAP R/3's modular design, companies could customize the system to meet their specific needs. Retail organizations might concentrate on sales and distribution functions, whereas industrial companies could use modules for materials management and

production planning. The success and broad acceptance of SAP R/3 were facilitated by this flexibility.

Advancements with SAP NetWeaver and SAP S/4HANA

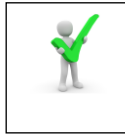
A technological framework for integrating SAP applications with other systems and technologies was made available with the introduction of SAP NetWeaver in the 2000s. By facilitating data integration, business process management, and bespoke application development, this platform improved SAP's software suite. The introduction of SAP S/4HANA in the middle of the 2010s marked a major advancement in SAP's ERP offerings. By utilizing the SAP HANA database's in-memory processing capabilities, SAP S/4HANA provided enhanced performance, simplified data models, and real-time analytics. SAP S/4HANA's sleek design and contemporary user interface demonstrated the company's dedication to innovation and adapting to changing business requirements.

Case Study: Siemens' Transformation with SAP S/4HANA

Siemens, a leader in engineering and technology worldwide, used SAP S/4HANA as part of a major digital transformation. In order to support its international operations, increase efficiency, and improve data visibility, the company set out to upgrade its ERP system. With its outdated ERP system, Siemens had to deal with issues including sluggish data processing and difficult application integration. Siemens realized real-time insights, streamlined data models, and enhanced performance through their migration to SAP S/4HANA. Siemens was able to improve its operational insights, simplify its procedures, and spur innovation throughout the company by implementing SAP S/4HANA.

Global Expansion and Influence

A major factor in SAP's success has been its worldwide expansion. Organizations in a variety of sectors and geographical areas employ the company's products, demonstrating its capacity to meet a wide range of business requirements. SAP's global reach is reinforced by a network of advisors, partners, and support services, guaranteeing that its products are usable and efficient for companies all over the world. For example, multinational companies like IBM, Unilever, and Coca-Cola employ SAP's technologies to handle intricate international operations. These businesses use SAP's integrated systems to optimize their workflows, boost productivity, and extract insightful information from their data. SAP's worldwide reach helps businesses take advantage of opportunities in various areas and manage local obstacles.

**Check Your Progress-A**

Q1. What was the primary goal of SAP's founders when they established the company in 1972?

Q2. How did SAP R/2 improve upon its predecessor SAP R/1?

Q3. What was the significant technological advancement that allowed SAP R/2 to handle massive data volumes?

Multiple Choice Questions (MCQs)

Q4. What was the primary focus of SAP when it was founded in 1972?

- a. Supply Chain Management
- b. Financial Accounting in Real-Time
- c. Human Resource Management
- d. Customer Relationship Management

Q5. Which SAP system, introduced in the 1980s, was known for its ability to handle large volumes of data and support multiple business processes?

- a. SAP R/1
- b. SAP R/2
- c. SAP R/3
- d. SAP S/4HANA

Q6. Which SAP system introduced in the 1990s allowed for real-time processing capabilities across various business functions?

- a. SAP R/1
- b. SAP R/2

- c. SAP R/3
- d. SAP S/4HANA

Q7. What key feature does SAP S/4HANA provide that significantly improves speed and performance?

- a. Modular Design
- b. In-Memory Computing
- c. Client-Server Architecture
- d. Mainframe Computing

Q8. Fill in the Blanks

1. SAP R/2 was introduced in the 1980s and marked a significant advancement by including functionalities such as _____ order processing and materials management.
2. The introduction of SAP R/3 in the 1990s was characterized by its use of _____ architecture, which provided greater flexibility and scalability.
3. SAP S/4HANA utilizes _____ computing to offer real-time analytics and enhance performance.
4. SAP R/1, introduced in the early 1970s, primarily focused on real-time _____ accounting.

-25.6 CORE COMPONENTS OF SAP

SAP ERP: The Central Component

The core of SAP's software offerings is SAP ERP, which is a whole suite of modules that integrates different business operations. The following are the main SAP ERP modules:

Financial Accounting (FI): Accounting, reporting, and financial transactions are all managed by the Financial Accounting module. It guarantees adherence to accounting rules and gives a thorough picture of the financial situation of a firm. In actuality, accounts payable and receivable are managed, financial statements are prepared, and transactions are recorded using the Financial Accounting module. SAP FI, for example, can be used by a manufacturing company to manage supplier payments, monitor financial performance, and provide reliable financial reporting. The module's connection with other SAP modules guarantees current and accurate financial data, facilitating well-informed decision-making.

Controlling (CO): Performance analysis and internal cost management are the main topics of the controlling module. It supports cost monitoring and control, profitability analysis, and well-informed financial decision-making for enterprises. The Controlling module offers information about the performance and cost structure of an organization. Retail companies, for example, can use SAP CO to evaluate

profitability, examine the expenses of various product lines, and make tactical choices about pricing and cost control. Internal orders, profit center accounting, cost center accounting, and other cost management procedures are supported by this module.

Sales and Distribution (SD): Order processing, sales administration, and distribution are all taken care of by the Sales and Distribution module. It ensures effective sales operations by supporting tasks including order entry, shipping, and billing. From order entry to delivery and billing, the complete sales process is managed by the Sales and Distribution module. For example, processing customer orders, controlling inventory levels, and producing invoices are all possible using SAP SD for a consumer goods company. The module supports effective customer relationship management and sales operations by integrating with other SAP modules to guarantee accurate and current sales data.

Materials Management (MM): Procurement, inventory, and materials planning are all managed via the Materials Management module. It facilitates efficient inventory management and supply chain optimization for businesses. Various inventory management and procurement tasks are supported by the Materials Management module. SAP MM, for example, can be used by a construction company to execute purchase orders, plan material requirements, and keep track of inventory levels. The correct and current procurement and inventory data is guaranteed by the module's interface with other SAP modules, facilitating effective supply chain management.

Production Planning (PP): Production scheduling, planning, and control are supported by the Production Planning module. It ensures effective production operations by assisting companies in organizing and carrying out their manufacturing procedures. Production processes are managed using the Production Planning module, which handles everything from scheduling and planning to controlling and executing. SAP PP, for example, can be used by an automaker to track production orders, manage material requirements, and plan production schedules. The module supports effective manufacturing operations by ensuring that production data is correct and up to date through connection with other SAP modules.

Human Capital Management (HCM): Payroll, HR procedures, and employee data are all managed via the Human Capital Management module. It helps in hiring, managing performance, and developing staff members, among other things. Performance management, payroll processing, and personnel administration are just a few of the HR procedures that are managed by the Human Capital Management module. For example, a global company can handle payroll, manage employee data across multiple locations, and monitor employee performance using SAP HCM. The module supports efficient human capital management by ensuring accurate and current HR data through interaction with other SAP modules.

