

FUNDAMENTALS OF INVESTMENTS

VI SEMESTER

CORE COURSE: BCM6 B14

B.Com.

(2019 Admission onwards)

CBCSS



UNIVERSITY OF CALICUT

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UNIVERSITY OF CALICUT

School of Distance Education

Study Material

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FUNDAMENTALS OF INVESTMENTS

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“The author(s) shall be solely responsible for the content and views expressed in this book”

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Module I

Introduction to Investment - Meaning of Investment – essential features of Investment-Investment Alternatives- Investment Environment (brief description on elements such as Financial Securities, Financial Markets, Financial Services, Financial Intermediaries, Regulators, and Investors) –Investment Management Process –Sources of Financial Information- Calculation of return on investment and expected return-Calculation of expected return under CAPM- Types of risk- Calculation of Standard deviation- calculation of beta under correlation and regression methods (Simple Problems). (15 Hours, 18 marks)

Module II

Security Valuation: a) Valuation of Fixed Income Securities: Bonds-Essential Features- Types of Bonds- Types of bond risks- estimating Bond Yields-Bond valuation (redeemable and irredeemable)- Valuation of Preference Shares (redeemable and irredeemable).
b) Valuation of Equity- Dividend Yield Method- Dividend Yield plus growth method (single-stage growth and multi-stage growth) - Discounted Cash Flow Method-P/E multiple approach. (20 Hours, 20 Marks)

Module III

Approach to Security Analysis: Security Analysis- Fundamental Analysis – EIC analysis – Tools for company analysis- Technical Analysis- stock charts(line, bar, candle stick and point and figure charts)- Support and Resistance levels- Trends and Trend Reversals – Patterns –continuation patterns(Triangles, Rectangles, Flags and Pennants) -reversal patterns(head and shoulders, double tops and double bottom, wedges)- Indicators -a brief description on leading and lagging indicators)- brief description of DOW theory and Elliot Wave theory. (20 Hours, 20 Marks)

Module IV

Portfolio Analysis: Concept of portfolio – need and importance-portfolio diversification- a brief description of Markowitz model, Random Walk Theory, Efficient Market Hypothesis, Efficient Portfolio -Calculation of Portfolio Risk with two securities

(Covariance, Correlation, Standard deviation)- Portfolio Return (15 Hours, 12 Marks)

Module V

Investor Protection: Role of SEBI & Stock Exchanges in investor protection – Investor Education & Awareness Measures- Investor grievances and their redressal system –SCORES – Prohibition of Insider trading practices - UPSI-Rights and Duties of Investors - Investor activism. (10 Hours, 10 marks)

(Theory and problems may be in the ratio of 50% and 50% respectively)

Reference Books:

1. Donald E. Fisher and Ronald J. Jordan: Securities Analysis and Portfolio Management, Prentice Hall, New Delhi.
2. S. Kevin: Security Analysis and Portfolio Management.
3. Sourain. Harry; Investment Management, Prentice Hall of India.
4. Francis and Archer: Portfolio Management, Prentice Hall of India.
5. Gupta L.C.: Stock Exchange Trading in India, Society for Capital Market Research and Development, Delhi.
6. Machi Raju, H.R.: Working of Stock Exchanges in India, Wiley Eastern Ltd, New Delhi
7. Prasanna Chandra, Investment Analysis and Portfolio Management, McGraw Hill Education India

Module 1

Introduction to Investment

The use of funds on assets to earn income or capital appreciation is known as investing. Investment, in general, refers to the use of money in the hope of making more money. Thus, an investment is a sacrifice of current money or other resources for future benefits. The sacrifice made is certain, but the expected benefits in the future are uncertain. Time and risk are two fundamental aspects of investment.

Meaning of Investment

Investment is an activity that commits funds in any financial/physical form in the present, expecting to receive an additional return in the future. The expectation brings with it a probability that the magnitude of return may vary from a minimum to a maximum.

In finance, investment refers to the purchase of a financial product or other valuable items with the expectation of favorable future returns. Financial Investments allocate monetary resources ranging from risk-free to risky investments and expect a reasonable return that varies with risk. The investors are the suppliers of 'capital.' In their view, investment is a commitment of a person's funds to derive future income in the form of interest, dividends, rent, premiums, pension benefits, or the appreciation of the value of their principal capital.

The term "investment" is described by economists as net additions to the economy's capital stock, which comprises products and services utilized to produce other goods and

services. For them, investment entails creating new and productive capital in new construction, new producers' durable equipment like plant and equipment, and inventories and human capital.

F. Amling defines investment as the “purchase of financial assets that produce a yield that is proportionate to the risk assumed over some future investment period.” According to Sharpe, “investment is the sacrifice of certain present value for some uncertain future values.”

The distinction between Investment and Speculation:

	Investment	Speculation
Time Horizon	Relatively Longer time framework beyond 12 months	Short planning horizon. The holding period may be a few days to a few months.
Risk	Usually, an investor is willing to assume moderate risk.	High Returns though the risk of loss is high
Return	Modest rate of return of return which compensates moderate risk assumed by him	Expect a high rate of return in exchange for a high rate of risk
Use of funds	The investor uses his own funds through savings	Speculation is through own and borrowed funds.

Basis for Decisions	Considers liquidity, profitability, stability, and performance of the company	Safety, and of the	Market behaviour information, judgments on movement in the stock market. Haunches and beliefs.
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Essential features of Investment

1. Risk Factor

Risk is an inherent characteristic of every investment. Risk refers to the possibility of losing the principal amount, deferring or failing to pay capital or interest, or variability of return. Each investment carries a different level of risk. However, investors prefer less risky investments.

2. Expectation of Return

The primary goal of investment is to maximize the expected return. Investors expect high and consistent returns on their capital.

3. Safety

Investors expect their capital to be secure. They seek the certainty of return and their investment or principal amount protection.

4. Liquidity

Liquidity refers to the ability to quickly sell or convert capital or investment into cash without incurring any loss. As a result, the majority of investors prefer liquid investments.

5. Marketability

It is another feature of investment that they are marketable. It means buying and selling or transferability of securities in the market.

6. Stability of Income

Income stability refers to the regularity of income without any fluctuations. Every investor wants to invest in such assets which provide return consistently.

Investment Alternatives-

Different avenues and investment alternatives include share market, debentures or bonds, money market instruments, mutual funds, life insurance, real estate, precious objects, derivatives, non-marketable securities. All are differentiated based on their features in terms of risk, return, term, etc.

Negotiable Securities

These investment alternatives can be traded in markets.

A. Variable Income Securities

I. Equity Shares

Equity shares are long-term financing sources for any company. These shares are issued to the general public and are non-redeemable. Investors in such shares hold the right to vote, share profits, and claim a company's assets. The value in the case of equity shares can be expressed in various terms like par value, face value, book value, etc.

Types of Equity Share

- **Authorized Share Capital-** authorized capital is the maximum capital that a company can issue. The authorized limit can be increased after seeking permission from the respective authorities and paying fees.
- **Issued Share Capital-** Out of the authorized share capital, the capital which the company offers to the investors is termed as issued share capital.
- **Subscribed Share Capital-** This is a portion of the issued capital that an investor accepts and agrees upon.
- **Paid Up Capital-** Paid-up capital is a part of the subscribed capital the investors pay. In general, the companies issue the shares to the investors after collecting all the money in one go. Therefore, it is not wrong to say that subscribed and paid-up capital is the same thing where the company collects all the money and issues shares. However, conceptually the paid-up capital is the amount of capital the company invests in the business.
- **Right Share-** These are those types of shares that organizations issue to their existing shareholders. The company issues this type of share to preserve the proprietary rights of old investors.
- **Bonus Share-** When a business splits the stock to its stockholders in the dividend form, we call it a bonus share.
- **Sweat Equity Share-** This type of share is allocated only to the outstanding workers or executives of an organization for

their excellent work on providing intellectual property rights to an organization.

B. Fixed Income Securities

I) Preference Shares

Preference shares, commonly known as preferred stocks, are those shares that enable shareholders to receive dividends announced by the company before obtaining to the equity shareholders. If the company has decided to pay out its dividends to investors, preference shareholders are the first to receive payouts. Preference shares are released to raise capital for the company, known as preference share capital.

If the company is going through a loss and winding up, the last payments will be made to preference shareholders before paying equity shareholders. Preference shares that can be easily converted into equity shares are convertible preference shares. Some preference shares also receive arrears of dividends, which are called cumulative preference shares

II) Debentures

Debentures refer to long-term debt instruments issued by a government or corporation to meet its financial requirements. In return, investors are compensated with an interest income for being a creditor to the issuer. They are usually an unsecured form of borrowing from the public and have a lengthy tenure, usually exceeding ten years.

- Debentures are usually the unsecured form of bonds that are not backed by any asset or collateral. Instead, the investors consider the issuer's creditworthiness as a primary parameter

for the purchase. Also, being a long-term instrument, their tenure usually lasts for 10 years and above.

- They have a fixed coupon rate, at which the investors receive interest at specific intervals, i.e., monthly, quarterly, half-yearly, or yearly. Some investors also get accumulated interest on redemption. Earnings change if the interest rates are floating. Market fluctuations and economic conditions affect interest rates.
- The issuing company pays off the interest as an expense before paying the dividends. The interest is thus tax-deductible, bringing down the taxable income.
- Some companies issue debentures, which can be changed into equity stocks after a specified period. This facilitates the investors to procure ownership in the organization and benefit from its earnings when its income is enhanced. In addition, the issuer enjoys low-cost borrowing since they offer a lower interest rate than non-convertibles.
- Repayments can be attained either in installments payable yearly or all at once. Thus, if the issuer pays off annual installments to the holders, it may do so by making a redemption reserve. Else, the issuer can repay the borrowed sum in a lump sum on the maturity date of the debt.
- They can be easily exchanged in the stock market, just like other securities. Thus, they are a flexible debt instrument.

III) Bonds

Bonds are similar to debentures, but the public sector undertakings issue them. Bonds are units of corporate debt issued by companies and securitized as tradeable assets. A bond

is a fixed-income instrument since bonds traditionally pay a fixed interest rate (coupon) to debtholders. Variable or floating interest rates are also now quite common. Bond prices are inversely correlated with interest rates: when rates go up, bond prices fall and vice-versa. Bonds have maturity dates, at which point the principal amount must be paid back in full or risk default.

IV) Government Securities

Government securities are government debt issuances used to fund daily operations and special infrastructure and military projects. They guarantee the full repayment of invested principal at the security's maturity and often pay periodic coupon or interest payments. Government securities are considered risk-free as they have the backing of the government that issued them. The trade-off of buying risk-free securities is that they tend to pay a lower interest rate than corporate bonds. Investors in government securities will either hold them to maturity or sell them to other investors on the secondary bond market.

V) Money Market Securities

Money market instruments are short-term financing instruments aiming to increase the financial liquidity of businesses. The main characteristic of these kinds of securities is that they can be converted to cash with ease, thereby preserving the cash requirements of an investor. The money market and its instruments are usually traded over the counter, and therefore, cannot be done by standalone individual investors themselves.

- **Treasury bills**

These are only issued by the central government when it requires funds to meet its short-term obligations. These securities do not generate interest but allow an investor to make capital gains as it is sold at a discounted rate while the entire face value is paid at the time of maturity. Treasury bills are an optimal investment tool for novice investors looking for options having minimal risk associated with them. Since the government backs treasury bills, the default risk is negligible, thus serving as an optimal investment tool for risk-averse investors.

- **Commercial paper**

This type of money market instrument serves as a promissory note generated by a company to raise short-term funds. It is unsecured and can only be used by large-cap companies with renowned market reputations. The maturity period of these debt instruments lies anywhere between 7 days to one year and thus, attracts a lower interest rate than equivalent securities sold in the capital market.

- **Certificate of deposit**

A certificate of deposit (CD) is a product offered by banks and credit unions that provides an interest rate premium in exchange for the customer agreeing to leave a lump-sum deposit untouched for a predetermined period. The certificate of deposit is a marketable receipt of funds deposited in a bank for a fixed period at a specified rate of interest. They are bearer documents and readily negotiable. The denominations of the CD and the interest rate on them are high. It is mainly preferred by institutional investors and companies rather than individuals.

Non-Negotiable Securities

These securities cannot be traded in the financial markets. Such securities include:

Deposits

Deposits provide a fixed rate of return. Despite their resemblance to fixed-income securities, bank deposits are not negotiable instruments.

a) Bank Deposits

Bank deposits consist of money placed into banking institutions for safekeeping. These deposits are made to deposit accounts such as savings accounts, checking accounts, and money market accounts. The account holder has the right to withdraw deposited funds, as outlined in the terms and conditions governing the account agreement. Traditionally the banks offered a current account, savings account, and fixed deposit account.

b) Post Office Deposits

India Postal service, which manages the country's postal chain, also offers many deposit options for investors, known as post office saving programs. These schemes were implemented to promote investment opportunities and instill financial discipline among Indians of all economic backgrounds. Every post office offers these savings plans, making it simple for people all over India to register and enroll. Public Provident Fund (PPF), National Savings Certificate (NSC), Post Office Monthly Income Scheme, Sukanya Samriddhi Account, Senior Citizen Savings Scheme, Post Office Savings Account, 5-Year Post Office Recurring Deposit Account, Post Office Time

Deposit Account, and Kisan Vikas Patra (KVP) are the examples of post office investment schemes.

c) NBFC Deposits

In recent years there has been a significant increase in the importance of non-banking financial companies in the process of financial intermediation. The NBFC comes under the purview of the RBI. In January 1997, made registration compulsory for the NBFCs Period. The period ranges from a few months to five years. The maximum limit for acceptance of deposit has been on the company's credit rating. The interest rate differs according to maturity period.

Tax-Sheltered Savings Scheme

Tax-sheltered savings plans are extremely important to investors who pay taxes. According to income tax laws, tax-sheltered savings schemes provide tax relief to those who participate in their schemes. The most important tax-sheltered savings plans are

- Public Provident Fund Scheme
- National Savings Scheme
- National Savings Certificate

Other alternatives

Mutual Funds

A mutual fund is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined holdings of the mutual fund are known as its portfolio. Investors buy shares

in mutual funds. Each share represents an investor's part ownership in the fund and its income. They provide benefits such as a professional approach, benefits of scale, and convenience.

Further investing in mutual funds will have the advantage of getting professional management services at a lower cost, which otherwise was not possible. In the case of the open-ended mutual fund scheme, the mutual fund gives investors assurance that the mutual fund will support the secondary market. There is absolute transparency about investment performance to investors. On a real-time basis, investors are informed about the performance of the investment. In mutual funds also, we can select among the following types of portfolios:

Open-Ended Funds

Open-ended funds do not have any particular constraint, such as a specific period or the number of units traded. These funds allow investors to trade funds at their convenience and exit when required at the prevailing Net Asset Value.

Closed-Ended Funds

A closed-end fund is a type of mutual fund that raises capital for its initial investments by issuing a fixed number of shares in a single initial public offering (IPO). Its shares can then be bought and sold on a stock exchange, but no new shares are created, and no new money enters the fund. Your investment in a closed-ended mutual fund scheme is locked in for a specified period of time. Close-ended schemes can only be subscribed to during the new fund offer period (NFO), and the units can only be redeemed after the lock-in period or the scheme's tenure has ended.

Other Classification

The open-ended and close-ended schemes are classified based on their objectives. Some of them are given below

- i) **Growth Scheme:** Aims to provide capital appreciation over a medium to long term. Generally, these funds invest their money in equities.
- ii) **Income Scheme:** This scheme aims to provide a regular return to its unit holders. Mostly these funds deploy their funds in fixed income securities.
- iii) **Balanced Scheme:** A combination of steady return as well as reasonable growth. The funds of these schemes are invested in equities and debt instruments.
- iv) **Money Market Scheme:** This type of fund invests its money on money market instruments like treasury bills, commercial paper, etc.
- v) **Tax Saving Schemes:** This type of scheme offers tax rebates to investors. Equity-linked savings schemes and pension schemes provide an exemption from capital gains on a specific investment.
- vi) **Index Scheme:** Here, investment is made on the equities of the index. Benchmark index is BSE SENSEX or NSE-50. The return is approximately equal to the return on the index.