Case Study: The Coca-Cola Company's SAP ERP Implementation

One of the biggest beverage companies in the world, The Coca-Cola Company, used SAP ERP to increase productivity and optimize operations. The organization had difficulties with its outdated systems, such as disjointed data and ineffective procedures.

Coca-Cola was able to combine its financial accounting, sales and distribution, and materials management operations into a single system by putting SAP ERP into place. Through this integration, the company's activities were better understood in real time, manual processes were decreased, and data accuracy increased. Coca-Cola was able to increase productivity, improve decision-making, and spur growth throughout its global operations with the adoption of SAP ERP.

SAP S/4HANA: Next-Generation ERP

The subsequent version of SAP's ERP software, SAP S/4HANA, uses in-memory computing to provide real-time analytics and enhanced speed. Some of SAP S/4HANA's salient characteristics are:

Simplified Data Model: The data model in SAP S/4HANA is designed to be less complex and more efficient. Through data structure simplification, SAP S/4HANA facilitates quicker processing and more straightforward information retrieval. SAP S/4HANA's streamlined data model minimizes tables and gets rid of redundancies, which speeds up data processing and enhances system efficiency. With SAP S/4HANA, for example, a logistics business may get real-time information on shipment tracking, inventory levels, and order status very fast. The user experience is improved by the simplified data model, which offers a more user-friendly and efficient interface for information access and analysis.

Real-Time Analytics: Real-time reporting and analytics are made possible by SAP HANA's in-memory computing capabilities. Businesses may swiftly get insights from their data, empowering them to react to market shifts and make well-informed decisions. The real-time analytics features of SAP S/4HANA give enterprises instant access to the most recent data. SAP S/4HANA, for example, can be used by a financial services company to track key performance indicators, examine market trends, and make data-driven strategic decisions. Real-time analysis facilitates quicker decision-making and improves overall corporate agility.

Enhanced User Experience: The modern, user-friendly interface of SAP S/4HANA improves productivity and usability. Employees can get the necessary information and manage the system with ease thanks to its user-friendly design. SAP S/4HANA's user interface is meant to enhance the overall user experience. SAP S/4HANA, for example, offers role-based dashboards, customizable views, and contextual data that are advantageous to a retail company. Employee work performance and access to pertinent information are facilitated by the current design's ease of navigation and data availability. **Integration Capabilities:** Third-party apps and other SAP solutions can be easily integrated with SAP S/4HANA. Organizations can create a unified and interconnected technology ecosystem thanks to this integration. The integration capabilities of SAP S/4HANA facilitate the development of a connected technological environment. An international manufacturer, for example, can combine SAP S/4HANA with third-party applications and other SAP solutions like SAP SuccessFactors and SAP Ariba. By this connection, businesses can create a unified

ecosystem of technology to meet their data management requirements and business processes.

Case Study: Daimler AG's Transition to SAP S/4HANA

The parent company of Mercedes-Benz, Daimler AG, undertook a significant digital transformation by moving to SAP S/4HANA. In order to support its international operations, increase efficiency, and improve data visibility, the company set out to upgrade its ERP system. Daimler's old ERP system had issues, such as sluggish performance and intricate data structures. Daimler was able to gain real-time insights, streamlined data models, and enhanced performance by switching to SAP S/4HANA. Daimler was able to improve operational insights, optimize internal procedures, and spur innovation throughout its worldwide business with the help of SAP S/4HANA.

SAP Business Technology Platform (BTP)

The comprehensive platform SAP BTP offers services and tools for developing, integrating, and maintaining applications. It consists of a few essential components:

Data Management: SAP BTP provides management, storage, and integration possibilities for data. Data warehousing, data governance, and data quality capabilities are included in this. SAP BTP's data management features facilitate a range of data-related tasks, such as data integration, storage, and governance. SAP BTP, for example, can be used by a healthcare institution to integrate patient data from various sources, guarantee data consistency, and maintain data quality. These features support businesses in efficiently managing their data and guaranteeing its accuracy and dependability.

Application Development: The platform offers tools and services for developing original software and expanding on SAP solutions that already exist. Support for a number of development languages and frameworks is part of this. With the application development tools from SAP BTP, businesses can create and implement unique apps that are tailored to their own requirements. For example, a financial services company can create custom applications for customer engagement, risk management, and compliance using SAP BTP. The platform offers versatility and adaptation for a range of development scenarios by supporting many frameworks and development languages.

Analytics: Analytics tools for reporting, data visualization, and business intelligence are included in SAP BTP. Organizations can use these technologies to evaluate their data and derive insights that are useful. SAP BTP's analytics features facilitate a range of reporting and business intelligence tasks. Retail businesses, for example, can utilize SAP BTP to generate reports, visualize sales data, and develop interactive dashboards. These capabilities facilitate efficient data analysis for enterprises, allowing them to make well-informed decisions grounded in actionable insights.

Integration: Through interaction with both SAP and non-SAP apps, SAP BTP enables businesses to establish a networked technological environment. This covers data integration, process automation, and API administration features. SAP BTP's integration features facilitate the development of a networked technological ecosystem. For example,

a logistics business can link third-party applications for warehouse automation and transportation management with its SAP S/4HANA system using SAP BTP. With the help of these tools, businesses can create a unified IT environment that streamlines operations and increases productivity.

Case Study: Bosch's Use of SAP BTP

The global technology and engineering firm Bosch uses SAP BTP to improve its efforts at digital transformation. To support its international operations, the company employs SAP BTP for analytics, application development, and data management. Data management was a concern for Bosch because of its many business units and platforms. Bosch was able to create unique apps, combine data from several sources, and use advanced analytics to obtain insightful information by utilizing SAP BTP. Through the use of SAP BTP, Bosch was able to increase data visibility, optimize internal procedures, and spur innovation throughout its international operations.

SAP Cloud Solutions

SAP provides a variety of cloud-based solutions to support different business requirements:

SAP SuccessFactors: A workforce analytics, employee central, talent management, and cloud-based human capital management solution. It enhances employee engagement and aids in HR process management for businesses. Tools for managing HR procedures, like as hiring, performance reviews, and staff development, are offered by SAP SuccessFactors. SAP SuccessFactors, for example, can be used by a multinational corporation to track performance, manage personnel data across geographical boundaries, and assist with talent development programs. Because SAP SuccessFactors is cloud-based, businesses can access and manage HR data from any location, facilitating remote work and international operations.

SAP Ariba: A cloud-based procurement solution that makes supplier management, procurement, and sourcing easier. It assists businesses in strengthening their ties with suppliers and streamlining their procurement procedures. From supplier management to sourcing and procurement, SAP Ariba covers every step of the procurement process. SAP Ariba, for example, can help a manufacturing organization manage supplier relationships, streamline sourcing procedures, and boost procurement effectiveness. Because SAP Ariba is hosted on the cloud, businesses can work in real-time with suppliers and access procurement data from any location.

SAP Concur: A cloud-based travel and cost management system that offers invoice management, travel booking, and expense reporting. It facilitates effective staff travel and expenditure management for businesses. With its tools for expenditure reporting, travel booking, and invoice management, SAP Concur streamlines travel and expense management. SAP Concur, for example, can be used by a consulting business to track costs, handle staff travel plans, and expedite invoice processing. SAP Concur's cloud-based architecture facilitates efficient expenditure management by enabling enterprises to view and manage travel and expense data from any location.

Case Study: General Electric's Use of SAP SuccessFactors

The multinational company General Electric (GE) upgraded its human capital management procedures by implementing SAP SuccessFactors. The organization aimed to enhance workforce analytics, employee engagement, and talent management by modernizing its HR systems. Managing personnel information and performance across its many business divisions presented GE considerable difficulties. Through the use of SAP SuccessFactors, GE was able to improve talent management, expedite HR procedures, and obtain insightful data about employee performance. Through the use of SAP SuccessFactors, GE was able to advance talent development, enhance employee engagement, and spearhead HR transformation throughout its international operations.

SAP Analytics

A range of analytics solutions from SAP are available to assist businesses in deriving insights from their data:

SAP Analytics Cloud: An all-encompassing approach to planning, predictive analytics, and business intelligence. This tool facilitates data-driven decision-making for enterprises by providing features for forecasting, reporting, and data visualization. An array of tools for data analysis and visualization is offered by SAP Analytics Cloud. To develop interactive dashboards, generate reports, and forecast sales patterns, for example, a retail firm can use SAP Analytics Cloud. Businesses may obtain a comprehensive picture of their data and make decisions based on insights that are actionable thanks to the solution's connectivity with both SAP and non-SAP data sources.

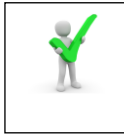
SAP Business Objects: A set of tools for data visualization, analysis, and reporting. It has capabilities for making dashboards, interactive visualizations, and reports that can be shared. Numerous reporting and analytics tasks, such as creating reports, displaying data, and creating interactive dashboards, are supported by SAP Business Objects. SAP BusinessObjects, for example, can be used by a financial services company to produce financial reports, assess market trends, and produce visual aids for top-level decision-making. Because of the suite's versatility and integration possibilities, businesses can customize their analytics and reporting solutions to fit their unique requirements.

SAP Data Intelligence: A platform offering capabilities for data connectivity, transformation, and orchestration that facilitates data management and integration. It aids in the management and integration of data from many sources for enterprises. Building a connected data environment is made possible for enterprises by SAP Data Intelligence, which facilitates data integration, transformation, and administration tasks. SAP Data Intelligence, for example, can be used by a healthcare company to coordinate data workflows, connect patient data from various systems, and transform data for analysis. The features of the platform assist businesses in efficiently managing their data and guaranteeing its accuracy and dependability.

Case Study: Merck's Use of SAP Analytics Cloud

The multinational pharmaceutical corporation Merck upgraded its data analytics and reporting capabilities by implementing SAP Analytics Cloud. The organization aimed to enhance its capacity for evaluating data from clinical trials, tracking important performance metrics, and providing assistance for strategic decision-making. -Managing

and interpreting massive amounts of data from clinical trials and other sources presented difficulties for Merck. Merck was able to do predictive analytics, generate comprehensive reports, and construct interactive dashboards using SAP Analytics Cloud. Through the use of SAP Analytics Cloud, Merck was able to enhance its data-driven strategies, make better decisions, and obtain insightful knowledge about its operations.



Check Your Progress-B

Q1. What is the primary function of the Financial Accounting (FI) module in SAP ERP?

Q2. How does SAP S/4HANA's simplified data model improve system efficiency?

Q3. What is the role of SAP Business Technology Platform (BTP) in application development?

Multiple Choice Questions (MCQs)

Q4. Which module in SAP ERP is responsible for managing accounting, reporting, and financial transactions?

- a. Controlling (CO)
- b. Sales and Distribution (SD)
- c. Financial Accounting (FI)
- d. Production Planning (PP)

Q5. What does the SAP S/4HANA simplified data model aim to improve?

- a. Data redundancy
 - b. Data complexity
 - c. Data processing speed and efficiency
 - d. System errors
- 1. Which SAP solution helps businesses manage supplier relationships and streamline procurement processes?**

- a. SAP Success Factors
- b. SAP Concur
- c. SAP Ariba
- d. SAP Analytics Cloud

Q6. Fill in the Blanks.

The Financial Accounting (FI) module in SAP ERP manages _____, reporting, and _____ transactions.

SAP S/4HANA uses in-memory computing to provide _____ analytics and enhanced _____.

SAP BTP supports application development with tools and services for creating _____ software and expanding existing SAP _____.

25.7 BENEFITS OF SAP FOR ORGANIZATIONS

Improved Efficiency

SAP's integrated system unifies several business operations into a single platform, resulting in a considerable improvement in operational efficiency. With less chance of error and less need for human data entry, this integration produces information that is more accurate and available faster. For example, SAP's integration of procurement, inventory control, and production planning features guarantees that all departments in a manufacturing company have access to up-to-date information. Better departmental cooperation is made possible by this real-time visibility, which also helps to cut down on delays and boost productivity overall. SAP assists businesses in increasing production and cutting expenses by optimizing operations and automating procedures.

In yet another example, SAP can be used by a global retail corporation to combine its supply chain, sales, and inventory management systems. With a single view of supply chain activity, sales performance, and inventory levels thanks to this connection, the business is able to optimize operations and react fast to demand fluctuations. Increased profitability and higher customer satisfaction are two benefits of SAP integration's improved efficiency and accuracy.

Enhanced Data Accuracy

SAP provides a centralized data management solution to guarantee accurate and consistent information across various business operations. This centralized method guarantees that decision-makers have access to trustworthy information while reducing data discrepancies. For example, SAP's integration of inventory control, financial accounting, and sales data guarantees precise financial reconciliation and sales reporting in retail organizations. SAP reduces mistake and discrepancy risk by combining data from multiple sources into a single system, resulting in more accurate financial reporting and improved decision-making.

Consider a multinational logistics company that manages its transportation, warehousing, and supply chain activities with SAP. Accurate and consistent data on inventory levels, shipment status, and financial transactions are guaranteed by SAP's unified data management system. In addition to assisting the business in maintaining operational effectiveness and customer pleasure, this accuracy aids sound decision-making.