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 life insurance's primary objective is to secure our families against the unfortunate event of our death. It is popular in individuals. Other kinds of general insurances are useful for corporates. There are different types of insurances which are as follows:

- Endowment Insurance Policy
- Money Back Policy
- Whole Life Policy
- Term Insurance Policy
- 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 invest in residential and office buildings, respectively. Apart from these, others include:

- Agricultural Land
- Semi-Urban Land
- Commercial Property
- Raw House
- Farm House etc

Precious Objects

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

Derivatives

A derivative is a financial contract whose value is determined by an underlying asset, group of assets, or benchmark. A derivative is a contract between two or more parties who can trade over-the-counter or on an exchange (OTC). These contracts can be used to trade various assets, but they come with their own set of risks. Fluctuations in the underlying asset determine derivatives prices. These financial instruments are commonly used to gain access to specific markets and can be traded to mitigate risk. Derivatives include:

- Forwards
- Futures
- Options
- Swaps etc

Investment Environment

When investors decide to invest in either stocks or bonds or attempt to invest in a portfolio of assets in any market or across markets (i.e., international investing), they make such decisions in an investment environment where higher (lower) returns are associated with higher (lower) risk. The term “Investment Environment” essentially includes all types of investment opportunities (i.e. varied financial and real assets) in the market that are available to an investor, financial markets,

investment process, market structure that enables purchasing and selling of investments, regulatory set up that fosters an enabling environment to invest, and market intermediaries.

Elements of Investment Environment

There are elements of the investment environment that one should be aware of:

Financial assets and Investment alternatives: A financial asset is a liquid asset with a contractual right or ownership claim as its source of value. Financial assets include cash, stocks, bonds, mutual funds, and bank deposits. Financial assets, unlike land, property, commodities, or other tangible physical assets, do not always have inherent physical value or even a physical form. Rather, their worth is determined by factors such as supply and demand in the market where they trade, as well as the level of risk they bear.

A financial asset that does not fall into one of the traditional investment categories is known as an alternative investment. Stocks, bonds, and cash are all common categories. Examples of alternative investments are a private equity or venture capital, hedge funds, managed futures, art and antiques, commodities, and derivatives contracts. Real estate is frequently referred to as an "alternative investment."

Financial markets: it is a market where buyers and sellers of assets (such as stocks, bonds, currencies, and derivatives) trade with each other. A notable feature of such markets is that market forces determine the prices of asset classes. Financial markets include stock markets (primary and secondary markets), bond markets, money markets, cash or spot markets, derivatives markets (options, futures, swap agreements, etc.), foreign

exchange and interbank markets, and over-the-counter (OTC) markets.

Financial Securities: Financial securities, also referred to as financial instruments or financial assets, is a generic term used to describe stocks, bonds, money market securities (e.g., treasury bills), and other instruments representing the right to receive future benefits under a set of stated conditions.

Financial Services: The term "financial services" refers to the products and services offered by the finance industry. Financial services are products and services provided by financial institutions such as banks of various types to facilitate various financial transactions and other related activities in the world of finance, such as loans, insurance, credit cards, investment opportunities, and money management, as well as providing information on the stock market and other issues such as market trends.

Market intermediaries: the same include insurance and pensions companies, investment banks, commercial banks (banks participate in the money and capital markets), primary dealers, brokers, financial advisors and stock exchanges among others.

Regulation: The investment industry relies heavily on rules. Customers may be sold unsuitable products and lose some or all of their life savings if no rules exist. Customers can also be harmed if a company in the investment industry misappropriates their funds. Regulations are rules that establish standards for behaviour and have legal force. Government bodies and other entities authorized by government bodies set and enforce them. For instance, the Securities Exchange Board of India (SEBI) , Foreign Exchange Management Act (FEMA), Insurance

Regulatory and Development Authority (IRDA) ,etc. All participants in the investment industry must follow all applicable regulations. Companies and employees who do not comply may face severe penalties. Failure to comply with regulations can harm other participants in the financial markets as well as damage trust in the investment industry and financial markets, which is perhaps more important than the effects on companies and employees.

Investors: An investor is a person who puts money into something, such as a business, in exchange for a financial return. Any investor's primary goal is to minimize risk while maximizing return. In contrast, a speculator is willing to invest in a risky asset in the hopes of making a larger profit. There are various categories of investors. Some people invest in startups in the hopes that they will develop and succeed; these people are known as venture capitalists. Furthermore, others invest money in a firm in exchange for a stake in the company. Some people also invest in the stock market to receive dividend payments.

Economy: Domestic and global economic developments affecting GDP, inflation, interest rates, fiscal deficits, and monetary policy have a significant impact on asset values and volatility. Additionally, asset allocation and related investment decisions are made after thoroughly examining the global and domestic economies and developing numerous forward-looking macroeconomic scenarios. For instance, when the economy is in recession, the performance of the business will be far from good. On the other side, if the economy is booming, the business will flourish. Thus, investors are interested in understanding economic aspects that may affect the performance of the company whose shares they seek to purchase.

Investment process:

The investment process encompasses the steps involved in investing. These steps include determining an investor's investment objectives and risk tolerance establishing an asset allocation policy, which has a significant impact on the overall performance of an investment or a portfolio

Investment Management

Investment management encompasses more than simply the purchase and sale of assets; it also involves the management of financial assets and other investments. Investment management entails developing a short- or long-term strategy for acquiring and disposing portfolio holdings. It may also involve banking, budgeting, and taxation services and duties. In another context, the phrase refers to managing and trading the securities in an investment portfolio to achieve a certain investment goal.

The term most often refers to managing the holdings within an investment portfolio and trading them to achieve a specific investment objective. Investment management services include asset allocation, financial statement analysis, stock selection, monitoring of existing investments, and portfolio strategy and implementation. Investment management may also include financial planning and advising services. Professional managers deal with various securities and financial assets, including bonds, equities, commodities, and real estate.

Investment Management Process

1. Setting of investment policy

The first and most crucial phase in the investment management process is to establish an investment policy. Setting investing objectives is part of investment policy. The investment policy should include precise objectives addressing the investor's investment return need and risk tolerance. Other major constraints that potentially influence investment management should also be stated in the investment policy. Constraints may include the investor's financial demands, estimated investment horizon, and other individual needs and preferences. The investment horizon is the time span across which investments are made. The projected time horizon may be short, lengthy, or indefinite. The investor's tax status is also included in the investment policy.

2. Analysis and evaluation of investment avenues

When an individual has created a proper sequence of the types of investments that he needs in his portfolio, the following step is to analyze the securities that are accessible for investment. The second step allows the investor to identify undervalued and overvalued securities. Technical and fundamental analysis are the two methods used to analyze securities. Technical analysis examines price movement tendencies. Technical analysts say that analyzing price movements can forecast future price movements. This assumes price trends and patterns recur. However, fundamental analysts believe that intrinsic value equals the present value of all future cash flows. Present value is calculated by projecting future cash flows and discounting them using an appropriate discount rate. Only if the intrinsic value is less than the present market price is

it considered undervalued. This is based on the notion that the market would eventually connect mispriced stocks, causing underpriced stocks to appreciate and overpriced equities to depreciate.

3. Portfolio Construction

After selecting the securities in a portfolio, the following step in the investment management process is the portfolio's construction. Choosing the right strategy for portfolio creation is very important as it forms the basis for selecting the assets added to the portfolio management process. The strategy that conforms to the investment policies and objectives should be selected.

There are two types of portfolio strategy.

- Active Management
- Passive Management

The active portfolio management process refers to a strategy where the objective of investing is to outperform the market return compared to a specific benchmark by buying undervalued securities or by short-selling securities that are overvalued. In this strategy, risk and return both are high. This strategy is a proactive strategy; it requires close attention from the investor or the fund manager.

The passive portfolio management process refers to the strategy where the purpose is to generate returns equal to that of the market. It is a reactive strategy as the fund manager, or the investor reacts after the market has responded.

4. Portfolio revision

Regardless of how effectively the investor built their portfolio, it will eventually become inefficient and need to be examined and altered regularly. Several things are likely to occur over time. The portfolio's asset allocation may have floated from its target, the risk and return characteristics of particular assets may have changed, or the objectives and preferences of investors may have shifted. Hence, the investor should constantly monitor and revise portfolios based on market conditions. Portfolio revision includes adding or removing securities, switching from one stock to another, switching from stocks to bonds, and vice versa.

5. Performance Evaluation

The investor has to evaluate the portfolio's performance over a period. The evaluation process revisits the strengths and shortcomings, risk-returns criteria, portfolio management's adherence to the stated investment objectives. A quantitative evaluation of the portfolio's actual return obtained and risk endured over the investment period is required when evaluating risk-return measures. Comparing the portfolio's actual performance with the expected relative to investment objectives gives more insight into the portfolio performance. Performance evaluation provides valuable feedback for continuously improving the quality of the portfolio management process.

Sources of Financial Information

Money and knowledge flow into the market greatly alter demand and supply dynamics. Investors want to know the real worth of shares, not just the market price. Intrinsic value of shares is the value of available net assets per equity share. The market price always drives intrinsic worth. Sell shares if the

intrinsic value is less than the market price. Conversely, investors intend to acquire securities when their intrinsic worth exceeds the market price. Thus, market analysis and intrinsic value estimation require information from acceptable sources. Following are basic explanations of the sources and types of information required for security analysis. The various sources of information are;

1. World affairs
2. Domestic economic and political factors
3. Industry information
4. Company information
5. Security market information
6. Security price quotations
7. Data on related markets
8. Data on mutual funds
9. Data on New Issue market
10. Financial information.

1. **World affairs:** International factors, including political changes, affect domestic income, output, employment, and investment. The Economic Times, Financial Express, and Business Line report global economic events. The London Economist, Far East Economic Review, Indian Business India, Fortune India, etc., all provide daily updates on global trade and business. Foreign bank newsletters like Grindlays, Standard Chartered, etc., report on global developments.

2. Domestic Economic and Political factors: Financial dailies like Economic Times often report factors affecting the domestic economy such as GDP, agricultural output, monsoon, money supply, inflation, government policies, taxation, etc. National economic policies are often reported on the Financial Express and Business Line. Business India, Business Today, Fortune India and other publications also report on economic happenings. The Planning Commission Reports, Ministry Annual Reports, RBI Annual Bulletins, Reports on Currency and Finance provide information on our country's economy, industry, and commerce.

3. Industry information: Industry information is quite essential for investment decision-making. It includes market demand, installed capacity, capacity utilization, competitors' activities and their share in the market, market leaders, industry prospects, requirements of foreign buyers, inputs, capital goods in foreign countries, import substitutes, industrial policy, and labor policy the Government. etc. The monthly reports of various associations, Government publications, daily financial papers, Directory of Information published by Bombay Stock Exchange, reports of the Planning Commission, associations such as Chambers of Commerce, Merchants' Chamber etc., give such information on the industry.

4. Company information: Company information related to the corporate data and annual reports are available on Stock Exchange publications, Department of Company Affairs' circulars, press releases on corporate affairs by Government, industry, chamber etc. Financial papers, journals of the capital market, Dalai Street, Business India furnish information about the companies listed on recognized stock exchanges. They also publish the results of equity and market research. Weekly

Reviews and monthly stock exchange reviews provide useful information required for security analysis.

5. Security market information: Investment management needs information about the security market. The credit rating of companies, market trends, security market analysis, market reports, equity research reports, trade and settlement data, listing and delisting records, book closures, BETA factors, etc., are called security market information. Financial papers like Economic Times, Business Line, Financial Express etc., report on trade cycles and settlements, record dates, book closures etc. Chartered Financial Analyst reports on economic data, company information, market information, security analysis, beta factors etc., are the various sources which help in security analysis. Stock market journals like The Capital Market, Dalai Street, Business India, Fortune India, Investment Week etc., also carry information extensively on security markets.

6. Security Price Quotations: Technical analysis is based on security price quotes. These includes indices, price and volume statistics, breadth, daily volatility, etc. Each stock exchange announces daily high, low, and closing prices. It also publishes securities trade volume. Besides daily quotes, the RBI, BSE, and OTCEI publish price indices for securities by industry and area. The Capital Market and Dalai Street periodicals also provide information on Price Earnings and Earnings per Share. The BSE Directory deals with shareholding patterns, distribution schedules, floating stock, and historical price data.

7. Data on related markets: Government securities, money, and forex markets are closely related to the security market. Publications of RBI, DFHI, Indian Banks Associations, Securities Trading Corporation, Banks, NSE give data on such related markets. RBI publications, Foreign Exchange Dealers

Associations, and foreign banks particularly report on the forex market. Financial dailies contain exchange rates and cross-currency rates. The developments of Govt. Dailies, weeklies and fortnightly journals review securities market, money market and forex market. London Economist, Far Eastern Economic Review, and Wall Street Journal reports data on forex markets.

8. Data on Mutual Funds: Various mutual fund schemes and their performance, NAV, and buyback prices are important in examining modern investors' investing options. Investment Weekly and Investors' Guide publish mutual fund statistics. In addition, they include current mutual fund schemes, NAVs, repurchase and redemption rates, and daily purchase and sale prices. Most mutual fund schemes are traded on stock markets. Capital Market, Dalai Street, and Business India also cover mutual funds.

Calculation of return on investment and expected return

Return on Investment (ROI)

The return on investment (ROI) is a financial ratio that calculates an investor's gain in relation to the cost of their investment. Return on investment (ROI) is a financial term that is extensively used to assess the likelihood of profiting from an investment. It is a ratio that compares an investment's gain or loss to its cost. It is equally useful for assessing the probable return on a single investment as it is for comparing returns from multiple investments.

Calculation of Return on Investment (ROI)

ROI can be calculated using two different methods.

First method:

$$ROI = \frac{\text{Net Return on Investment}}{\text{Cost of Investment}} * 100\%$$

Second method:

$$ROI = \frac{FVI - IVI}{\text{Cost of Investment}} * 100\%$$

Where;

IVI=initial value (cost) of investment

FVI= Final value of Investment

In this formula, IVI refers to the initial value of the investment (or the cost of the investment). FVI refers to the final value.

Example;

Assume an investor bought 1,000 shares of the hypothetical company Worldwide Wicket Co. at ₹10 per share. One year later, the investor sold the shares for ₹12.50. The investor earned dividends of ₹500 over the one-year holding period. The investor also spent a total of ₹125 on trading commissions in order to buy and sell the shares.

The ROI for this investor can be calculated as follows;

1. To calculate net returns, total returns and total costs must be considered. Total returns for a stock result from capital gains and dividends. Total costs would

include the initial purchase price as well as any commissions paid.

2. In the above calculation, the gross capital gain (before commissions) from this trade is $(₹12.50 - ₹10.00) \times 1,000$. The ₹500 amount refers to the dividends received by holding the stock, while ₹125 is the total commissions paid.

If you further dissect the ROI into its component parts, it is revealed that 23.75% came from capital gains and 5% came from dividends. This distinction is important because capital gains and dividends are taxed at different rates in most jurisdictions.

$$ROI = \text{Capital Gains\%} - \text{Commission\%} + \text{Divident Yield}$$

Using this example;

$$\text{Capital gains} = (2500/10000) * 100 = 25\%$$

$$\text{Commissions} = (125/10000) * 100 = 1.25\%$$

$$\text{Dividend yield} = (500/10,000) * 100 = 5\%$$

$$ROI = 25\% - 1.25\% + 5\% = 28.75\%$$

An Alternative Return on Investment (ROI) Calculation

If, for example, commissions were split, there is an alternative method of calculating this hypothetical investor's ROI for their Worldwide Wicket Co. investment. Assume the following split in the total commissions: ₹50 when buying the shares and ₹75 when selling the shares.

$$IVI=10000+50=10500$$

$$FVI=12500+500-75=12925$$

$$ROI = \frac{12925 - 10050}{10050} \times 100 = 28.75\%$$

Annualized Return on Investment (ROI)

The annualized ROI calculation provides a solution for one of the key limitations of the basic ROI calculation; the basic ROI calculation does not take into account the length of time that an investment is held, also referred to as the holding period. The formula for calculating annualized ROI is as follows:

$$\text{Annualized ROI} = \left((1 + ROI)^{\frac{1}{n}} - 1 \right) * 100\%$$

Where;

n=number of years investment is held

Assume a hypothetical investment that generated an ROI of 50% over five years. The simple annual average ROI of 10%—which was obtained by dividing ROI by the holding period of five years—is only a rough approximation of annualized ROI. This is because it ignores the effects of compounding, which can make a significant difference over time. The longer the time period, the bigger the difference between the approximate annual average ROI, which is calculated by dividing the ROI by the holding period in this scenario, and annualized ROI.

From the formula above,

$$\text{Annualized ROI} = \left((1 + 0.50)^{\frac{1}{5}} - 1 \right) * 100 = 8.45\%$$

This calculation can also be used for holding periods of less than a year by converting the holding period to a fraction of a year.

Assume an investment that generated an ROI of 10% over six months.

$$\text{Annualized ROI} = \left((1 + 0.10)^{\frac{1}{0.5}} - 1 \right) * 100 = 21\%$$

In the equation above, the numeral 0.5 years is equivalent to six months.

Comparing Investments and Annualized Returns on Investment (ROI)

Annualized ROI is especially useful when comparing returns between various investments or evaluating different investments.

Assume that an investment in stock X generated an ROI of 50% over five years, while an investment in stock Y returned 30% over three years. You can determine what the better investment was in terms of ROI by using this equation:

$$AROI_x = \left[\left((1 + 0.50)^{\frac{1}{5}} - 1 \right) \right] * 100 = 8.45\%$$

$$AROI_y = \left[\left((1 + 0.30)^{\frac{1}{3}} - 1 \right) \right] * 100 = 9.14\%$$

Where,

$AROI_x$ = Annualized ROI for stock x

$AROI_y$ = Annualized ROI for stock y

According to this calculation, stock Y had a superior ROI compared to stock X

Expected Return

The expected return is the profit or loss that an investor anticipates on an investment that has known expected return. It is calculated by multiplying potential outcomes by the chances of them occurring and then totalling these results.

$$\text{Expected Return} = \Sigma (\text{Return}_i \times \text{Probability}_i)$$

where "i" indicates each known return and its respective probability in the series

The expected return is usually based on historical data and is therefore not guaranteed into the future; however, it does often set reasonable expectations. Therefore, the expected return figure can be thought of as a long-term weighted average of historical returns

Example: An investment provides a return of 10%,20%,30%, and 40% with probabilities of 25%,30%,15%, and 30%. Calculate expected return.

Solution:

Calculation of expected return

Possible returns X_i	Probability P_i	$X_i P_i$
10	0.25	2.50
20	0.30	6.00
30	0.15	4.50
40	0.30	12.00
	$\Sigma X_i P_i$	25.00

Thus, expected return is 25%

Calculation of expected return under CAPM

Capital Asset Pricing Model

William F. Sharpe and John Linter developed Capital Asset Pricing Model (CAPM). The portfolio theory created by Harry Markowitz is the foundation of the concept. The risk component in portfolio theory, according to the model, is a combination of two risks: systematic risk and unsystematic risk. According to the model, the return on a security is directly related to its systematic risk, which diversification cannot eliminate. The combination of both types of risks stated above

provides the total risk. The total variance of returns is equal to market related variance plus company's specific variance.

CAPM explains the behaviour of security prices and provides a mechanism whereby investors could assess the impact of a proposed security investment on the overall portfolio risk and return. CAPM suggests that the prices of securities are determined in such a way that the risk premium or excess returns are proportional to systematic risk, which is indicated by the beta coefficient. The model is used for analysing the risk-return implications of holding securities.

CAPM refers to how securities are valued in line with their anticipated risks and returns. A risk-averse investor prefers to invest in risk-free securities. For a small investor having few securities in his portfolio, the risk is greater. To reduce the unsystematic risk, he must build up well-diversified securities in his portfolio.

The CAPM is a model, which derives the theoretical required return (i.e. discount rate) for an asset in a market, given the risk-free rate available to investors and the risk of the market as a whole. The CAPM is usually expressed:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

$E(R_m) - (R_f)$ is the market premium, the historically observed excess return of the market over the risk-free rate. Once the expected return, $E(R_i)$, is calculated using CAPM, the asset's future cash flows can be discounted to their present value using this rate to establish the correct price for the asset.

Assumptions:

Assumptions of CAPM theory,

1. An individual seller or buyer cannot affect the price of a stock. This assumption is the basic assumption of the perfectly competitive market.
2. Investors make their decisions only on the basis of the expected returns, standard deviations and co variances of all pairs of securities.
3. Investors are assumed to have homogenous expectations during the decision-making period.
4. The investor can lend or borrow any amount of funds at the riskless rate of interest. The riskless rate of interest is the rate of interest offered for the treasury bills or Government securities.
5. Assets are infinitely divisible. According to this assumption, investor could buy any quantity of share i.e. they can even buy ten rupees worth of Reliance Industry shares.
6. There is no transaction cost i.e. no cost involved in buying and selling of stocks.
7. There is no personal income tax. Hence, the investor is indifferent to the form of return either capital gain or dividend.
8. Unlimited quantum of short sales is allowed. Any amount of shares an individual can sell short.

Calculating expected return using the Capital Asset Pricing Model (CAPM)

The formula for calculating the expected return of an asset given its risk is as follows:

$$ER_i = R_f + \beta_i(R_m - R_f)$$

Where,

ER_i =Expected return of investment

R_f =risk-free rate

β_i =beta of the investment

$(R_m - R_f)$ = market risk premium

For example, imagine an investor is contemplating a stock worth ₹100 per share today that pays a 3% annual dividend. The stock has a beta compared to the market of 1.3, which means it is riskier than a market portfolio. Also, assume that the risk-free rate is 3% and this investor expects the market to rise in value by 8% per year.

The expected return of the stock based on the CAPM formula is 9.5%:

$$9.5\% = 3\% + 1.3 * (8\% - 3\%)$$

The expected return of the CAPM formula is used to discount the expected dividends and capital appreciation of the stock over the expected holding period. If the discounted value of those future cash flows is equal to Rs.100 then the CAPM formula indicates the stock is fairly valued relative to risk.

Types of risk

There are two types of risk: systematic and unsystematic risk. Systematic risks can include interest rate changes, recessions, or inflation. Systematic risk is often calculated with the beta, which measures the volatility of a stock or portfolio relative to the entire market.

Total risk for investments is unsystematic risk plus systematic risk. Unsystematic risk is a risk specific to a company or industry, while the systematic risk is the risk tied to the broader market. Systematic risk is attributed to broad market factors and is the investment portfolio risk that is not based on individual investments.

Systematic Risk

Systematic risk refers to the risk inherent to the entire market or market segment. Systematic risk, also known as “undiversifiable risk,” “volatility” or “market risk,” affects the overall market, not just a particular stock or industry.

- Systematic risk is inherent to the market as a whole, reflecting the impact of economic, geopolitical, and financial factors.
- This type of risk is distinguished from unsystematic risk, which impacts a specific industry or security.
- Systematic risk is largely unpredictable and generally viewed as being difficult to avoid.
- Investors can somewhat mitigate the impact of systematic risk by building a diversified portfolio.

Systematic risk is both unpredictable and impossible to avoid completely. It cannot be mitigated through diversification, only through hedging or by using the correct asset allocation strategy. Systematic risk underlies other investment risks, such as industry risk. Systematic risk, however, incorporates interest rate changes, inflation, recessions, and wars, among other major changes. Shifts in these domains can affect the entire market and cannot be mitigated by changing positions within a portfolio of public equities. To help manage systematic risk, investors should ensure that their portfolios include a variety of asset classes, such as fixed income, cash, and real estate, each of which will react differently in the event of a major systemic change.

Unsystematic Risk

Unsystematic risk is the risk that is unique to a specific company or industry. It's also known as non-systematic, specific, diversifiable, or residual risk. In the context of an investment portfolio, unsystematic risk can be reduced through diversification—while systematic risk is the risk that's inherent in the market.

- Unsystematic risk, or company-specific risk, is a risk associated with a particular investment.
- Unsystematic risk can be mitigated through diversification, and so is also known as diversifiable risk.
- Once diversified, investors are still subject to market-wide systematic risk.
- Total risk is unsystematic risk plus systematic risk.

- Systematic risk is attributed to broad market factors and is the investment portfolio risk that is not based on individual investments.

Unsystematic risk can be described as the uncertainty inherent in a company or industry investment. While investors may be able to anticipate some sources of unsystematic risk, it is nearly impossible to be aware of all risks. For instance, an investor in healthcare stocks may be aware that a major shift in health policy is on the horizon but may not fully know the particulars of the new laws and how companies and consumers will respond. Other examples of unsystematic risks may include strikes, outcomes of legal proceedings, or natural disasters. This risk is also known as a diversifiable risk since it can be eliminated by sufficiently diversifying a portfolio. There isn't a formula for calculating unsystematic risk; instead, it must be extrapolated by subtracting the systematic risk from the total risk.

Types of Unsystematic Risk

Business Risk

Both internal and external issues may cause business risk. Internal risks are tied to operational efficiencies, such as management failing to take out a patent to protect a new product would be an internal risk, as it may result in the loss of competitive advantage. The Food and Drug Administration (FDA) banning a specific drug that a company sells is an example of external business risk.

Financial Risk

Financial risk relates to the capital structure of a company. A company needs to have an optimal level of debt and

equity to continue to grow and meet its financial obligations. A weak capital structure may lead to inconsistent earnings and cash flow, preventing a company from trading.

Operational Risk

Operational risks can result from unforeseen or negligent events, such as a breakdown in the supply chain or a critical error being overlooked in the manufacturing process. A security breach could expose confidential information about customers or other types of key proprietary data to criminals. Operational risk is tied to operations and the potential for failed systems or policies. These are the risks for day-to-day operations and can result from breakdowns in internal procedures, whether tied to systems or employees.

Strategic Risk

A strategic risk may occur if a business gets stuck selling goods or services in a dying industry without a solid plan to evolve the company's offerings. A company may also encounter this risk by entering into a flawed partnership with another firm or competitor that hurts its future growth prospects.

Legal and Regulatory Risk

Legal and regulatory risk is the risk that a change in laws or regulations will hurt a business. These changes can increase operational costs or introduce legal hurdles. More drastic legal or regulation changes can even stop a business from operating altogether. Other types of legal risk can include errors in agreements or violations of laws.

Measurement of risk

Standard Deviation

Risk refers to the dispersion of variables. A standard deviation is a statistic that measures the dispersion of a dataset relative to its mean. The standard deviation is calculated as the square root of variance by determining each data point's deviation relative to the mean. If the data points are further from the mean, there is a higher deviation within the data set; thus, the more spread out the data, the higher the standard deviation.

- A volatile stock has a high standard deviation, while the deviation of a stable blue-chip stock is usually rather low.
- As a downside, the standard deviation calculates all uncertainty as risk, even when it's in the investor's favour—such as above-average returns.

The formula for Standard Deviation

$$\text{Standard Deviation}(\sigma) = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

Where,

x_i = Value of the i^{th} point in the data set

\bar{x} = The mean value of the data set

n = The number of data points

Or

$$SD = \sqrt{\frac{\sum(x - \mu)^2}{N}}$$

Where, \sum means "sum of", x is a value in the data set, μ is the mean of the data set, and N is the number of data points in the population.

Example : The return and the probability distribution of an investment are given below. The initial investment is ₹100. Calculate the standard deviation.

Return; 10,20,30, and 40

Probability; 0.20,0.10,0.30, and 0.40

Solution:

Mean(\bar{x}) = 100/4 = 25

Return	Probability	Deviation ($x_i - \bar{x}$)	($x_i - \bar{x}$) ²	($x_i - \bar{x}$) ² × probability
10	0.2	-15	225	45
20	0.3	-5	25	7.50
30	0.4	5	25	10
40	0.1	15	225	22.50
Total =100				85

$$\text{Variance } (\sigma^2) = 85/3 = 28.33$$

$$\text{Standard Deviation } (\sigma) = \sqrt{28.33} = 5.32$$

Measurement of Systematic risk

Beta

Beta coefficient is a measure of systematic risk. A higher beta coefficient means higher systematic risk and vice versa. A beta coefficient of 1 means that the investment has systematic risk equal to the average systemic risk of the whole market. High-beta stocks tend to be riskier but provide the potential for higher returns. Low-beta stocks pose less risk but typically yield lower returns. As a result, beta is often used as a risk-reward measure, meaning it helps investors determine how much risk they are willing to take to achieve the return for taking on that risk. A stock's price variability is important to consider when assessing risk. If you think of risk as to the possibility of a stock losing its value, beta is useful as a proxy for risk.

Calculation of Beta

To calculate the beta of a security, the covariance between the return of the security and the return of the market must be known and the variance of the market returns.

$$\text{Beta} = \frac{\text{Covariance}}{\text{Variance}}$$

Where,

Covariance = Measure of a stock's return relative to that of the market

Variance = Measure of how moves relative to its mean

Covariance measures how two stocks move together. A positive covariance means the stocks tend to move together when their prices go up or down. A negative covariance means the stocks move opposite of each other.

Examples

Beta could be calculated by dividing the security's standard deviation of returns by the benchmark's standard deviation . The resulting value is multiplied by the correlation of the security's returns and the benchmark's returns.

Calculating the Beta for Apple:

An investor is looking to calculate Apple's beta (AAPL) compared to the SPDR S&P 500 ETF Trust (SPY). Based on recent five-year data, the correlation between AAPL and SPY is 0.83. AAPL has a standard deviation of returns of 23.42% and SPY has a standard deviation of returns of 32.21%.

$$beta = .83 * \left(\frac{.2342}{.3221} \right) = .6035$$

In this case, AAPL would be considered less volatile than SPY, as its beta of 0.6035 indicates the stock theoretically experiences 40% less volatility.

Calculation of beta under correlation

Beta can also be calculated using the correlation method. Beta can be calculated by dividing the asset's standard deviation

of returns by the market's standard deviation of returns. The result is then multiplied by the correlation of security's return and the market's return.

$$\beta = \frac{r_{im} \sigma_i \sigma_m}{\sigma_m^2}$$

where β = beta

r_{im} = Correlation coefficient of the return on the individual stock return and market return

σ_i = standard deviation of the individual stock

σ_m = standard deviation of the market

σ_m^2 = Variance of the market

Example

The FGH stock has a standard deviation of 6%

The market has a standard deviation of 4%

The correlation coefficient between FGH and the market is 0.8

Using the first formula:

$$\begin{aligned}\beta &= \frac{0.8 \times 6 \times 4}{4^2} \\ &= 19.2/16 \\ &= 1.2\end{aligned}$$

Example

The monthly return data in percent of ABC stock and BSE index is given below. Calculate beta of ABC stock.

Month	ABC	BSE
1	8.53	7.56
2	9.65	8.46
3	12.25	10.30
4	9.00	12.25
5	13.75	11.75
6	6.65	9.42

Solution

Calculation of Correlation coefficient

ABC return(Y)	BSE (X)	Y ²	X ²	XY
8.53	7.56	72.76	57.15	66.49
9.65	8.46	93.12	71.57	81.64
12.25	10.30	150.06	106.09	126.18
9.00	12.25	81.00	150.06	110.25
13.75	11.75	189.06	138.06	161.56

6.65	9.42	44.22	88.74	62.64
Total= 59.83	59.74	630.23	611.68	606.76

$$\begin{aligned}
 r &= \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{(6 \times 606.76) - (59.74 \times 59.83)}{\sqrt{[6 \times 611.68 - (59.74)^2][6 \times 630.23 - (59.83)^2]}} \\
 &= \frac{3640.56 - 3574.24}{\sqrt{[3670.06 - 3568.87][3781.39 - 3579.63]}} \\
 &= \frac{66.29}{\sqrt{101.21 \times 201.75}} \\
 &= \frac{66.32}{142.9} \\
 r &= 0.46
 \end{aligned}$$

Now calculate standard deviation of BSE index

$$\begin{aligned}
 \sigma &= \sqrt{\frac{N \sum X^2 - (\sum X)^2}{N}} \\
 &= \sqrt{\frac{6 \times 611.68 - (59.74)^2}{6^2}} \\
 &= \sqrt{\frac{3670.08 - 3568.87}{36}} \\
 &= \sqrt{2.81} \\
 &= 1.68
 \end{aligned}$$

Now calculate standard deviation of ABC stock

$$\begin{aligned}\sigma &= \sqrt{\frac{N \sum Y^2 - (\sum Y)^2}{N^2}} \\ &= \sqrt{\frac{6 \times 630.23 - (59.83)^2}{6^2}} \\ &= \sqrt{\frac{3781.39 - 3579.63}{36}} \\ &= \sqrt{5.60} \\ &= 2.37\end{aligned}$$

Now we will calculate Beta of ABC stock

$$\begin{aligned}\beta &= \frac{r_{im} \sigma_i \sigma_m}{\sigma_m^2} \\ &= \frac{(0.46)(2.37 \times 1.68)}{1.68^2} \\ &= \frac{1.84}{2.82} \\ &= 0.65\end{aligned}$$

Calculation of beta using the regression method

Regression is one of these tools. The most basic form of regression is linear regression, which investigates the relationship between one dependent variable and one or more independent variables. Linear regression strives to investigate the relationship between different variables and whether some can be used to predict another.