Real-Time Insights

SAP's real-time analytics solutions facilitate performance monitoring and data-driven decision making for enterprises. SAP gives companies the most recent information available, enabling them to react swiftly to changes in the market and modify their plans as necessary. For example, SAP's real-time analytics solutions enable executives in financial services companies to monitor KPIs, evaluate market trends, and make data-driven strategic decisions. Real-time information accessibility facilitates quicker decision-making and keeps businesses competitive in a changing market. For example, an e-commerce business can observe client activity, keep an eye on sales success, and spot new trends by utilizing SAP's real-time analytics. The company may improve its competitive position and spur growth by implementing quick adjustments to its marketing tactics, inventory management, and customer service thanks to this real-time knowledge.

Scalability and Flexibility

Because of SAP's modular architecture, businesses may easily tailor their systems to match unique requirements. SAP solutions may be extended and modified to meet new needs and take advantage of emerging technology as businesses expand and change. For example, a small manufacturing business can begin with the foundational SAP modules and then add more as it grows. Because of its scalability, the system can easily grow and adapt to new business requirements while continuing to serve the organization's evolving demands.

Consider a technological startup that starts with the basic sales and finance modules of SAP. The business can progressively add more modules for supply chain management, human resources, and customer relationship management as it expands and diversifies its activities. SAP's modular architecture offers flexibility, allowing the corporation to adjust its system to changing business requirements and technology developments.

Improved Collaboration

The integrated system of SAP makes it easier to collaborate and communicate between different departments and locations. SAP improves collaboration and coordination inside companies by offering a single platform for data and operations. For example, SAP's integration of supply chain, sales, and finance activities allows various departments and locations to work together efficiently in a multinational organization. The single platform increases overall organizational efficiency, facilitates better information exchange, and streamlines operations. SAP, for example, can be used by a multinational consumer goods company to connect its supply chain, marketing, and sales operations. Teams in several locations may work together on product launches,

advertising campaigns, and inventory management thanks to this connectivity. Better company outcomes are produced by the increased cooperation made possible by SAP, which also increases overall operational efficiency.



Check Your Progress-C

Q1. How does SAP's integrated system improve operational efficiency for organizations?

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Q2. What benefits does SAP's centralized data management provide in terms of data accuracy?

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Q3. How do SAP's real-time analytics solutions aid in decision-making for businesses?

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Multiple Choice Questions (MCQs)

Q4. How does SAP improve operational efficiency for businesses?

- a. By requiring manual data entry
- b. By unifying multiple business operations into a single platform
- c. By increasing the frequency of system updates
- d. By isolating different departments

Q5. What does SAP's centralized data management system ensure?

- a. Increased manual data entry

- b. Greater data discrepancies
- c. Accurate and consistent information across various business operations
- d. Separate systems for each department

Q6. What advantage does SAP's real-time analytics provide to businesses?

- a. Slower decision-making processes
- b. Delayed market response
- c. Immediate access to the latest information for quick adjustments
- d. Reduced data accuracy

Q7. Fill in the Blanks

- I. **SAP's integrated system improves operational efficiency by reducing the need for _____ and providing _____ information.**
- II. **SAP's centralized data management guarantees accurate and consistent information, reducing the risk of _____ and enhancing _____.**
- III. **With SAP's modular architecture, businesses can easily _____ their systems to meet new requirements and take advantage of _____ technology.**
- IV. **SAP facilitates better _____ and _____ by providing a single platform for data and operations across different departments and locations.**

25.8 CHALLENGES AND CONSIDERATIONS

Cost

It can be costly to implement SAP solutions, especially for small and medium-sized businesses. Software licensing, installation, customization, and continuing maintenance are all included in the price. Before acquiring SAP, organizations must thoroughly assess their resources and budget. The initial software license investment, implementation and customisation costs, as well as continuing maintenance and support costs, are all included in SAP's total cost of ownership. To evaluate whether SAP is worth the financial commitment, organizations should evaluate their resources and budget. Organizations should also assess how SAP might support long-term growth and efficiency, as well as the possible return on investment.

Case Study: A Small Business's SAP Implementation

A small manufacturing company encountered difficulties in utilizing diverse systems to manage its operations. To increase productivity and streamline operations, the business made the decision to invest in SAP. However, one important factor to take into account was the expense of implementing SAP. The business thoroughly assessed its resources and budget before moving forward with the implementation. Through collaboration with SAP consultants and partners, the organization devised a phased deployment strategy that reduced expenses and prioritized essential functionalities. The ultimate cost reductions and increased operational

efficiency from the SAP investment show the small business's potential return on investment.

Complexity

Because SAP systems are complicated, managing them effectively requires particular knowledge and abilities. SAP solutions can be difficult to implement and configure, so businesses may need to spend money on support and training to make sure staff members can use the system effectively. A thorough grasp of the organization's business operations as well as the functionality of the system is necessary for configuring SAP solutions. Companies might have to collaborate with SAP partners or consultants to make sure the system is configured properly and satisfies their unique requirements. To guarantee that staff members are able to utilize the system efficiently and reap the full rewards, training and support expenditures are necessary.

Case Study: A Large Organization's SAP Implementation

In order to unify its global operations, a large multinational firm embarked on a significant SAP deployment project. Due to the project's complexity, meticulous planning, coordination, and knowledge of both SAP and the business procedures of the company were needed. The business extensively collaborated with SAP specialists to guarantee that the system was configured to meet its unique requirements. The organization also made significant investments in staff assistance and training to guarantee a seamless transfer to the new system. The organization was able to accomplish its objectives of increased productivity, higher data quality, and improved decision-making through the effective deployment of SAP.

Change Management

Significant changes to current workflows and processes are frequently required when implementing SAP solutions. Companies must carefully handle these changes to prevent problems and guarantee a seamless transition. Good change management includes addressing any reservations or objections, educating staff members about the advantages of SAP, and offering assistance and training. Plans for managing expectations, involving stakeholders, and assisting staff members during the transition should all be included in an organization's change management strategy. Organizations can obtain better results and support a smoother implementation process by tackling change management challenges.

Case Study: A Healthcare Organization's SAP Implementation

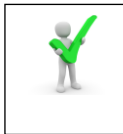
SAP was implemented by a healthcare organization to enhance its operational efficiency and financial management. Because the deployment required major adjustments to current workflows and processes, the transition needed to be managed carefully. The company created a thorough change management plan including training courses, communication tactics, and support materials. Through the provision of enough assistance and resolution of employee concerns, the business successfully navigated the shift and realized its objectives of enhanced productivity and precision of data.