β is the slope for regression line equation is given below;

$$\beta = \frac{n \sum XY - (\sum X)(\sum Y)}{n \sum X^2 - (\sum X)^2}$$

Problems:

Given below are the return on IBM and BSE sensex for a five year period. Calculate Beta using the regression method.

year	Return on IBM(y)	Return on BSE sensex(x)
1	0.2	0.1
2	0.3	0.2
3	0.5	0.3
4	0.4	0.4
5	0.6	0.5

Solution,

year	X	Y	XY	x^2	Y^2
1	0.1	0.2	0.02	0.01	0.04
2	0.2	0.3	0.06	0.04	0.09
3	0.3	0.5	0.15	0.09	0.25
4	0.4	0.4	0.16	0.16	0.16
5	0.5	0.6	0.3	0.25	0.36

$$\begin{aligned}\sum X &= 1.50 & \sum Y &= 2.0 & \sum XY &= .69 & \sum X^2 &= .55 \\ \sum Y^2 &= .90\end{aligned}$$

Calculation of beta using regression method

$$\begin{aligned}\beta &= \frac{n \sum XY - (\sum X)(\sum Y)}{n \sum X^2 - (\sum X)^2} \\ &= \frac{(5 * .69) - (1.5 * 2.0)}{(5 * .55) - (1.5)^2} \\ &= \frac{3.45 - 3.00}{(2.75) - (2.25)} \\ &= \frac{.45}{.50} = 0.9\end{aligned}$$

Module II

Security Valuation

Every individual needs to put some part of his income into something which would benefit him in the long run. Investment is essential as unavoidable circumstances can arise anytime and anywhere. One needs to invest money into something which would guarantee maximum returns with minimum risks in the future. Money saved now will help you overcome tough times in the best possible way.

Valuation of Fixed Income Securities

Fixed-income security is a debt instrument issued by a government, corporation or other entity to finance and expand its operations. Fixed-income securities provide investors a return in the form of fixed periodic payments and the eventual return of principal at maturity.

Meaning of bonds

Bonds are issued by organizations generally for more than one year to raise money by borrowing. A bond is a fixed income instrument representing a loan made by an investor to a borrower (typically corporate or governmental). Bonds are used

by companies, municipalities, states, and sovereign governments to finance projects and operations. Owners of bonds are debtholders, or creditors, of the issuer.

Bond details include the end date when the principal of the loan is due to be paid to the bond owner and usually include the terms for variable or fixed interest payments made by the borrower. Organizations to raise capital, issue bonds to investors, which is nothing but a financial contract. The organization promises to pay the principal amount and interest (in coupons) to the bondholder after a certain date, called the maturity date. Some bonds do not pay interest to the investors; however, the issuers must pay the principal amount to the investors.

Definition of Bonds

Bonds refer to high-security debt instruments that enable an entity to raise funds and fulfill capital requirements. It is a category of debt that borrowers avail from individual investors for a specified tenure.

Organizations, including companies, governments, municipalities, and other entities, issue bonds for investors in primary markets. The corpus thus collected is used to fund business operations and infrastructural development by companies and governments alike. Investors purchase bonds at face value or principal returned at the end of a fixed tenure. Issuers extend a percentage of the principal amount as periodical interest at fixed or adjustable rates.

Individual investors acquiring bonds have legal and financial claims to an organization's debt fund. Borrowers are therefore liable to pay the entire face value of bonds to these individuals after the term expires. As a result, bondholders

receive debt recovery payments before stakeholders in case a company faces bankruptcy.

Maturity Date

Maturity date refers to the final date for the payment of any financial product when the principal and the interest need to be paid to the investor by the issuer.

Characteristics of a Bond/Essential features of Bonds

- A bond is generally a form of debt that the investors pay to the issuers for a defined time frame. In a layman's language, bond holders offer credit to the company issuing the bond.
- Bonds generally have a fixed maturity date.
- All bonds repay the principal amount after the maturity date; however, some bonds pay the interest and the principal to the bond holders.

Types of Bonds

Following are the types of bonds:

- **Fixed Rate Bonds**

In Fixed Rate Bonds, the interest remains fixed throughout the tenure of the bond. Owing to a constant interest rate, fixed rate bonds are resistant to changes and fluctuations in the market.

- **Floating Rate Bonds**

Floating rate bonds have a fluctuating interest rate (coupons) as per the current market reference rate.

- **Zero Interest Rate Bonds**

Zero Interest Rate Bonds do not pay any regular interest to the investors. In such types of bonds, issuers only pay the principal amount to the bond holders.

- **Inflation Linked Bonds**

Bonds linked to inflation are called inflation linked bonds. The interest rate of Inflation linked bonds is generally lower than fixed rate bonds.

- **Perpetual Bonds**

Bonds with no maturity dates are called perpetual bonds. Holders of perpetual bonds enjoy interest throughout.

- **Subordinated Bonds**

Bonds that are given less priority than other bonds of the company in cases of a close down are called subordinated bonds. Subordinated bonds are given less importance in liquidation cases than senior bonds, which are paid first.

- **Bearer Bonds**

Bearer Bonds do not carry the name of the bond holder, and anyone who possesses the bond certificate can claim the amount. If the bond certificate gets stolen or misplaced by the bond holder, anyone else with the paper can claim the bond amount.

- **War Bonds**

Any government issues war Bonds to raise funds in cases of war.

- **Serial Bonds**

Bonds maturing over a period of time in installments are called serial bonds.

- **Climate Bonds**

Any government issues climate Bonds to raise funds when the country concerned faces any adverse changes in climatic conditions.

- **Callable bonds**

Callable bonds are common in finance, but particularly in corporate bonds. The call option allows firms to be more flexible with their interest rates if they fall, and it also allows investors to earn a better return than if they held the bond until maturity. When market interest rates fall, firms can call their existing bonds and sell new bonds at a cheaper rate. In effect, in a period of falling interest rates, a callable bond may be less expensive to the issuer than a regular bond.

Type of Bond Risk

Bonds can be a great tool to generate income and are widely considered to be a safe investment, especially compared with stocks. However, investors should be aware of the potential pitfalls of holding corporate bonds and government bonds. Below, we'll discuss the risks that could impact your hard-earned returns.

1. Interest Rate Risk and Bond Prices

A bond buyer should first comprehend the interest rate-bond price inverse relationship. Bond prices grow when interest rates fall. Bond prices tend to fall when interest rates rise. While

interest rates are falling, investors attempt to capture or lock in the highest rates possible for as long as possible. They will buy existing bonds paying more interest than the market rate to do so. Demand increases bond prices. If the current interest rate rises, investors will naturally sell lower-interest-rate bonds. Bond prices would fall.

3. Reinvestment Risk

Investors may be unable to reinvest the cash flows at the same rate as the bond's present return. This is called reinvestment risk. This tends to happen when market rates are lower than the bond's coupon rate. This risk also arises when interest rates decrease, and issuers exercise callable bonds. The callable feature allows the issuer to redeem the bond before maturity. As a result, the bondholder receives the principal, generally at a premium over par. The negative of a bond call is that the investor is left with cash that they may not be able to reinvest at the same rate. This reinvestment risk might reduce long-term investment returns.

4. Call risk

Call risk is related with bonds that include a call option. Issuers of callable bonds often refinance their debt, effectively calling the bonds back at the pre-specified call price. This often forces investors to reinvest bond income at lower rates. High coupons compensate these investors. The call protection feature protects the bond from being called for a specified significant period of time.

5. Inflation Risk or Purchasing power risk

When an investor purchases a bond, they are effectively committing to getting a rate of return, either fixed or variable,

for the duration of the bond, or at least for the duration of the bond's holding period. The effect of inflation on investments is referred to as inflation risk. When inflation rises, bond returns (principal plus coupons) lose purchasing power. The same amount of money will buy fewer items. When this happens, investors' purchasing power erodes, and they may even obtain a negative rate of return when inflation is taken into account.

6. Credit risk

The failure of the bond issuer to make timely payments to the lenders creates credit risk. This causes the lender's cash flow to be disrupted, with losses ranging from modest to severe. Credit history and repayment capacity are the two most critical elements that might influence credit risk.

7. Default risk

The incapacity of the bond issuing corporation to make required payments is known as default risk. Default risk is defined as another type of credit risk in which the borrowing company fails to meet the agreed-upon terms of the loan.

8. Liquidity Risk

While there is usually a ready market available for government bonds, it can be a different scenario in the case of corporate bonds. Investor may not sell their corporate bonds promptly due to a lack of buyers and sellers. Low buying interest in a bond offering can cause significant price volatility, reducing a bondholder's total return. Like selling stocks in a weak market, you may be obliged to sell your bond position for less than you intended.

9. Rating risk

Rating risk occurs when various circumstances, both specific to the bond and the market environment, affect the bond's rating, lowering its value and demand. Different types of bond risks elucidated above almost always decrease the worth of the bond holding. Bonds' declining value reduces demand, limiting the issuing company's funding options. The nature of risks is such that it doesn't always affect the parties. It favors one side while posing risks for the other.

Estimating bond yield

Yield is a broad phrase that refers to the return on capital invested in a bond. When discussing yield in relation to bonds, there are various definitions that must be understood:

1. Current Yield

Current yield is the yield on a bond. This is the return on investment that a bond buyer may expect to see if they buy today and keep for a year. It considers the bond's market price rather than its face value. The current yield can be used to compare a bond's interest income versus a stock's dividend income. Divide the annual coupon by the current price of the bond. Keeping in mind that this yield excludes any possible capital gains or losses. Thus, this yield is best used by investors seeking simply current income.

$$\text{current yield} = \frac{\text{Coupon interest rate}}{\text{current market price}}$$

Example: ABC Corporation has issued a bond with a ₹1,000 face value and an ₹80 annual coupon payment. This results in an 8% annual coupon rate. The current market price of the bond is ₹985, so the current yield is calculated as follows:

$$\text{current yield} = \frac{\text{Coupon interest rate}}{\text{current market price}}$$

$$\begin{aligned}\text{current yield} &= \frac{80}{985} \times 100 \\ &= 8.12\%\end{aligned}$$

Example: ₹100 bond is purchased for ₹.90, which is the market price. The bond carries a coupon rate of 10%. Calculate the current yield.

$$\text{current yield} = \frac{\text{Coupon interest rate}}{\text{current market price}}$$

$$\text{urrent yield} = \frac{10}{90} \times 100 = 11.10\%$$

Holding period return.

Bondholders are not required to hold an issuer's bond until maturity. The return on a bond or asset over the period in which it was held is called the holding period return (HPR).

$$HPR = \frac{\text{capital gain or loss} + \text{coupon rate}}{\text{purchase price of bond}}$$

Or

$$= \frac{(\text{Selling price} - \text{Purchase Price}) + \text{Annual interest}}{\text{Purchase price of bond}}$$

Example: Mr. X purchased 9% bonds of the face value of ₹1000 for ₹900. After holding for one year, he sold the bond for ₹840. Calculate his holding period return.

$$\begin{aligned} HPR &= \frac{(\text{Selling price} - \text{Purchase Price}) + \text{Annual interest}}{\text{Purchase price of bond}} \\ &= \frac{(840 - 900) + 90}{900} = \frac{-60 + 90}{900} = \frac{30}{900} \times 100 \\ &= 3.3\% \end{aligned}$$

2. Yield to Maturity (YTM)

Yield-to-maturity is the discount rate that equates the present value of a bond's cash flows to the bond's current market price. It measures the return on a bond if it is held to maturity and all coupons are reinvested at the YTM rate. Because it is unlikely that coupons will be reinvested at the same rate, an investor's actual return will differ slightly. Mathematically, it is expressed as:

$$P = \frac{C}{(1+r)} + \frac{C}{(1+r)^2} + \dots + \frac{C}{(1+r)^n} + \frac{M}{(1+r)^n}$$

Where, P=price of the bond

C=Annual Interest (in rupees)

M= Maturity Value

r= particular discount rate (realized yield)

n= number of years left to maturity

The computation of YTM requires a trial and error procedure.

Example: A bond with face value of ₹1000, carrying a coupon rate of 9%, maturing after 8 years. Current value of the bond is ₹800. Calculate YTM of the bond.

$$P = \frac{C}{(1+r)} + \frac{C}{(1+r)^2} + \dots + \frac{C}{(1+r)^n} + \frac{M}{(1+r)^n}$$

$$800 = \frac{90}{(1+r)} + \frac{90}{(1+r)^2} + \dots + \frac{90}{(1+r)^8} + \frac{1000}{(1+r)^8}$$

Let us assume with a discount rate of 12%

=₹90(present value annuity of ₹1 for 8 years at 12%)+1000(present value of 8 years at 12%)

=90(4.968)+1000(0.404)= ₹851.0

Since the value is greater than ₹800, try a higher discount rate,
Let us assume 14%

$$=90(4.639)+1000(0.351)= ₹768.1$$

Since the value is less than 800, the r lies between 12% and 14%. Using the interpolation formula;

$$r = \text{lower rate} + \frac{\text{NPV at lower rate}}{\text{Lower rate PV} - \text{higher rate PV}}$$

$$\times (\text{higher rate} - \text{lower rate})$$

$$= 12\% + \frac{851-800}{851-768.1} (14\% - 12\%) = 13.2\%$$

3. Yield to Call (YTC)

Yield to call (YTC) is the return that would be earned if a note or bond was kept until its call date before the debt instrument matured. In other words, it is the amount of money you would get if you held a bond until it was called before it matured.

$$P = \sum_{t=1}^n \frac{C}{(1+r)^t} + \frac{M}{(1+r)^n}$$

Where, M =Call price

n = Number of years until the assumed call date.

4. Realized Yield to maturity

Realized yield is the total return when an investor sells a bond before maturity. Yield to maturity calculation is based on an

assumption that the cash flows received during the life of a bond can be reinvested at a rate equal to the yield to maturity. This assumption may not be valid as reinvestment rates applicable to future cash flows may be different. So it is necessary to bring in the future reinvestment rates and arrive at the realized yield to maturity.

Example: ABC company has issued ₹1000 par value bond, carrying an interest rate of 15%, payable annually and maturing after 5 years. Currently the bond is available at ₹850. The reinvestment rate applicable to the future cash flows of this bond is 16%. The tendency of the interest rate moving upwards. Calculate the realised yield to maturity.

Solution:

Future value of benefits

Particulars	0 year	1 year	2 year	3 year	4 year	5 year
Investment	850					
Annual interest		150	150	150	150	150
Reinvestment period in years		4	3	2	1	0
Compound factor (at 16%)		1.81	1.56	1.35	1.16	1.00
Future value of		271.5	234	202.5	174	150

intermediate cash flows		0				
Maturity value						1000

Total future value = 271.50 + 234 + 202.5 + 174 + 150 + 1000 = 2032

So Yield to Maturity can be estimated as follows:

Present market price $(1+r)^5$ = Future value

$$850(1+r)^5 = 2032$$

$$(1+r)^5 = 2032 / 850 = 2.391$$

$$R = 0.19 \text{ or } 19\%$$

Bond/Debenture Valuation

The value of bonds or debentures is often established via the Capitalization technique. It is the process of determining the fair market value of a bond or debenture. A bond's fair value, like any other asset or capital instrument, is the present value of the stream of cash flows it is expected to generate. As a result, the price or value of a bond is established by applying the appropriate discount rate to the bond's predicted cash flows. The procedure of calculating the present value of a bond/debenture is divided into two parts:

- 1) Redeemable Bond/Debenture (Have Finite Maturity Period)
- 2) Irredeemable (Perpetual) Bond/Debenture (Infinite Maturity Period)

Present Value of Redeemable Bond or Debenture

If a bond or debenture is redeemable, its present value can be calculated by projecting future cash flows and discounted them using a capitalisation or discounting rate. The bond or debenture's expected cash flows include future interest payments and principal repayment. The following formula may be used to find out the present value of the bond or debenture

$$PV = \frac{I}{(1+k)} + \frac{I}{(1+k)^2} + \dots + \frac{I}{(1+k)^n} + \frac{M}{(1+k)^n}$$

here,

PV = Present Value or Price of the Bond/Debenture

I = Annual Interest/Coupon

M = Maturity Value

n = Number of years (Maturity)

k= Discounting Factor/Rate

A)Interest received annually

Example: Mr. Aji purchased a bond with a ₹1,000 face value having 10 % coupon rate. He will get ₹. 1,100 after 4 years from the bond. If the discounting rate is 12%, find out the present value of the bond.

$$PV = \frac{I}{(1+k)} + \frac{I}{(1+k)^2} + \dots + \frac{I}{(1+k)^n} + \frac{M}{(1+k)^n}$$
$$= \frac{100}{(1+0.12)} + \frac{100}{(1+0.12)^2} + \frac{100}{(1+0.12)^3} + \frac{100}{(1+0.12)^4} + \frac{1100}{(1+0.12)^4}$$

PV of bond = ₹1003

Alternative method

An investor purchased debenture valued ₹1000 which maturing the same after 5 years. He gets ₹ 100 cash inflow per annum. These cash inflows can be discounted using the present value factor at 8%.

$$\begin{aligned} &=0.926\times 100+0.857\times 100+0.794\times 100+0.735\times 100+0.681\times 100 \\ &+0.681\times 1000 \\ &=1080.3 \end{aligned}$$

Alternatively,

Present value of the annuity can be applied.