Customization and Integration

Although SAP's modular architecture offers flexibility, it might be difficult to customize and integrate the system with other programs. To guarantee that their solutions are customized to meet their unique requirements, organizations might need to collaborate with SAP partners or consultants. Configuring SAP modules entails setting up the system in accordance with needs and business procedures. Proficiency in establishing connections across disparate technologies and guaranteeing smooth data transfer is crucial for the integration of systems and applications. Careful preparation and execution are necessary for both integration and customisation efforts to guarantee that the system fulfills the organization's requirements and operates as intended.

Case Study: A Financial Services Firm's SAP Integration

SAP was implemented by a financial services company to improve its reporting and financial management capabilities. The project comprised connecting the system with other programs the company uses and modifying SAP modules to meet the unique needs of the company. In order to guarantee that the system was successfully adapted and easily linked with current applications, the company collaborated with SAP experts. Improved financial management and accurate reporting were the firm's goals, which were accomplished by addressing customization and integration issues.



Check Your Progress-D

Q1. What are the main cost components associated with implementing SAP solutions?

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Q2. Why is specialized knowledge necessary for managing SAP systems effectively?

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Q3. What are some key aspects of change management when implementing SAP solutions?

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Multiple Choice Questions (MCQs)

Q4. What is one of the primary challenges associated with the cost of implementing SAP solutions?

- a. High software licensing fees
- b. Minimal ongoing support costs
- c. Low implementation costs
- d. Simple and straightforward installation

Q5. Why might organizations need to invest in support and training when implementing SAP solutions?

- a. To improve marketing strategies
- b. To ensure staff members can use the complex SAP systems effectively
- c. To enhance physical office infrastructure
- d. To develop new product lines

Q6. What is a key aspect of effective change management during SAP implementation?

- a. Minimizing the involvement of stakeholders
- b. Ignoring staff objections and concerns
- c. Educating staff about the advantages of SAP and providing support
- d. Reducing customization efforts

Q7. Fill in the Blanks

- I. The total cost of ownership for SAP includes the initial software license investment, implementation and customization costs, as well as _____ and _____ costs.
- II. Because of the complexity of SAP systems, businesses may need to invest in _____ and _____ to ensure effective use of the system.
- III. Effective change management during SAP implementation involves addressing staff _____, educating them about SAP's benefits, and providing _____ and training.

25.9 FUTURE TRENDS AND INNOVATIONS

Artificial Intelligence (AI) and Machine Learning (ML)

SAP is improving automation, predictive analytics, and decision-making by integrating AI and ML technology into its systems. Organizations can analyze vast amounts of data, spot trends, and produce more precise projections with the use of AI and ML. To increase productivity and decrease manual labor, SAP's AI and ML capabilities, for example, can be utilized to automate repetitive operations like data entry and invoice processing. Furthermore, AI-powered predictive analytics can assist businesses in foreseeing

consumer behavior, market trends, and possible hazards, allowing for better decision-making.

Case Study: A Retail Company's Use of SAP AI

A retail business improved its inventory control and demand forecasting procedures by utilizing SAP's AI capabilities. The business was able to minimize stock outs, optimize inventory levels, and forecast client demand with accuracy by utilizing AI-driven predictive analytics. By using SAP AI, the business was able to make data-driven decisions based on precise forecasts, which improved customer satisfaction, increased profitability, and improved supply chain efficiency.

Internet of Things (IoT)

SAP is providing real-time data from connected devices and sensors by integrating IoT technologies into its products. Organizations can track performance, manage physical assets, and improve operations thanks to IoT. SAP's IoT solutions, for example, can be used to manage supply chain operations, maintain inventory levels, and monitor equipment performance. Organizations can obtain real-time insights into their operations and make data-driven decisions to increase productivity and cut costs by gathering and evaluating data from connected devices.

Case Study: A Manufacturing Company's Use of SAP IoT

An manufacturing business used SAP IoT solutions to track performance indicators and keep an eye on its production machinery. The organization was able to gather real-time data on equipment usage, identify any problems, and optimize maintenance schedules by combining IoT sensors with SAP's analytics capabilities. The organization was able to increase overall operational efficiency, decrease downtime, and improve equipment performance with the implementation of SAP IoT. The organization was able to make better decisions and effectively manage its manufacturing operations because to the real-time information that IoT devices offered.

Blockchain

In order to improve data security, transparency, and traceability, SAP is exploring the usage of blockchain technology. Organizations using blockchain technology may track transactions, enhance data integrity, and more skillfully manage supply chain operations. The provenance of items, transaction validity, and data security are a few applications for SAP's blockchain technology. Blockchain technology can help businesses lower the risk of fraud and errors while improving trust and transparency in their business processes.

Case Study: A Supply Chain Company's Use of SAP Blockchain

SAP's blockchain solutions were employed by a supply chain organization to enhance the transparency and traceability of its supply chain operations. The business was able to increase confidence with suppliers and customers by utilizing blockchain technology to trace the provenance of products and validate transactions. The organization was able to decrease fraud, enhance data integrity, and optimize supply chain procedures with the use of SAP blockchain technology. Blockchain technology's enhanced security and transparency allowed for better decision-making and improved stakeholder relations.

SAP's Continued Evolution

SAP continually evolves its solutions to take advantage of new technology and adapt to the shifting demands of businesses. The company's main goals are to improve its cloud products, incorporate cutting-edge technologies, and offer creative solutions that facilitate digital transformation. Businesses may anticipate SAP to keep releasing new features and functionalities to meet new demands and trends. Organizations can make sure they are utilizing the newest technology to promote growth, efficiency, and competitive advantage by keeping up with SAP's developments.

Case Study: SAP's Innovation in Cloud Solutions

Organizations are now able to use adaptable and scalable technology to assist their digital transformation journeys thanks to SAP's continuous innovation in cloud solutions. For example, SAP's cloud-based solutions give businesses the flexibility to use cutting-edge technologies like blockchain, artificial intelligence, and the Internet of Things while also adapting to changing business needs. Organizations can gain more flexibility, better performance, and greater functionality by implementing SAP's most recent cloud solutions. Because of SAP's dedication to innovation, businesses are guaranteed access to state-of-the-art tools that facilitate their expansion and prosperity in a business environment that is changing quickly.



Check Your Progress-E

Q1. What are the primary functions of SAP Analytics Cloud?

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Q2. How does SAP Business Objects support reporting and data visualization?

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Q3. What capabilities does SAP Data Intelligence offer for data management?

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Q4. How does SAP utilize AI and ML to increase productivity?

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Q5. What role does IoT play in SAP's solutions for managing supply chains?

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Q6. How can blockchain technology enhance data security in SAP systems?

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Multiple Choice Questions (MCQs)

Q7. How does SAP utilize AI and ML technologies to increase productivity?