Present value of annuity of ₹1 for 5 years at the rate of 8% is 3.993

$$100\times 3.993=399.3$$

$$1000\times 0.681=681.0$$

Hence,

$$\text{Present value of bond} = 399.3+681.0=1080.3$$

Example: X Ltd issued debentures with the face value of ₹2000. The rate of interest is 12% per annum. The maturity period is 5 years. Calculate the value of debentures in the following scenario.

if the expected interest rate of the investor is a) 15%, b) 8%, and c) 12%

Solution:

- a) If the expected interest rate is 15%

Yearly interest = 12% of ₹2000 = ₹240

Maturity period = 5 years

Present value of an annuity of ₹1 for 5 years at 15% = 3.352

Present value of ₹1 received after 5 years at 15% = 0.497

Value of the debenture

$$= 240 \times 3.352 + 2000 \times 0.497 = 1798.48$$

- b) If the expected interest rate is 8%

Present value of an annuity of ₹1 for 5 years at 8% = 3.993

Present value of ₹1 received after 5 years at 8% = 0.681

Value of the debenture

$$= 240 \times 3.993 + 2000 \times 0.681 = 2320.32$$

- c) If the expected interest rate is 12%

Present value of an annuity of ₹1 for 5 years at 12% = 3.605

Present value of ₹1 received after 5 years at 12% = 0.567

Value of the debenture

$$= 240 \times 3.605 + 2000 \times 0.567 = 1999.20$$

Debentures/ Bonds redeemed at a premium

Example: Y Ltd issued debentures of face value at ₹1000. Annual interest rate 12%. The debentures are payable at a premium of 10% after 8 years. The required rate of return of the investor is 16% per annum. Calculate the value of debenture.

Solution:

Annual Interest= Rs.120

Maturity value at 10% premium= Rs.1100

Present value of an annuity of Rs.1 for 8 years at 16%= 4.344

Present value of Rs.1 received after 8 years at 16%= 0.305

Value of the debenture

$$=120 \times 4.344 + 1100 \times 0.305 = \text{Rs.}856.78$$

Present Value of a Perpetual or Irredeemable Bond/ Debenture

When a bond or debenture is irredeemable, its present value can be estimated by simply discounting the stream of interest payments for the infinite period by a suitable capitalization rate or discount rate. The following formula may be used to determine the present value of the bond or debenture.

$$PV = \frac{I}{kd}$$

Where, PV= Present Value or Price of the Bond

I= Annual Interest/coupon

$kd = \text{Discounting Factor/Rate}$

Example: Find the Present value of perpetual bond of par value Rs.6000 with required rate of interest 10% and annual interest of Rs.500.

Solution:

$$PV = \frac{I}{kd}$$

$$PV = \frac{500}{0.10}$$

PV of bond= Rs.50000

Semi-Annual Interest Rate Bond Values:

For simplicity, we have valued debentures based on annual interest payments. However, interest is usually paid semi-annually or half-yearly.

To value these bonds/debentures, the bond valuation equation must be adjusted as follows:

- (1) Divide the annual interest rate, I, by 2 to get the half-yearly rate.
- (2) Divide the maturity period, n, by 2 to find the number of half-yearly cycles.
- (3) Divide the needed rate of return, Kd, by 2 to get a half-yearly discount rate.

Example: An investor holds a debenture of Rs.5000 carrying a coupon rate of 10% p.a. The interest is payable half-yearly on 30th June and 31st December every year. The maturity period of the debenture is 6 years. The investor's required rate of return is 12% p.a. Compute the value of the debenture.

Solution:

Half-yearly interest= $5000 \times 10 / 100 \times 1/2 = \text{Rs.}250$

Number of half-yearly units= $6 \times 2 = 12$

Discount rate for half-yearly period= 6%

Present value of an annuity of Rs.1 for 12 years at 6%= 8.384

Present value of Rs.1 received after 12 years at 6%= 0.497

Value of the debenture

$$= 250 \times 8.384 + 5000 \times 0.497 = \text{₹}4581$$

Preference Shares

Preference shares also popularly known as preferred stock, is a particular sort of share where dividends are paid to shareholders prior to the distribution of common stock dividends. Hence, preference shareholders hold preferential rights over common shareholders when it comes to sharing profits. Consequently, if a firm slips into bankruptcy, preference shareholders are issued dividends first or have the first entitlement to the company's assets before common stock investors. For preference shareholders, the dividend is fixed but, they don't hold voting rights as contrasted to common

shareholders. Over the last few years, as the bear market run continues globally, more investors are looking towards preference shares as a feasible means of obtaining big profits in the long run.

Different Types of Preference Shares

There are many types of preference shares prevalent in India, enumerated below: -

- **Cumulative Preference Share:** Cumulative shares allow dividends to be paid in arrears. Sometimes a company's finances prevent it from paying dividends to its stockholders. No dividends can be given to common shareholders unless preference stockholders are paid. In this case, the corporation pays cumulative dividends the next year. Shareholders' interest on arrear dividends is sometimes paid to cumulative preferred stock holders.
- **Non-Cumulative Preference Shares:** Preference preferred shareholders can only receive dividends from a year's profit. Non-cumulative preferred stock does not issue unpaid dividends to shareholders and cannot be claimed as such in the future.
- **Redeemable Preference Shares:** Redeemable preference shares are those shares that can be repurchased or redeemed by the issuing company at a fixed rate and date. These types of shares help the company by providing a cushion during times of inflation.

- **Irredeemable Preference Shares:** Non-redeemable preference shares are those shares that cannot be redeemed or repurchased by the issuing company at a fixed date. Non-redeemable preference shares help companies by acting as a lifesaver during times of inflation.
- **Participating preference shares:** Participating preference shares enable shareholders to claim a portion of the company's surplus profit after dividends have been paid to other shareholders at the time of liquidation. These shareholders, however, get fixed dividends and participate in the company's surplus profit alongside equity stockholders.
- **Non Participating Preference Shares:** These shares do not benefit the shareholders the additional option of earning dividends from the surplus profits earned by the company, but they receive fixed dividends offered by the company.
- **Convertible Preference Shares:** Shareholders of such shares have the opportunity to convert their common shares to preferred shares. These shares are chosen by investors who desire to receive a preferred share dividend as well as profit from an increase in the common shares. So the benefits are twofold: fixed returns through preferred dividends and the possibility to earn bigger returns as the common stock price rises. This conversion can take place within a specified time frame, as stated in the memorandum.
- **Non-Convertible Preference Shares:** Shareholders of these shares do not hold the rights to convert to issuer's common shares.

Valuation of Preference Shares;

Preference shares, like debt, come in two varieties: redeemable and irredeemable. If the company makes a profit, preference shareholders are entitled to a fixed rate of dividend. Hence, the valuation of preference shares is almost same as valuation of bonds/debentures.

A) Valuation of Irredeemable Preference Share:

Irredeemable preference shares are not required to be redeemed during the company's existence. Such preference shares have definite maturity period. The following formula is used to calculate the value of irredeemable preference shares:

$$V_p = D_p / K_p$$

Where, V_p = Value of the preference share

D_p = Preference dividend and

K_p = Capitalization rate or discount rate.

Example :

A company issued 8% irredeemable preference shares of Rs 100 each. Find out the value of the preference share on the assumption that 6% is the capitalization rate.

Solution:

$$V_p = D_p / K_p$$

Where , $V_P = 8/0.06$

$$= \text{Rs.}133.33$$

B) Valuation of Redeemable Preference Shares:

Redeemable preference shares are ones that are repaid after a set time period. As a result, while determining the value of redeemable preference shares, the period of the preference shares and the redeemable value of the preference shares must be taken into account.

The value of redeemable preference share can be calculated by using the following formula:

$$PV = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n}{(1+k)^n} + \frac{MV}{(1+k)^n}$$

PV= Present value of preference share

D = Preference dividend,

n = Period of preference share,

k=capitalization rate

MV=Maturity value

Example 4.3:

Baibhav Ltd., issued 7% preference shares of Rs 100 each. The shares are to be redeemed after 5 years. The capitalization rate is 5%. Compute the value of preference share capital.

Solution:

$$PV = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n}{(1+k)^n} + \frac{MV}{(1+k)^n}$$
$$= \frac{7}{(1+0.05)} + \frac{7}{(1+0.05)^2} + \frac{7}{(1+0.05)^3} + \frac{7}{(1+0.05)^4}$$
$$+ \frac{7}{(1+0.05)^5} + \frac{100}{(1+0.05)^5}$$
$$= 6.66 + 6.36 + 6.03 + 5.74 + 5.47 + 78.13 = \text{Rs.}108.39$$

Alternative method

Present value of an annuity of Rs.1 for 5 years at 5% = 4.329

Present value of Rs.1 received after 5 years at 5% = 0.784

Present value of dividend payment = $7 \times 4.329 = 30.30$

Present value of Rs.100 received after 5 years

$$= 100 \times 0.784 = 78.40$$

Present value of preference shares

$$= 78.40 + 30.30 = \text{Rs.}108.70$$

Cost of equity calculation models are described as follows:

1. Dividend yield method

According to this method, the cost of equity capital is the discount rate that equates the present value of expected future dividend per share with the net proceeds (or current market price) of a share, it is expressed as follows;

$$K_e = \frac{D}{NP} \text{ or } \frac{D}{MP}$$

Ke= Cost of equity capital

D = Expected dividend per share

NP = Net proceeds per share

MP= Market price per share

The key assumption underlying this strategy is that investors place a premium on dividends while risk in the firm remains constant. The dividend price ratio technique does not appear to take dividend growth into account, i) it does not consider future earnings or retained earnings, and ii) it does not take capital gains into account. This strategy is only appropriate when the company has consistent earnings and a consistent dividend policy over a long period of time.

Example: A company issues 1000 equity shares of Rs. 100 each at a premium of 10%. The company has been paying 20% dividend to equity shareholders for the past five years and expects to maintain the same in the future also. Compute the cost of equity capital. Will it make any difference if the market price of equity share is Rs. 160?

Solution:

$$K_e = \frac{D}{NP}$$

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

If the market price of an equity share is 160,

$$K_e = \frac{D}{MP}$$

$$= \frac{20}{160} \times 100 = 12.5\%$$

2. Dividend yield plus growth in dividend model

This method may be used to compute the cost of equity capital, when the firm's dividends are expected to grow at a constant rate and the dividend-pay-out ratio is constant. According to this method the cost of equity capital is based on the dividends and the growth rate.

$$K_e = \frac{D_1}{NP} + G \text{ or } \frac{D_0(1+g)}{NP} + G$$

where

K_e = Cost of equity (fresh issue)

D_1 = Expected dividend per share at the end of the year
 NP = Net proceeds per share

G = Rate of growth in dividends

D_0 = Previous year dividend

To calculate cost of equity share capital, net proceeds (NP) in the above equation should be replaced by MP (Market price per share),

$$K_e = \frac{D_1}{MP} + G$$

Example: i) A company plans to issue 1000 new shares of Rs. 100 each at par. The floatation costs are expected to be 5% of the share price. The company pays a dividend of Rs. 10 per share initially and the growth in dividend is expected to be 5%. Compute cost of new issue of equity shares. ii) If the current market price of an equity share is Rs. 150, calculate the cost of existing equity share capital.

Solution:

i)
$$K_e = \frac{D_1}{NP} + G$$

$$= \frac{10}{100 - 5} \times 100 + 5\% = 10.53\% + 5\% = 15.53\%$$

ii)

$$K_e = \frac{D_1}{MP} + G$$

$$= \frac{10}{150} \times 100 + 5\% = 6.67\% + 5\% = 11.67\%$$

Example: The shares of a company are selling at Rs. 40 per share, and it had paid a dividend of Rs. 4 per share. The investors market expects a growth rate of 5% per year.

- i) Compute the company's equity cost of capital
- ii) If the anticipated growth rate is 7% per annum, calculate the indicated market price per share.

Solution:

$$K_e = \frac{D_1}{NP} + G \text{ or } \frac{D_0(1+g)}{NP} + G$$

a)

$$K_e = \frac{D_0(1+g)}{NP} + G$$

$$= \frac{4(1+0.05)}{40} + 5\% = \frac{4.20}{40} + 5\% = 10.50\% + 5\% = 15.5\%$$

b)

$$K_e = \frac{D_0(1+g)}{MP} + G$$

$$15.50\% = \frac{4(1+0.07)}{MP} + 7\%$$

$$15.50\% - 7\% = \frac{4.28}{MP}$$

$$MP = \frac{4.28}{8.50\%} = ₹50.35$$

Valuation of Equity

Fixed income securities can be described more readily than equity shares. They are, however, more difficult to evaluate. Fixed-income assets typically have a finite life and a predictable cash flow. Both are not present in equity shares. While the underlying concepts for both fixed income securities and equity shares are the same, the considerations of growth and risk make equity shares more complex.

Dividend Discount Model (DDM)

The Dividend Discount Model (DDM) is a quantitative method of valuing a company's stock price based on the assumption that the current fair price of a stock equals the sum of all of the company's future dividends discounted back to their present value.

The dividend discount model assumes that an asset's intrinsic value reflects the present value of all future cash flows. Dividends are simply the company's positive cash flows dispersed to shareholders. Generally, the dividend discount model gives a simple mathematical technique to establish a fair stock price with minimal input variables. However, the model has some unpredictable assumptions. Depending on the dividend discount model, an analyst must anticipate future dividend

payments, dividend growth, and equity capital costs. It's difficult to predict all variables precisely. So the theoretical fair stock price is often far from reality.

1. Gordon Growth Model

a) Zero growth model

It is assumed that dividend per share remains constant year after year

$$P_0 = \frac{D}{r}$$

Example: A company expects cash dividend of ₹9 per share for an indefinite future period. The required rate of return is 10% and the current market price is ₹80. Would you buy the share at this current price?

$$P_0 = \frac{D}{r}$$
$$= \frac{9}{0.10} = ₹90$$

We could consider buying the share since the intrinsic value of ₹90 is more than the market price ₹80.

b) Constant growth model

The Gordon Growth Model (GGM) is one of the most widely used dividend discount models, developed by Myron J. Gordon. The GGM aids an investor in determining the intrinsic value of a stock based on the anticipated dividend's constant rate of increase. The GGM is predicated on the premise that the stream of future dividends will grow at a steady pace in the future for an indefinite period of time. The methodology is useful in determining the value of stable businesses with high

cash flow and consistent dividend increases. It is often assumed that the company being examined that has a consistent business model and the company's growth occurs at a constant rate throughout time. The model is mathematically represented as follows:

$$P_0 = \frac{D_1}{r - g}$$

Where, P_0 – The current fair value of a stock

D_1 – The dividend payment in one period from now

r – The estimated cost of equity capital

g – The constant growth rate of the company's dividends for an infinite time

Example: The expected dividend per share on the equity share of ABC Ltd is ₹ 2. The dividend per share of ABC Ltd has grown over the past 5 years at the rate of 5%. This growth rate will continue in future. Market price also expected to grow at the same rate. What is the value of equity share if the required rate of return is 15%?

$$\begin{aligned} P_0 &= \frac{D_1}{r - g} \\ &= \frac{2}{0.15 - 0.05} = ₹20 \end{aligned}$$

c) Two-stage growth model

The two-stage growth model allows for two stages of growth: an early phase in which the growth rate is not stable and a subsequent steady state in which the growth rate is stable and expected to remain stable in the long term. While the initial growth rate is usually higher than the steady growth rate, the

model can be altered to assess companies that are predicted to have low or even negative growth rates for a few years before returning to stable growth.

$$P_0 = D_1 \left[\frac{1 - \left[\frac{1 + g_1}{1 + r} \right]^n}{r - g_1} \right] + \left[\frac{D_1(1 + g_1)^{n-1}(1 + g_2)}{r - g_2} \right] \left[\frac{1}{(1 + r)^n} \right]$$

Example: The current dividend on an equity share of ABC Ltd is ₹2 and it is expected to enjoy an above normal growth rate of 20 percent for a period of 6 years. Thereafter the growth rate will fall and stabilise at 10%. Equity investors require rate of return of 15%. What is the intrinsic value of the equity shares of ABC Ltd?

Solution:

Here, $g_1=20\%$

$g_2=10\%$

$n=6$ years

$r=15\%$

$D_1=D_0(1+g)= ₹2 (1+0.20)=2.40$

$$P_0 = D_1 \left[\frac{1 - \left[\frac{1 + g_1}{1 + r} \right]^n}{r - g_1} \right] + \left[\frac{D_1(1 + g_1)^{n-1}(1 + g_2)}{r - g_2} \right] \left[\frac{1}{(1 + r)^n} \right]$$

$$\begin{aligned} &= 2.40 \left[\frac{1 - \left[\frac{1 + 0.20}{1 + 0.15} \right]^6}{0.15 - 0.20} \right] + \left[\frac{2.40(1 + 0.20)^5(1 + 0.10)}{0.15 - 0.10} \right] \left[\frac{1}{(1 + 0.15)^6} \right] \\ &= 2.40 \left[\frac{1 - 1.291}{-0.05} \right] + \left[\frac{2.40(2.488)(1.10)}{0.05} \right] [0.497] \\ &= 13.968 + 65.289 \\ &= \text{Rs. } 79.597 \end{aligned}$$

2. Dividend Discount Model for a Single Period

The one-period DDM normally expects that an investor will only keep the shares for one year. Due to the short-holding term, the cash flows predicted to be created by the single dividend payment and the respective stock's selling price. As a result, in order to assess the stock's fair value, the sum of the future dividend payment and the expected selling price must be determined and discounted back to their current values.

The Gordon Growth model is far more commonly used than the one-period discount dividend model, as it is used when an investor wants to calculate the intrinsic value of a stock that he or she intends to sell in a specific time period (typically one year).

The following equation is used in the one-period dividend discount model:

$$P_0 = \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)}$$

Where, P_0 – The current fair value of a stock

D_1 – The dividend payment in one period from now

P_1 – The stock price in one period from now

r – The estimated cost of equity capital

Example: X Ltd's equity share is expected to provide a dividend of Rs. 2 and fetch a price of Rs.18 a year. What price would it sell for now if investors required rate of return is 12% ?

$$\begin{aligned} P_0 &= \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)} \\ &= \frac{2}{(1+0.12)} + \frac{18}{(1+0.12)} = ₹17.86 \end{aligned}$$

3. Multi-Period Dividend Discount Model

The multi-period dividend discount model is an extension of the one-period dividend discount model in which an investor plans to keep a company for a number of years. The fundamental difficulty with the multi-period model variation is that dividend payments for different periods must be forecasted. An investor in the multiple-period DDM expects to hold the stock he or she purchased for a number of time periods. As a result, the predicted future cash flows will include a number of dividend payments as well as the stock's estimated selling price at the conclusion of the holding term.

The intrinsic value of a stock is calculated (through the Multiple-Period DDM) by estimating the total of the expected dividend payments and the selling price, which is then

discounted to obtain their present values. The mathematical formula for the model is as follows:

$$P_0 = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} + \frac{P_n}{(1+r)^n}$$

Example: An investor expects to get a dividend of Rs.3, Rs.4, and Rs.5 from a share during the next three years and hopes to sell it at Rs.80 at the end of the third year. The required rate of return is 20%. What will be the present value of share to the investor?

$$P_0 = \frac{3}{(1+0.20)^1} + \frac{4}{(1+0.20)^2} + \frac{5}{(1+0.20)^3} + \frac{80}{(1+0.20)^3}$$
$$= 2.5 + 2.78 + 2.89 + 46.30 = \text{Rs.}54.47$$

P/E multiple approach

The price earnings multiple compares a company's reported profits per share to the market price of its common stock. Investors use this multiple to determine the price of a company's stock. The P/E ratio is derived by dividing the company's earnings per share by its market value per share. The P/E ratio is a valuation statistic that compares a company's stock EPS to its current market price. This measure is well-known and commonly used as a predictor of a company's potential for future growth. The price-earnings ratio (P/E Ratio) is the relationship between the share price of a firm and its earnings per share (EPS). It represents the market's willingness to pay for a company's profits.

The P/E Ratio assists investors in determining the market value of a share in relation to the company's earnings. In layman's terms, you learn how much the market is willing to pay

for a stock based on its past and prospective earnings. A high P/E Ratio, for example, indicates that a stock price is excessive in comparison to corporate earnings and may be overvalued. A low P/E Ratio, on the other hand, shows that the share price is low in relation to the company's earnings and is undervalued. However, you must decide whether the low share price is due to the company's underperformance over time.

Furthermore, provided the company's growth and earnings level remain constant, the P/E ratio can be viewed as the number of years it will take for the company to recoup the price paid for the share. This ratio is frequently examined by investors because it provides a solid sense of the company's value and assists them in determining how much they should pay for a stock based on its current earnings.

Calculation of P/E Ratio

$$P/E \text{ Ratio} = \frac{\text{Market price per share}}{\text{Earning per share}}$$

The value of stock, under this approach, is estimated as follows;

$$P_0 = E_1 \times \frac{P_0}{E_1}$$

P_0 =estimated price

E_1 =estimated earning per share

$\frac{P_0}{E_1}$ = justified price earning ratio

Determinants of the P/E ratio

The determinants of dividend can be derived from the dividend discount model;

$$P_0 = \frac{D_1}{r - g}$$

Here, $D_1 = E_1(1-b)$, b is the retention ratio and $g = ROE \times b$. ROE is the Return On Equity. Making these substitutions we find that:

$$P_0 = \frac{E_1(1 - b)}{r - ROE \times b}$$

Dividing both the sides by E_1 ;

$$\frac{P_0}{E_1} = \frac{(1 - b)}{r - ROE \times b}$$

Hence, the factors that determine P/E ratio are;

- The dividend payout ratio, $(1-b)$
- The required rate of return, r
- The expected growth rate, $ROE \times b$

Module III

Approach to Security Analysis

An assessment and evaluation of the many aspects influencing the value of a security constitutes security analysis. Security analysis is the process of assessing a company's assets, debt, warrants, and stock from the perspective of outside investors using publicly available information. The security analyst must have a thorough understanding of financial accounts, which are a key source of this information. As a result, the ability to value equity securities necessitates cross-disciplinary knowledge in finance as well as financial accounting.

While the analytical tools used in security analysis and those used in corporate finance are quite similar, security analysis tends to take the perspective of potential investors,

whereas corporate finance tends to take an inside perspective, such as that of a corporate financial manager.

Fundamental Analysis

Fundamental analysis (FA) is a way of determining the intrinsic value of a security by evaluating associated economic and financial elements. Fundamental analysts examine everything that can influence the value of a security, from macroeconomic issues like the status of the economy and industry circumstances to microeconomic elements like the effectiveness of the company's management. The end goal is to arrive at a number that an investor may compare to the current price of a security to determine whether it is cheap or overvalued. This method of stock analysis is considered to be in contrast to technical analysis, which forecasts the direction of prices through an analysis of historical market data such as price and volume.

The decision rule for this technique is as follows: If the market price of a security is higher than the one supported by the security fundamentals, sell that security. This is because it is assumed that the market will eventually discover its error and properly price the security. A transaction to sell this security should be based on its fundamentals; it should be both before the market corrects its error by raising the price of the security in issue. The market price is referred to as "market price" (MP), whereas the price justified by its fundamentals is referred to as "intrinsic value" (IV) session rules/recommendations.

1. Purchase the security if IV exceeds MP.
2. Sell the security if IV less than MP.
3. If IV equal to MP, no action is taken.

The above-mentioned fundamental elements may be related to the economy, industry, or firm, or some combination of these. Thus, economic fundamentals, industry fundamentals, and business fundamentals are all taken into account when valuing shares for investing purposes. In reality, the framework of the economy-industry-company is an essential component of this strategy. This paradigm can be effectively used by making appropriate alterations in a typical setting. But proceed with caution. Please keep in mind that the adoption of an analytical approach does not ensure a Notes decision. However, it ensures an informed and studied investment decision, which should be superior because it is based on important and critical facts.

The Concept of Intrinsic Value

One of the primary assumptions of fundamental analysis is that the current price from the stock market often does not fully reflect the value of the company supported by the publicly available data. A second assumption is that the value reflected from the company's fundamental data is more likely to be closer to the true value of the stock. Analysts often refer to this hypothetical true value as the intrinsic value.

However, Rather than its book value or market price, intrinsic value is what a security or company is truly worth. Intrinsic value considers a number of elements such as trademarks, copyrights, the quality of the directors, the business climate, and brand identity - aspects that are difficult to assess and are not always fully reflected in market price. Intrinsic value, also known as fundamental value, is the value of an option, product, property, or currency that is determined by fundamental analysis without regard for its market value.

Characterises of fundamental analysis

- Fundamental analysis is a method of determining a stock's real or "fair market" value.
- Fundamental analysts search for stocks that are currently trading at prices that are higher or lower than their real value.
- If the fair market value is higher than the market price, the stock is deemed to be undervalued and a buy recommendation is given.
- In contrast, technical analysts ignore the fundamentals in favor of studying the historical price trends of the stock.

EIC Analysis

Economic Industry Analysis A traditional technique to security selection. EIC stands for economic, industry, and company. An investor undertaking EIC analysis looks at the overall economic situation and then determines the most desirable industries. Finally, the analyst identifies the most desirable companies within the industries.

EIC analysis of a company based on these three different analyses is required for evaluation.

- Economic Analysis
- Industry Analysis
- Company Analysis

Bottom-up vs. top-down Fundamental Analysis

Fundamental analysis can be done from the top down or from the bottom up. An investor who uses the top-down technique

begins his or her study by considering the overall health of the economy. An investor attempts to establish the overall direction of the economy and selects the industries and sectors of the economy presenting the best investment opportunities by examining numerous macroeconomic parameters such as interest rates, inflation, and GDP levels. Following that, the investor evaluates specific prospects and prospective opportunities within the identified industries and sectors. Finally, they examine and choose specific stocks from the most promising industries.

The bottom-up technique is another option. Instead of beginning on a bigger scale, the bottom-up strategy begins with an examination of individual stocks. The bottom-up approach's rationale is that individual stocks may outperform the industry as a whole. The bottom-up method focuses mostly on microeconomic indicators such as a company's earnings and financial measures. Analysts who take this method do a thorough evaluation of each organisation in order to obtain a better grasp of its operations.

1. Economic Analysis

The performance of a business is determined by the success of the economy. When the economy is growing, incomes rise, demand for commodities rises, and industries and businesses in general prosper. On the other side, if the economy is in a recession, company performance will be generally terrible. Investors are concerned with economic elements that influence the performance of the company in which they wish to invest. A study of these economic variables would provide insight into future business profitability and dividend and interest payments as part of his fundamental analysis.

a) Growth Rates of National Income

The rate of growth of the national economy is an important component for an investor to consider. GNP (gross national product), NNP (net national product), and GDP (gross domestic product) are three different metrics of the country's total income or entire economic production. These measurements' growth rates represent the economy's growth rate. The government releases estimates of GNP, NNP, and GDP, as well as their rates, on a regular basis. The predicted growth rate of the economy would be a predictor of the economy's success.

b) Inflation

The level of inflation in the economy has a significant impact on the success of businesses. Inflationary pressures disrupt corporate strategies, cause cost increases, and reduce profit margins. Inflation, on the other hand, causes customers' purchasing power to erode. As a result, product demand will fall. Thus, excessive rates of inflation in an economy are likely to have a negative impact on company performance. During periods of low inflation, industries and businesses thrive.

Inflation is quantified in terms of wholesale prices via the wholesale pricing index (WPI) and retail prices via the consumer price index (CPI). These figures can be obtained on a weekly or monthly basis. As part of the fundamental research, an investor should examine the current inflation rate in the economy as well as the inflation trend that is anticipated to prevail in the future.

c) Interest rate

The cost and availability of credit for businesses operating in an economy are determined by interest rates. A low interest rate encourages investment by making borrowing easily and affordably available. Furthermore, it indicates cheaper financing costs for businesses, ensuring increased profitability. Greater interest rates, on the other hand, result in higher manufacturing costs, which may lead to reduced profitability and lower demand. Interest rates in the organised financial sector of the economy are determined by the government's monetary policy and trends in the money supply. As a result, these rates are controlled and vary within specific ranges. An investor must analyse interest rates in various parts of the economy and assess their impact on company performance and profitability.

d) Government Revenue, Expenditure and Deficits

Because the government is the largest investor and spender of money, movements in government revenue, expenditure, and deficits have a considerable impact on industry and company success. Government spending promotes the economy by providing jobs and increasing demand. Because government expenditure generates a large amount of the economy's demand, the nature of government spending is critical in determining the fortunes of many industries. A deficit develops when the government's spending exceeds its revenue. This is referred to as a budget deficit. All emerging countries have budget deficits because governments spend a lot of money to build infrastructure. However, the budget deficit is a major predictor of inflation since it leads to deficit financing, which fuels inflation.

e) Exchange Rates

The performance and profitability of industries and businesses that are big importers or exporters are heavily influenced by the rupee's exchange rate against the world's major currencies. A fall in the value of the rupee boosts the competitiveness of Indian items in overseas markets, hence encouraging exports. However, it would raise the cost of imports. A corporation that relies substantially on imports may find that the rupee's depreciation has a negative impact on its profitability.

The rupee's exchange rate is impacted by the country's balance of trade deficit, balance of payments deficit, and foreign exchange reserves. The difference between imports and exports is referred to as the balance of trade deficit. The balance of payments deficit is the net difference payable on all transactions, including trade, services, and capital transactions. If these shortfalls worsen, the rupee's value could fall. An analysis of the balance of trade deficit, balance of payments deficit and the foreign exchange reserves will help to project the future trends in exchange rates.

f) Infrastructure

The development of an economy is heavily reliant on the available infrastructure. Industry requires power to operate, roads and trains to move raw materials and completed goods, and communication routes to stay in touch with suppliers and customers.

The availability of infrastructure facilities such as power, transportation, and communication networks has an impact on company performance. Inadequate infrastructure leads to inefficiencies, decreased productivity, waste, and delays. Before

concluding his investment plans, an investor should analyse the state of the economy's infrastructural facilities.

g) Climate change

The Indian economy is fundamentally an agrarian economy, with agriculture playing a critical role. Because of the significant forward and backward links between agriculture and industry, the performance of various industries and businesses is dependent on agriculture's performance. Furthermore, as farm incomes rise, so will demand for industrial products and services, and industry will thrive. However, the performance of agriculture is heavily reliant on the monsoon.

The monsoon's sufficiency impacts the success or failure of agricultural activities in India. As a result, the progress and sufficiency of the monsoon becomes a major issue for an investment in the Indian environment.

h) Economic Stability and Political environment

A stable political environment is required for consistent and balanced growth. In the midst of political turbulence, no industry or corporation can expand and prosper. Long-term economic policies that are stable are required for industrial expansion. Because economic and political elements are inextricably connected, such stable policies can only emerge from stable political institutions. A stable administration with clear long-term economic policies will be beneficial to the economy's performance.

2. Industry Analysis

An industry is a group of firms that have similar technological structure of production and produce similar

products. Michael Porter proposed a systematic technique to industry analysis in 1980, which is known as the competitive analysis framework. Threats from new entrants assess the expected reaction of present competitors to new competitors as well as entrance barriers within the industry. It might be difficult for young enterprises to compete successfully in some industries. Supplier bargaining power also has a significant impact on the company's profitability. The company need supplies for manufacturing items, but it does not have enough cost control. Because of the presence of large buyer groups in the market for alternative items, the company is unable to raise the price of its finished products to meet the additional expenses. As a result, when doing an industry analysis, the existence of powerful suppliers should be seen negatively by the company. To invest in right industry, investors classify industries as follows:

Industry Life Cycle

An industrial life cycle portrays the many periods in which enterprises function, grow, and decline within an industry. Pioneering, growth, maturity, and decline are the four stages of an industry's life cycle. These stages can persist for a variety of lengths of time, ranging from months to years.

- **Pioneering stage**

Customer demand is limited during the initial period due to unfamiliarity with the new product's features and performance. Distribution channels are still in their infancy. There is also a shortage of complementary items that offer value for clients, restricting the new product's profitability. Due to the high amount of money originally spent in technology, equipment, and other fixed costs, startups are likely to produce zero or

extremely little revenue and have negative cash flows and profitability.

- **Growth Stage**

As the product gradually gains traction in a larger market sector, the industry progresses to the growth stage, where profitability begins to rise. Product feature enhancements raise the value of the product to customers.

Complementary items are also becoming more widely available on the market, allowing individuals to get larger benefits from purchasing both the product and its complements. As demand grows, goods prices fall, increasing client desire even more. Revenue continues to rise throughout the growth stage, and organisations begin to generate positive cash flows and profits when product revenue and costs exceed break-even.