- a. By creating new hardware solutions
- b. By automating repetitive operations like data entry and invoice processing
- c. By expanding physical office spaces
- d. By developing new communication tools

Q8. What is one benefit of integrating IoT technologies into SAP products?

- a. Improved data visualization
- b. Real-time data from connected devices for tracking performance and managing assets
- c. Enhanced predictive analytics
- d. Better customer service interfaces

Q9. What does SAP's exploration of blockchain technology aim to enhance?

- a. Physical asset management
- b. Data security, transparency, and traceability
- c. Employee training programs
- d. Social media marketing

Q10. Fill in the Blanks

- I. SAP uses AI and ML to automate repetitive operations such as _____ and _____ processing.
- II. By integrating IoT technologies, SAP enables organizations to obtain _____ insights into their operations, which helps in managing performance and physical assets.
- III. SAP is exploring blockchain technology to improve data _____, _____, and _____, thereby enhancing overall business processes.

25.10 THE ROLE OF SAP IN PORTFOLIO MANAGEMENT

Organizations are realizing more and more that in order to properly manage their varied portfolios, they require advanced technologies in the ever-changing business environment. The world leader in enterprise resource planning (ERP) systems, SAP, is essential to improving portfolio management procedures. This article explores SAP's role in portfolio management, providing an analysis of the platform's salient characteristics, advantages, and competitive advantages.

Understanding Portfolio Management

Understanding portfolio management is crucial before delving into SAP's role. The centralized administration of one or more portfolios is known as portfolio management, and it is used to accomplish particular strategic goals. This entails choosing, setting priorities for, and managing investments and initiatives in accordance with the strategic objectives of a business. Business performance is ultimately driven by effective portfolio management, which guarantees optimal resource usage, risk management, and alignment with organizational strategy.

SAP's Contribution to Portfolio Management

Robust tools that cover different areas of portfolio management are available in SAP's spectrum of solutions. The SAP tools and solutions listed below are essential for improving portfolio management procedures:

1-SAP Portfolio and Project Management (SAP PPM)

A powerful tool for efficiently managing project portfolios is SAP Portfolio and Project Management, or SAP PPM. Important characteristics consist of:

Portfolio Planning and Analysis: Organizations can use advanced analytics to plan and analyze their project portfolios with SAP PPM. Better decisions based on data-driven projections and insights are made possible as a result.

Resource Management: The tool helps in allocating resources efficiently across projects, ensuring that the right resources are available at the right time. It supports resource forecasting, capacity planning, and optimization.

Project Execution: Project execution management, progress monitoring, and strategic goal alignment are all made possible by SAP PPM's functions. It enables project teams to work together and communicate more easily.

Financial Management: With the help of the solution's financial tracking and budgeting features, businesses can keep an eye on project expenses and returns and make sure their financial objectives are being met.

2. SAP S/4HANA

The next-generation ERP system, SAP S/4HANA, provides portfolio management with a number of advantages and connects with SAP PPM with ease:

Real-Time Analytics: Real-time reporting and analytics are possible with SAP S/4HANA. This facilitates prompt insights into portfolio performance for enterprises, allowing them to make well-informed decisions.

Integrated Processes: The suite unifies supply chain, human resources, finance, and other corporate functions. The alignment of portfolio management with more general organizational procedures is guaranteed by this integration.

Simplified User Experience: SAP S/4HANA improves user experience and portfolio management efficiency with its enhanced modern interface and optimized operations.

3.SAP Analytics Cloud

Portfolio management is enhanced with SAP Analytics Cloud's advanced analytics and business intelligence features.

Data Visualization: With the tool's robust data visualization features, users may generate interactive reports and dashboards. This aids in the visualization of trends and portfolio performance.

Predictive Analytics: Predictive analytics capabilities in SAP Analytics Cloud allow businesses to predict performance in the future and take preemptive measures.

Collaboration: With integrated communication tools and shared workspaces, the technology makes it easier for team members to collaborate.

Benefits of Using SAP for Portfolio Management

There are various advantages of implementing SAP solutions for portfolio management.

1. Improved Decision-Making

SAP's advanced reporting and analytics capabilities offer thorough insights into portfolio performance. Better strategic planning and decision-making are made possible by this data-driven methodology.

2. Enhanced Resource Utilization

Organizations can optimize resource allocation and ensure that resources are used effectively across projects and portfolios by utilizing solutions such as SAP PPM.

3. Greater Alignment with Strategic Goals

SAP solutions ensure that investments and projects contribute to long-term goals by helping to connect project and portfolio management with organizational strategy.

4. Streamlined Processes

Business operations are streamlined by integration with SAP S/4HANA and other SAP products, which lowers complexity and boosts overall productivity.

5. Risk Management

By offering insights into potential risks and enabling proactive mitigation techniques, SAP's extensive capabilities promote efficient risk management.

**Check Your Progress-F**

Q1. What is SAP Portfolio and Project Management's (SAP PPM) most important feature?

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Q2. In what ways does SAP S/4HANA enhance portfolio management's real-time analytics?

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Q3. What advantages does SAP Analytics Cloud offer for portfolio management?

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Multiple Choice Questions (MCQs)

Q4. What is the primary feature of SAP Portfolio and Project Management (SAP PPM)?

- a. Real-time analytics
- b. Data visualization
- c. Portfolio planning and analysis
- d. Predictive analytics

Q5. How is portfolio management supported by SAP S/4HANA?

- a. By providing advanced data visualization tools
- b. By offering integrated processes across business functions
- c. By automating financial tracking and budgeting
- d. By enhancing project execution management

Q6. What is the benefit of portfolio management with SAP Analytics Cloud?

- a. Enhanced resource utilization
- b. Streamlined project execution
- c. Predictive analytics capabilities

- d. Improved financial tracking

Q7. Fill in the Blanks

- I. SAP Portfolio and Project Management (SAP PPM) provides advanced tools for _____, resource management, and project execution.
- II. SAP S/4HANA improves portfolio management by offering _____ analytics and integrating various business functions like supply chain and finance.
- III. SAP Analytics Cloud enhances portfolio management through features like _____, which allows users to generate interactive reports and visualize trends.

25.11 SUMMARY

Established in 1972 by Dietmar Hopp, Hasso Plattner, Claus Wellenreuther, Hans-Werner Hector, and Rudolf Ferber—all former IBM employees—SAP has grown to be a significant force in the world software industry. SAP R/1, the company's first product, brought real-time processing to financial accounting and was initially designed to overcome the shortcomings of fragmented data systems. This innovation made it possible for SAP to grow from a tiny company to become a top supplier of enterprise software. With breakthroughs like SAP R/2—which included multi-tier systems for materials management and production—and SAP R/3—which had a modular client-server architecture for improved scalability and flexibility—SAP has been adding new products to its range throughout the years.