- **Maturity Level**

At the maturity stage, the majority of the sector's companies are well-established, and the market has reached saturation. To protect themselves and retain profitability, these companies collectively endeavour to control the degree of industry rivalry by implementing methods to dissuade the entry of new competitors into the industry. They also devise techniques for establishing dominance and reducing rivalry. Companies realise maximum income, earnings, and cash flows at this stage because customer demand is reasonably high and consistent. Products grow more common and popular among the general population, and the prices are relatively low when compared to new products.

- **Stage of Decline**

The decline stage is the final step in the life cycle of an industry. In a declining industry, the intensity of competition is determined by various factors, including the rate of decline, the height of exit barriers, and the degree of fixed costs. To deal with the decrease, some businesses may decide to concentrate on their most profitable product lines or services in order to optimise earnings and remain in the industry. To become the dominating player, some larger corporations will aim to purchase smaller or failing competitors. For individuals who are experiencing massive losses and do not believe there are any options for survival, divestiture is the best option.

Factors to be Considered for industry analysis

Growth of the Industry

The industry's previous record in terms of growth and profitability should be examined. The Centre for Monitoring Indian Economy publishes industry-specific growth data on a regular basis. The diversity in return and growth in response to macroeconomic events in the past provides insight into the future. Even if history does not repeat itself exactly, an analyst can forecast the future by studying the industry's historical progress.

Cost Structure and Profitability

The cost structure, which includes fixed and variable costs, influences the firm's production costs and profitability. The fixed cost portion of the oil and natural gas business, as well as the iron and steel industry, is large, and the gestation time is also

long. The greater the fixed cost component, the greater the required sales volume to reach the firm's breakeven point. Once the breakeven point has been reached and production is on schedule, profitability can be raised by fully utilising the capacity. Once the maximum capacity is reached, capital must be invested in fixed equipment once more. As a result, lowering fixed costs, adaptability to shifting demand, and attaining break even points are significantly easy.

Nature of the Product

Consumers and other industries require the items manufactured by industries. The demand for industrial items such as pig iron, iron sheet, and coils is determined by the building sector. Similarly, the textile machine tools business manufactures tools for the textile industry, and the overall demand is determined by the state of the textile industry. Several instances can be given. To determine the demand for industrial goods, the investor must examine the state of the linked goods producing industry as well as the end user industry.

In the consumer goods business, changes in consumer preferences, technical breakthroughs, and substitute items all have an impact on demand. A simple example is that the demand for ink pens is influenced by the ball point pen due to a shift in consumer preference toward the ease of use of pens.

The Competition's Nature

The nature of competition is an important aspect in determining the demand for a specific product, its profitability, and the price of the concerned company's shares. A company's ability to survive both local and worldwide competition is critical. If there are too many enterprises in the organised sector,

competition will be fierce. The price of the product would fall as a result of the competition. Before investing in a company's stock, the investor should research the market share of the company's product and compare it to the top five firms.

Policy of the Government

Government policies have an impact on the very heart of the sector, and the impacts vary per industry. Tax breaks and exemptions are available for export-oriented products. The government governs the size of manufacturing as well as the pricing of specific products. Inconsistent government policies frequently have an impact on the sugar, fertiliser, and pharmaceutical industries. Sugar price control and decontrol have an impact on the sugar industry's profitability. The government may erect entry barriers in specific situations.

Labour

The examination of the labour scenario in a specific industry is critical. The number of trade unions and their working method have an impact on labour productivity and industrial modernization. The textile industry is well-known for its strong labour unions. If trade unions are powerful and strikes occur regularly, production will suffer. In an industry with large fixed costs, a production halt may result in a loss. When trade unions reject the deployment of automation, the corporation may lose market share due to high production costs. Customers' goodwill is also lost as a result of an uncomfortable labour relationship.

Certain sectors require skilled labour. In the Indian labour market, skilled and well-qualified labour is available at a lower cost in computer technology or any other business. This is one of the many factors enticing global corporations to set up shop in India.

Development and Research

To compete in national and worldwide markets, each industry's product and manufacturing process must be technically competitive. This is determined by the company's or industry's R&D. Only via R&D can economies of scale and new markets be gained. Before making an investment, the percentage of R&D expenditure should be thoroughly researched.

Pollution Regulations

In the industrial sector, pollution requirements are extremely rigorous and stringent. It may be heavier in some industries than others; for example, industrial effluents are higher in the leather, chemical, and pharmaceutical industries.

The above considerations of industry structure should be analyzed by the investor to estimate the future trends of the industry in light of the economic conditions. When a potential industry is identified then comes the final step of EIC analysis which is narrower relating to companies only.

3. Company Analysis

In company analysis, different companies are considered and evaluated from the selected industry so that the most attractive company can be identified. Company analysis is also referred to as security analysis in which stock picking activity is done. Different analysts have different approaches to conducting company analysis like

Quantitative and Qualitative Fundamental Analysis

The challenge with defining the term fundamentals is that it can refer to everything linked to a company's economic

well-being. They clearly include income and profit, but they can also cover anything from a company's market share to its managerial competence. The various fundamental factors can be grouped into two categories: quantitative and qualitative.

- **Quantitative** – "related to information that can be shown in numbers and amounts."
- **Qualitative** – "relating to the nature or standard of something, rather than to its quantity."

Qualitative Fundamentals to Consider

There are four key fundamentals that analysts always consider when regarding a company. All are qualitative rather than quantitative. They include:

- **The business model:** The first and most important thing an investor should do before starting any study is to understand what the firm performs to generate income. A business model specifies the company's revenue generation strategy, products and services, and target market in order to retain profitability. Companies must constantly update, develop, and be ready to withstand any technological disruption, as well as implement efficient marketing and commercial strategies for their smooth operation, or they will incur losses and finally be wiped out of the market.
- **Competitive advantage:** Typically, investors should prefer to invest in companies that have developed competitive advantages for themselves in terms of cost advantage, quality, brand, distribution network, and so on. This assists the corporation in creating an economic moat around the business, allowing it to keep

competitors at bay while enjoying longevity, growth, profits, and market share dominance. Over time, a company with a competitive edge frequently generates more value not only for the company but also for its shareholders.

- **Management:** Sound management with high credibility always works for the benefit of the company and its people while also creating profit for the shareholders. As a result, it is always in the best interests of the shareholders to be identified with trustworthy and competent management rather than with management whose reputation is questioned. There is no foolproof way for analysing management. Investors, on the other hand, can consider variables such as management credentials, integrity, transparency, the viability of objectives and goals, past execution skills, competitiveness, and length of tenure, among others.
- **Corporate Governance:** This is the set of rules, policies, and processes that command and control enterprises while also balancing the interests of management, directors, and stakeholders. Investors should always put their money into companies that are conducted ethically, fairly, honestly, and efficiently, and whose management respects the rights and interests of its shareholders. They should make certain that any communications they receive are clear, transparent, and intelligible. They should avoid companies that do not engage in such procedures or are under the scrutiny of SEBI or the government as a result of any misappropriation, for example. To have a thorough understanding of the company's governance, investors

should read the Corporate Governance Report (included in the Annual Report) as well as the Auditors Report.

Quantitative Fundamentals:

Financial Statements:

Financial statements are the medium by which a company discloses information concerning its financial performance. Followers of fundamental analysis use quantitative information gleaned from financial statements to make investment decisions. The three most important financial statements are income statements, balance sheets, and cash flow statements.

- **The Balance Sheet**

This statement summarises a company's assets, liabilities, and equity at a specific point in time. It displays investors a company's financial structure, stating what it owns and owes and so assisting in determining a company's true worth. Investors can gauge a company's growth by examining its balance sheet over time. It aids in understanding a company's worth by examining factors such as equity, debt, liquidity, asset base, and working capital position, among others.

- **The Income Statement**

While the balance sheet examines a corporation in a single snapshot, the income statement assesses a company's success over a certain time period. Technically, a balance sheet might be for a month or even a day, but public corporations only report quarterly and annually. The income statement summarises the sales, expenses, and profit generated by the company's operations during that time period.

- **Statement of Cash Flows**

This is a critical financial statement since it reveals a company's genuine cash or liquidity status. It gives information on cash inflows and outflows over a given time period. Because it is impossible to falsify a company's cash position, it is employed as a concrete indicator of a company's performance. The following cash-related activities are highlighted in the statement:

- Cash from investing (CFI): Cash used for investing in assets, as well as the proceeds from the sale of other businesses, equipment, or long-term assets
- Cash from financing (CFF): Cash paid or received from the issuing and borrowing of funds
- Operating Cash Flow (OCF): Cash generated from

Fundamental analysis relies on the use of financial ratios drawn from data on corporate financial statements to make inferences about a company's value and prospects.

Some of the widely used fundamental analysis tools are:

1. Earnings per share or EPS
2. Price-to-earnings (P/E) ratio
3. Return on equity
4. Price-to-book (P/B) ratio
5. Beta
6. Price-to-sales ratio

7. Dividend payout ratio
8. Dividend yield ratio
9. Projected earnings growth

Business Analytical Tools:

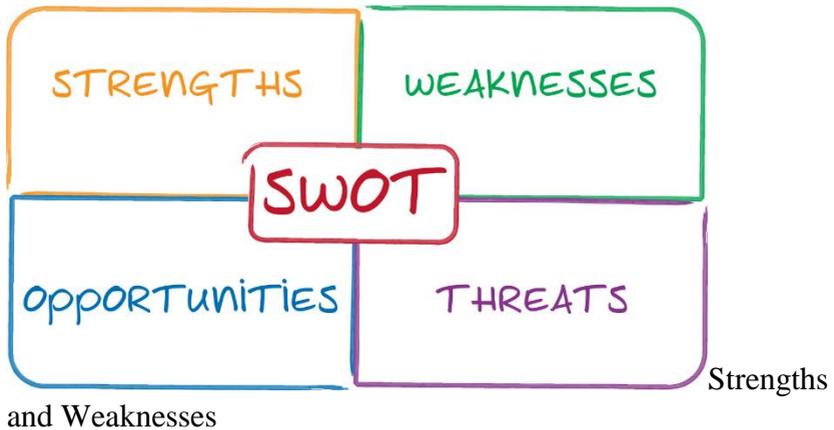
There are various tools available for a company when they want to do a business analysis. Because each analytical tool is suitable with a particular business depending on the aim of the company, current situation, and so on, business owners should think carefully before choosing the most appropriate tool for their companies. Once they can select the best method for their enterprise, it will be much easier for them in decision making process or generating a strategic marketing plan. Some are given below,

- SWOT analysis
- PEST analysis

SWOT analysis

A SWOT analysis is defined as a set of methods used to examine both internal and external factors that affect the performance of a company. This analysis is mostly applied in the initial stages before the company launches any new plans, especially strategic marketing plans. In this analysis, there are four contributing elements need to be examined to complete the analysis, namely strengths, weaknesses, opportunities and threats. Among them, strengths and weaknesses refer to any criteria within and under the control of a company; therefore, they are also called internal factors. In contrast, external analysis

focuses on examining outside factors. These factors are then grouped in opportunities and threats for the enterprise.



This analysis figures out all advantages and disadvantages that the company has regarding human resources, capital resources, infrastructure, organization structure and so on.

Opportunities and Threats

This step focuses on identifying the outside environment to figure out the supporting element as well as deterrence to the development of the company. This analysis concerns the effects from competitors, rules and regulations from local governments, economic situation, and so on.

PEST analysis

This analysis PEST standing for Political, Economic, Sociological, and Technological is a method used to analyze the outside impacts on the performance of any enterprise. In the analysis process, business owners are provided with various

external factors that directly and indirectly exert impact on their businesses.



1. Political

Political situation is the main subject to study in this analysis. Current situation and projected situation in the future are considered carefully to predict how it affects the workflow of the company

2. Economic

This economic factor concerns in both local and global scale.

3. Sociological

This factors studies how community affects decision making process of the company. In this analysis, customer demands and hot trends are the most popular examined criteria.

4.Technological

This factor is greatly important to examine, especially the outburst of the fourth industrial revolution is on the way to come. Examining emerging technology and the most favorable technology help business owners to keep up with the past pace of advanced technological development.

Technical Analysis

Technical analysis is a tool or process that uses market data to forecast the likely future price movement of a security. The principle underlying technical analysis's validity is the idea that the aggregate activities – buying and selling – of all market participants accurately represent all relevant information pertaining to a traded security, and hence consistently assign a fair market value to the security. Technical analysis is the practise of examining and forecasting the future prices of securities by examining indicators such as price movement, charts, trends, trading volume, and others. Technical analysis, as opposed to fundamental analysis, focuses on trading signals to identify suitable investments and trading opportunities by studying an investment's tendencies through trading data and other statistical aspects.

Assumptions

1. The scrip's market value is defined by supply and demand.
2. The market discounts everything. The security's price reflects market participants' hopes, anxieties, and inside information.

Insider information about bonus shares and rights issues may help pricing. Price drop due to loss of earnings and information about upcoming labour issue. These variables may alter demand and supply, reversing trends.

3. The market moves in trend. Stock prices follow trends with small exceptions. Price may also generate patterns. The trend may be upward or downward. The tendency persists for a while before reversing.

4. History repeats itself, as everyone knows. It applies to the stock market. In a rising market, investors' psychology wins and they buy more shares, driving up prices. During a bear market, they may be eager to sell their shares, further depressing the share price. The market technicians believe historical prices foretell future prices.

Criticism of Technical Analysis

Tools used in technical analysis

Technical analysts have also developed numerous types of trading systems to help them forecast and trade on price movements. Some indicators are focused primarily on identifying the current market trend, including support and resistance areas, while others are focused on determining the strength of a trend and the likelihood of its continuation. Commonly used technical indicators and charting patterns include trendlines, channels, moving averages, and momentum indicators. In general, technical analysts look at the following broad types of indicators:

- Price trends
- Chart patterns

- Volume and momentum indicators
- Oscillators
- Moving averages
- Support and resistance levels

Trend Analysis

Trend analysis is a technique used in technical analysis that attempts to predict future stock price movements based on recently observed trend data. Trend analysis uses historical data, such as price movements and trade volume, to forecast the long-term direction of market sentiment. Trend analysis tries to predict a trend, such as a bull market run, and ride that trend until data suggests a trend reversal, such as a bull-to-bear market. Trend analysis is helpful because moving with trends, and not against them, will lead to profit for an investor. It is based on the idea that what has happened in the past gives traders an idea of what will happen in the future. There are three main types of trends: short-, intermediate- and long-term.

A trend is a general direction the market is taking during a specified period of time. Trends can be both upward and downward, relating to bullish and bearish markets, respectively. While there is no specified minimum amount of time required for a direction to be considered a trend, the longer the direction is maintained, the more notable the trend. There are many different trend trading strategies using a variety of technical indicators:

- **Moving Averages:** These strategies involve entering into long positions when a short-term moving average crosses above a long-term moving average, and

entering short positions when a short-term moving average crosses below a long-term moving average.

- **Momentum Indicators:** These strategies involve entering into long positions when a security is trending with strong momentum and exiting long positions when a security loses momentum. Often, the relative strength index (RSI) is used in these strategies.
- **Trendlines & Chart Patterns:** These strategies involve entering long positions when a security is trending higher and placing a stop-loss below key trendline support levels.

Stock Charts

Charts are the most simple yet effective instruments in technical analysis. The graphic presentation of the data makes it easy for the investor to determine the price trend. The charts can also be used for the following purposes:

- Identifies the current buying and selling trend.
- By projection, it indicates the market's likely future action.
- Shows the historical movement of the past.
- Indicates the key areas of support and opposition.

a) Point and figure charts

Point and figure charts are used by technical analysts to forecast the extent and direction of price movement in a specific stock or stock market indices. This point-and-figure chart is one-

dimensional, with no indication of time or volume. The price changes in comparison to previous pricing are shown. The price direction shift can be interpreted. The charts are created on ruled paper. The Point and Figure chart is depicted in the figure below.

20.000									
19.000					X				
18.000			X		X	O			
17.000	X		X	O	X	O			
16.000	X	O	X	O	X	O			
15.000	X	O	X	O		O			
14.000	X	O				O			
13.000	O	X							
12.000	O	X							
11.000	O								

P&F charts make use of columns made up of stacked X's or O's, each of which symbolises a specific amount of price movement. The Xs signify growing prices, while the Os represent declining prices. When the price rises by a certain amount, known as the box size, an X is formed. When the price falls by the amount specified in the box size, an O is formed. X's and O's stack on top of each other and frequently form a series of X's or O's. The size of the box is determined by the asset's price and the investor's preferences. When the price moves counter to its present trend by more than the reversal amount, a new column of X's or O's is formed.

Line Chart: This is the most basic type of chart. The time line data is horizontally displayed on the line chart, while the price data is vertically displayed. The closing prices are connected to produce a line chart. The chart can be viewed on a daily, weekly, monthly, and even hourly basis. The line chart does not provide the open, high, and low data, which is important for analysis.