SAP has a wide-ranging global presence, catering to a wide range of industries and geographical areas via a network of partners and consultants. SAP's integrated solutions are used by large, global companies like Microsoft, Siemens, and Coca-Cola to maximize data insights and optimize operations. With SAP's solutions, businesses can manage their global operations more easily, overcoming local obstacles and taking advantage of global opportunities. The enormous network and wide range of applications highlight SAP's important influence on contemporary enterprise software.

The ERP package, which connects several company processes through modules like Financial Accounting (FI), Controlling (CO), and Sales and Distribution (SD), forms the basis of SAP's services. SAP S/4HANA, the most recent development, expands on these features by utilizing in-memory processing to deliver real-time analytics and a more straightforward data format. In addition to its ERP package, SAP provides analytics tools like SAP Analytics Cloud and SAP Data Intelligence, as well as cloud-based products like SAP SuccessFactors, SAP Ariba, and SAP Concur. Together, these products help organizations with comprehensive analytics, application development, and data management, therefore enhancing SAP's standing as a pioneer in enterprise software and digital transformation.

By improving productivity, accuracy, and teamwork, SAP provides businesses with a number of important advantages. A notable benefit is increased effectiveness. By combining many business processes onto one platform, SAP's integrated system lowers the possibility of errors and eliminates the need for human data entry. Real-time visibility across departments is facilitated by this connectivity, which guarantees accurate and easily accessible information. For example, SAP's procurement, inventory control, and production planning integration improves departmental collaboration and increases overall efficiency in a manufacturing organization by reducing delays and streamlining procedures. Comparably, a multinational retail company can increase efficiency, profitability, and customer happiness by streamlining its sales, inventory, and supply chain management systems.

Another important advantage of SAP is enhanced data accuracy. By centralizing data administration, the platform guarantees consistency and minimizes disparities within corporate processes. SAP reduces the possibility of errors by enhancing sales reporting and financial reconciliation through the integration of several data sources. For instance, a global logistics company using SAP may keep accurate records of shipping and inventory statuses, facilitating efficient decision-making and operations. This centralized method helps achieve accurate financial reporting and well-informed business decisions in addition to strengthening data reliability.

For modern businesses, SAP's ability to deliver real-time information is also essential. SAP gives enterprises the ability to track performance and react quickly to changes in the market through real-time analytics. This skill improves competitive positioning and facilitates data-driven decision-making. For instance, an e-commerce business can observe client behavior, keep an eye on sales performance, and quickly modify marketing plans by utilizing SAP's real-time analytics. Furthermore, SAP's architecture is adaptable and scalable, enabling companies to integrate cutting-edge technologies like blockchain, IoT, and AI into their systems and adapt them to changing demands. Organizations can retain operational efficiency and take advantage of technology improvements because to this adaptability.



25.12 GLOSSARY

SAP R/1: SAP's first launched product (1972), introduced real-time processing for financial accounting to address fragmented data systems.

SAP R/2: An advance version of SAP's software which introduced multi-tier systems for production and materials management, improving organizational efficiency.

SAP R/3: substantial product improvement with a client-server design that is modular, improving enterprise operations' scalability and flexibility.

SAP S/4HANA: the most recent version of SAP's ERP software, which uses a streamlined data schema and in-memory processing for real-time analytics.

ERP (Enterprise Resource Planning): a kind of software that integrates and manages an organization's core operations. Modules of SAP's ERP suite connect different business operations.

Controlling (CO): An ERP module focusing on management and internal cost accounting.

Sales and Distribution (SD): An ERP in SAP which manages sales order processing, billing and shipping.

SAP Analytics Cloud: Tool provided by SAP for data visualization, and advanced analytics and business intelligence.

SAP Data Intelligence: A platform for management and data integration, enabling organizations to connect and analyze data from diversified sources.

SAP Success Factors: A cloud-based SAP product that provides talent management solutions and human resources management.

SAP Ariba: A cloud-based supply chain management and procurement solution.

SAP Concur: A cloud-based SAP service for travel and expenditure management.

Real-time Processing: The ability to immediately process data upon receipt, facilitating prompt insights and actions.

In-memory Processing: a type of data processing where data is stored in RAM rather than on a disk, enabling faster data access and analysis.

Modular Client-Server Architecture: a system architecture that enables flexibility and scalability by enabling various parts or modules to function independently while collaborating smoothly.

Real-time Analytics: the capacity to quickly evaluate and comprehend data as it is being generated, enabling quick business decisions and actions.

Blockchain: A decentralized digital ledger system that safely logs transactions on several PCs.



24.16 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-A

Q4. Answer: (B) Financial Accounting in Real-Time

Q5. Answer: (B) SAP R/2

Q6. Answer: (C) SAP R/3

Q7. Answer: (B) In-Memory Computing

Q8. Answer: (I) sales, (II) client-server, (III) in-memory (IV) financial

Check Your Progress-B

Q4. Answer: (C) Financial Accounting (FI)

Q5. Answer: (C) Data processing speed and efficiency

Q6. Answer: (C) SAP Ariba

Q7. Answer: (I) accounting; financial, (II) real-time; speed. (III) custom; solutions

Check Your Progress-C

Q4. Answer: (B) By unifying multiple business operations into a single platform

Q5. Answer: (C) Accurate and consistent information across various business operations

Q6. Answer: C) Immediate access to the latest information for quick adjustments

Q7. Answer: (I) human data entry; accurate (II) data discrepancies; decision-making (III) tailor; emerging (IV) collaboration; communication

Check Your Progress-D

Q4. Answer: (A) High software licensing fees

Q5. Answer: B) To ensure staff members can use the complex SAP systems effectively

Q6. Answer: C) Educating staff about the advantages of SAP and providing support

Q7. Answer: (I) maintenance; support, (II) support; training (III) objections; support

Check Your Progress-E

Q7. Answer: (B) By automating repetitive operations like data entry and invoice processing

Q8. Answer: B) Real-time data from connected devices for tracking performance and managing assets

Q9. Answer: B) Data security, transparency, and traceability

Q10. Answer: (I) **Answer:** data entry; invoice, (II) **Answer:** real-time (III) security; transparency; traceability

Check Your Progress-F

Q4. Answer: (C) Portfolio planning and analysis

Q5. Answer: (B) By offering integrated processes across business functions

Q6. Answer: (C) Predictive analytics capabilities

Q7. Answer: (I) portfolio planning and analysis, (II) real-time, (III) data visualization



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25.15 TERMINAL QUESTIONS

- Q1. In what way did SAP R/1 address the issues associated with batch processing and disconnected systems?
- Q2. Explain the significance of the multi-tier architecture in SAP R/2 and its impact on data processing.
- Q3. How did the client-server design of SAP R/3 enhance its scalability and flexibility?
- Q4. What were the benefits of SAP R/3's modular design for businesses?
- Q5. Describe how SAP NetWeaver facilitated customization and integration of SAP applications.
- Q6. What technological advancements did SAP S/4HANA bring to data models and analytics?

- Q7. How does SAP BTP support digital transformation for businesses?
- Q8. What role do SAP's partners, consultants, and support services play in maintaining its global presence?
- Q9. How did SAP R/2's integration of sales order processing and materials management improve business operations?
- Q10. What were some of the key technological and business benefits of the transition from SAP R/2 to SAP R/3?
- Q11. Explain how SAP's global reach helps multinational companies manage local and international challenges.
- Q12. Describe the primary functions of the Financial Accounting (FI) module in SAP ERP.
- Q13. How does the Controlling (CO) module assist businesses in performance analysis and cost management?
- Q14. What tasks are managed by the Sales and Distribution (SD) module, and how does it support sales operations?
- Q15. How does the Materials Management (MM) module contribute to supply chain optimization and inventory management?
- Q16. What are the key functions of the Production Planning (PP) module, and how does it support manufacturing operations?
- Q17. Describe how the Human Capital Management (HCM) module supports HR processes and employee management.
- Q18. How does SAP ERP's integration of various modules benefit businesses in managing their operations?
- Q19. Provide an example of how a specific module in SAP ERP could be used by a company in a particular industry.
- Q20. How does the integration between SAP ERP modules ensure accurate and up-to-date data for decision-making?
- Q21. How does SAP S/4HANA's simplified data model improve processing speed and system efficiency? Provide an example of how this benefits a specific type of business.
- Q22. Explain the role of in-memory computing in enabling real-time analytics in SAP S/4HANA. How does this feature support quick decision-making?
- Q23. Describe the enhancements in user experience offered by SAP S/4HANA's modern interface. How does it improve productivity and usability for employees?
- Q24. How can a logistics business benefit from SAP S/4HANA's real-time information on shipment tracking, inventory levels, and order status?
- Q25. In what ways does SAP S/4HANA facilitate the integration of third-party applications and other SAP solutions? Provide an example of how this integration might be used in a multinational corporation.
- Q26. What are some specific features of SAP S/4HANA's user interface that contribute to a more efficient and user-friendly experience?
- Q27. How does the real-time analytics capability of SAP S/4HANA help a financial services company in strategic decision-making?

- Q28. Discuss how the streamlined data model of SAP S/4HANA minimizes redundancies and simplifies data structure. What impact does this have on data retrieval?
- Q29. How does SAP S/4HANA's integration with solutions like SAP SuccessFactors and SAP Ariba contribute to a unified technology ecosystem?
- Q30. Provide an example of how SAP S/4HANA's real-time reporting and analytics could benefit a retail company in responding to market trends.
- Q31. How does SAP BTP ensure data consistency and quality in a healthcare institution?
- Q32. Describe the types of data-related tasks that SAP BTP's data management features can support.
- Q33. What are some specific examples of data governance and data warehousing tasks that SAP BTP can handle?
- Q34. How can a financial services company leverage SAP BTP's application development tools to create custom applications?
- Q35. What benefits does SAP BTP offer for businesses looking to develop unique applications tailored to their specific needs?
- Q36. Which development languages and frameworks are supported by SAP BTP?
- Q37. Explain how a retail business might use SAP BTP's analytics tools to improve its operations.
- Q38. What are some examples of reporting and data visualization tasks that can be accomplished using SAP BTP?
- Q39. How do SAP BTP's analytics features aid in deriving actionable insights from data?
- Q40. How does SAP BTP help a logistics business integrate third-party applications with its SAP S/4HANA system?
- Q41. Describe the benefits of using SAP BTP for establishing a networked technological environment.
- Q42. What types of integration tasks are supported by SAP BTP, including process automation and API management?
- Q43. Provide an example of how SAP BTP's data management capabilities might be used by an organization to manage complex data scenarios.
- Q44. How can the application development tools in SAP BTP be utilized to address specific business needs in different industries?
- Q45. Discuss how SAP BTP's analytics capabilities can enhance decision-making processes for various types of businesses.
- Q45. What functionalities does SAP SuccessFactors offer for managing HR processes?
- Q46. How can SAP SuccessFactors be used by a multinational corporation to manage performance and talent development?
- Q47. Describe how SAP SuccessFactors facilitates remote work and international HR operations.
- Q48. How does SAP Ariba enhance supplier management and procurement processes?
- Q49. Provide an example of how a manufacturing organization might use SAP Ariba to improve its procurement effectiveness.

- Q50. What advantages does the cloud-based nature of SAP Ariba provide for real-time supplier collaboration?
- Q51. What features of SAP Concur support effective travel and expense management?
- Q52. How might a consulting business utilize SAP Concur to manage travel and expense data?
- Q53. Explain the benefits of SAP Concur's cloud-based architecture for managing travel and expenses.
- Q54. Compare the functionalities of SAP SuccessFactors, SAP Ariba, and SAP Concur in terms of their respective business applications.
- Q55. How do the cloud-based aspects of SAP SuccessFactors, SAP Ariba, and SAP Concur enhance their usability and accessibility for businesses?
- Q56. How could a company use SAP SuccessFactors to support HR processes in different regions?
- Q57. In what ways can SAP Ariba streamline procurement and sourcing for a global organization?
- Q58. Describe how SAP Concur's travel and expense management tools could benefit a business with a large number of employees who frequently travel.
- Q59. How can a retail firm use SAP Analytics Cloud to enhance its data-driven decision-making processes, and what specific features support forecasting and interactive dashboard creation?
- Q60. Describe how a financial services company might utilize SAP Business Objects to produce financial reports, assess market trends, and create interactive visualizations. What are the advantages of its reporting and visualization capabilities?
- Q61. Explain how SAP Data Intelligence can be employed by a healthcare company to manage and integrate patient data from various sources. What specific features of the platform facilitate data connectivity, transformation, and orchestration?
- Q62. In what ways does SAP's integration of AI and ML technologies contribute to increasing productivity and decreasing manual labor? Can you provide specific examples of repetitive operations that are automated by these technologies?
- Q63. How does SAP's IoT technology aid organizations in managing supply chain operations and inventory levels? Discuss the benefits of real-time data from connected devices and how it helps businesses make data-driven decisions.
- Q64. What are the key advantages of using blockchain technology in SAP's solutions for improving data security, transparency, and traceability? Explain how blockchain can impact transaction validity, data integrity, and the management of supply chain operations.

Security Analysis and Portfolio Management MS 404



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