Bar Chart: This chart displays data such as high, low, open, and close values. When the open is above the day's close, it is indicated in green, and when it is below the day's close, it is shown in red. The bar chart, which depicts high and low points, aids in understanding trading ranges.

Candlestick Chart: This is a popular chart that was developed by Japanese traders for rice futures. This is comparable to a bar chart but has a different shape. Data is represented in the form of a candle, with open, close, high, and low values. When the Open is higher than the Close, the candles turn green or white, and vice versa.

Price patterns

Price patterns are frequently used in technical analysis to highlight transitions between rising and falling trends. A price pattern is defined as a recognised configuration of price movement that may be detected using a succession of trendlines and/or curves.

A reversal pattern happens when a price pattern suggests a shift in trend direction; a continuation pattern occurs when the trend continues in its current direction after a brief break. Price patterns have long been employed by technical analysts to

assess current market movements and forecast future market movements.

- Patterns are the different forms formed by the movements of asset prices on a chart, and they serve as the cornerstone of technical analysis.
- A pattern is defined by a line connecting typical price points, such as closing prices, highs or lows, throughout a given time period.
- Technical analysts and chartists look for patterns to predict the future direction of a security's price.
- These patterns can range from the simple to the complicated, such as double head-and-shoulders formations.

Types of Chart Patterns:

Chart patterns can be basically classified into:

- **Continuation patterns:** These kinds of chart patterns give continuation signals of the ongoing trend
- **Reversal Patterns:** These kinds of chart patterns give reversal signals
- **Bilateral Patterns:** These kinds of chart patterns shows uncertainty and high volatility in the market.

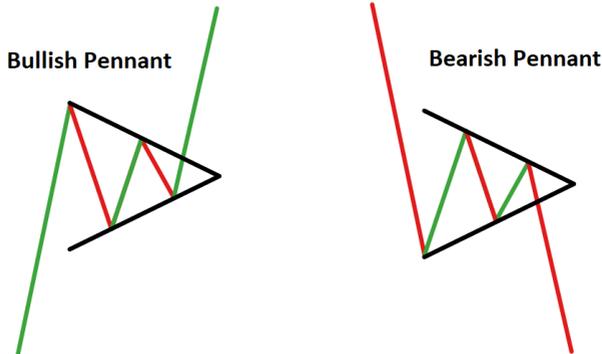
If the price trend continues, the price pattern is known as a continuation pattern. Examples of common continuation patterns include;

- Pennants, constructed using two converging trendlines

- Flags, drawn with two parallel trendlines
- Wedges, constructed with two converging trendlines, where both are angled either up or down

Pennants

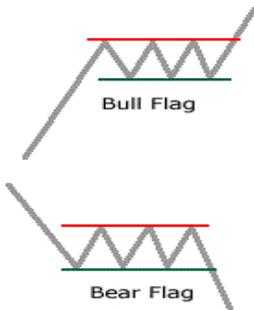
Pennant looks like a symmetrical triangle. Here also there is bullish and bearish pennant. In the bullish pennant, the lower tops form the upper trend line. The lower trend line connects the rising bottoms. The bullish trend occurs when the value of scrip moves above the upward trend line. Likewise in the bearish pennant, upward trend line is falling and the lower trend line is



rising.

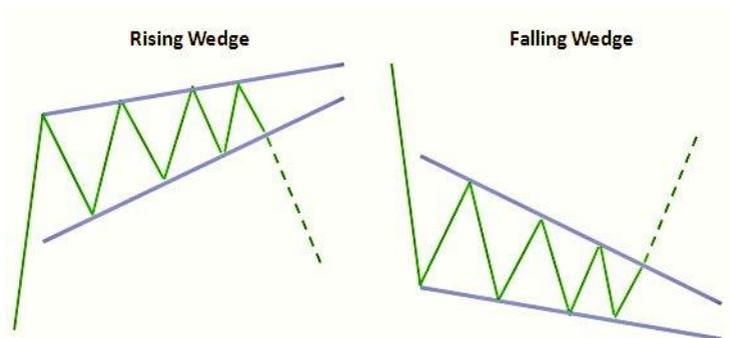
Flags

Flags are constructed using two parallel trend lines that can slope up, down or sideways (horizontal). In general, a flag that has an upward slope appears as a pause in a down trending market; a flag with a downward bias shows a break during an up trending market. Typically, the formation of the flag is accompanied by a period of declining volume, which recovers as price breaks out of the flag formation.



Wedges

Wedges, like pennants, are formed by drawing two converging trend lines; however, a wedge is distinguished by the fact that both trend lines are travelling in the same direction, either up or down. A wedge that is inclined down suggests a pause during an uptrend, whereas a wedge that is oriented up represents a brief interruption during a downtrend. Volume often decreases throughout the construction of the pattern, as it does with pennants and flags, only to increase after price breaks above or below the wedge pattern.

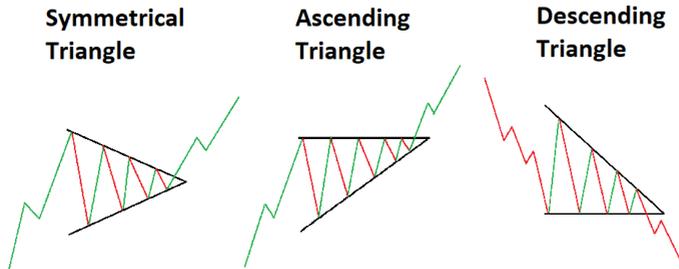


Triangles

Triangles are among the most popular chart patterns used in technical analysis since they occur frequently compared to other patterns. The three most common types of triangles are symmetrical triangles, ascending triangles, and descending triangles. These chart patterns can last anywhere from a couple of weeks to several months.

Symmetrical triangles occur when two trend lines converge toward each other and signal only that a breakout is likely to occur—not the direction.

Ascending triangles are characterized by a flat upper trend line and a rising lower trend line and suggest a breakout higher is likely, while descending triangles have a flat lower trend line and a descending upper trend line that suggests a breakdown is likely to occur. The magnitude of the breakouts or breakdowns is typically the same as the height of the left vertical side of the triangle, as shown in the figure below.



Cup and Handles

The cup and handle is a bullish continuation pattern where an upward trend has paused, but will continue when the pattern is confirmed. The "cup" portion of the pattern should be

a "U" shape that resembles the rounding of a bowl rather than a "V" shape with equal highs on both sides of the cup.

The "handle" forms on the right side of the cup in the form of a short pullback that resembles a flag or pennant chart pattern. Once the handle is complete, the stock may breakout to new highs and resume its trend higher. A cup and handle is depicted in the figure below.



Trend Reversal

A trend reversal occurs when the direction of a stock (or any financial trading instrument) changes and moves back in the opposite direction. Up trends that reverse into downtrends and downtrends that reverse into up trends are examples of trend reversals.

Reversal Patterns

A reversal pattern is a price pattern that signifies a change in the current trend. These patterns denote periods of exhaustion for either the bulls or bears. As new energy emerges from the other side, the existing trend will pause then head in a new

direction as new energy emerges from the other side (bull or bear).

For example, a bullish uptrend can pause, indicating equal pressure from both bulls and bears, eventually giving way to the bears. As a result, the tendency shifts downward. Distribution patterns are reversals that occur at market peaks, when the trading instrument is sold more than bought. Reversals during market bottoms are called accumulation patterns, as the trading instrument is actively bought rather than sold. Less time to build and more price fluctuation within the pattern means more predicted move if price breaks out. When price reverses after a pause, the price pattern is known as a reversal pattern. Examples of common reversal patterns include:

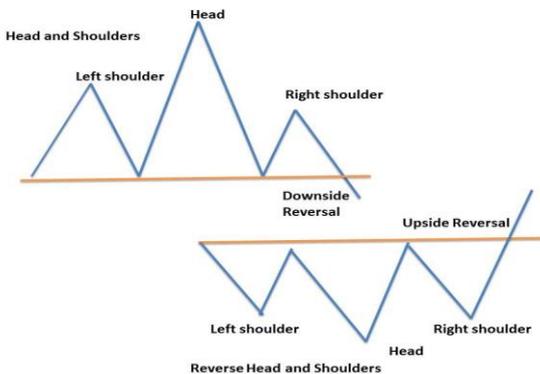
- Head and Shoulders, signalling two smaller price movements surrounding one larger movement
- Double Tops, representing a short-term swing high, followed by a subsequent failed attempt to break above the same resistance level
- Double Bottoms, showing a short-term swing low, followed by another failed attempt to break below.

Chart patterns put all buying and selling that's happening in the stock market into a concise picture. It provides complete pictorial record of all trading, and also provides a framework for analyzing the battle between bulls and bears. Chart patterns can help us in determining who is winning the battle, and also allowing traders to position themselves accordingly. Chart pattern analysis can be used to make short-term as well as long-term forecasts. The data used by the chart patterns can be intraday, daily, weekly, monthly or yearly. Gaps and reversals

may form in one trading session, while broadening tops and dormant bottoms may require many months to form.

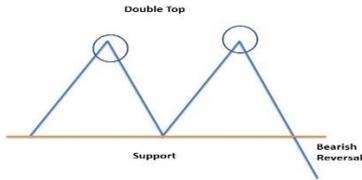
Head and Shoulders:

This is a bullish and bearish reversal patterns which has a large peak in the middle and smaller peaks on the either sides. Head and shoulders pattern is considered to be one of the most reliable reversal chart patterns. This pattern is formed when the prices of the stock rises to a peak and falls down to the same level from where it had started rising. Again the prices rises and form a peak higher than the last peak and again it declines to the original base. Prices again rise to form a third peak, which is lower than the second peak and from here it starts declining to the base level. When the prices break the baseline with volume then bearish reversal takes place.



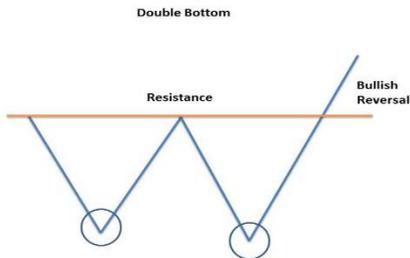
Double top:

A double top is another bearish reversal pattern that traders use a lot. The stock price will form a peak and then retrace back to a level of support. It will then form a peak once more before reversing back from the prevailing trend.



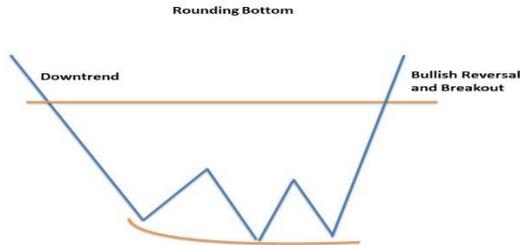
Double Bottom:

A double bottom is a bullish reversal pattern that is the total opposite of a double top. The stock price will form a peak and then retrace back to a level of resistance. It will then form a peak once more before reversing back from the prevailing trend.



Rounding Bottom:

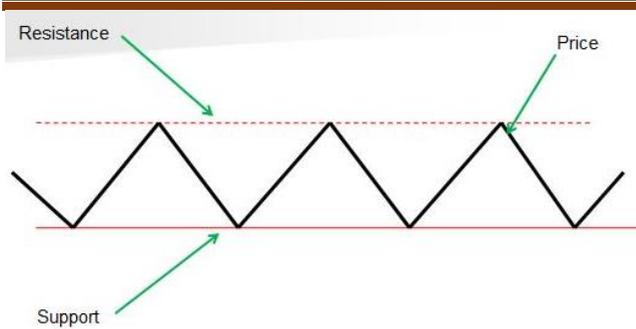
This pattern is also known as the "saucer bottom" and is a long-term reversal chart pattern. Rounding Bottom shows that the stock is reversing from a downward trend towards an upward trend.



Support and resistance level

Trading level support and resistance are two of the most widely discussed aspects of technical analysis. These terms are used by traders to refer to price levels on charts that operate as barriers, preventing the price of an asset from being pushed in a particular direction.

- Technical analysts utilize support and resistance levels on a chart to identify price locations where the odds favour a pause or reversal of a prevailing trend.
- Support happens when a decline is predicted to come to a halt due to a concentration of demand.
- Resistance arises when an uptrend is predicted to stall for a short period of time due to a concentration of supply.
- Market psychology is important because traders and investors recall the past and react to changing conditions in order to predict future market movement.
- Trendlines and moving averages can be used to identify support and resistance regions on charts.



Technical Indicators

Leading and Lagging Indicators

Leading indicators are used to anticipate future price fluctuations, giving the trader an advantage in trading. Leading indicators provide an early signal of entry or exit, allowing for more trading possibilities. They represent price momentum over a period of time, which is utilized to calculate the indicator. Examples, Commodity Channel Index (CCI), Stochastic Oscillator, Relative Strength Index, Volume etc

Lagging indicators are those that follow a trend and indicate price reversals. It comes after an event. When prices move in long trends, these indicators function effectively. They do not predict future price changes, but just indicate whether prices are rising or falling so that we can invest properly. Even with delayed feedback, many traders choose to use trailing indicators to validate their results and trade with greater confidence. Before investing in a stock, traders typically utilize two or more lagging indicators to corroborate price movements. Moving averages, as well as their convergence and divergence, are examples of trend-following or lagging indicators.

Oscillators

Oscillators show market momentum or scrip momentum. The oscillator shows the fluctuation of a stock's price across a reference point from one extreme to the other. The momentum indicator indicates:

- Overbought and oversold conditions of the scrip or the market.
- Signaling a likely trend reversal.
- A rise or fall in momentum.

In general, oscillators are examined alongside the price chart. Oscillators signal trend reversals that must be validated by the scrip's price movement. Price changes should be tied to momentum changes, and only buy and sell signals should be provided. Only when the price and momentum are in sync should actions be done. Oscillators are constructed using daily, weekly, or monthly closing prices. Daily price oscillators are important for short-term trading.

Index of Relative Strength (RSI)

Index of relative strength (RSI) Wells Wilder pioneered the use of RSI. It is an oscillator that is used to determine the intrinsic technical strength and weakness of a specific stock or market. The following formula can be used to calculate RSI for a stock.

$$RSI = 100 - \left[100 / \left(1 + \frac{\text{Average of upward price changes}}{\text{Average of downward price changes}} \right) \right]$$

The RSI can be calculated for any number of days, based on the technical analyst's preference and the trading time frame used in a given stock market. The RSI is computed for 5, 7, 9, and 14 days.

Rate of Change (ROC)

The Rate of Change indicator (ROC) indicates the rate of change between the current price and the price 'n' days ago. ROC assists in determining overbought and oversold levels in a stock. It can also help you spot a trend reversal. The ROC is calculated using closing prices. The daily ROC is calculated using daily closing prices, and the weekly ROC is calculated using weekly closing prices. The calculation of ROC for 12 weeks or 12 months is the most common.

The Breadth of the Market

The term "The Breadth of the Market" is frequently used to evaluate the stock market's advances and declines. The amount of shares whose values have grown from the previous day's trading is referred to as an advance. The amount of shares whose prices have declined from the previous day's trade is indicated by declines. Because data is readily available in all business newspapers, this indicator is simple to plot and monitor. The breadth of the market is defined as the net difference between the number of stocks that advanced and declined during the same time period. The market breadth is measured using a cumulative index of net differences.

Fundamental Analysis and Technical Analysis

- 1.** Fundamental analysts examine the stock in light of the investors' individual objectives. They investigate a company's financial strength, sales growth, earnings, and profitability. They also consider the overall industrial and economic situations.
- 2.** Technical analysts concentrate their attention mostly on price history. In general, technical analysts evaluate two key market data points: price and volume.
- 3.** Fundamental analysts calculate the intrinsic worth of the stock and buy it when it is undervalued. When the shares are expensive, they sell them and profit. They attempt to determine the long-term value of stocks.

Technical analysts, as opposed to fundamental analysts, predict short-term price movements rather than long-term price movements. They are not committed to a buy-and-hold strategy.

- 4.** Fundamentalists believe that supply and demand for stocks are determined by underlying forces. Forecasts of supply and demand are affected by a variety of factors. Technical analyst believe that by examining trade prices and volume, they can forecast supply and demand.

Both models consider supply and demand issues to be significant. The supply and demand for securities are influenced by business, economic, social, and political concerns. These underlying forces, in the form of supply and demand, interact to determine asset prices in the securities market.

Security Market theories

Dow Theory

Dow Theory is a trading approach developed by Charles Dow who is also known as the father of Technical Analysis. It is still the basis of the technical analysis of financial markets. The basic idea of Dow Theory is that market price action reflects all available information and the market price movement is comprised of three main trends. According to the hypothesis, the market is in an upward trend if one of its averages rises above a previous significant high and is preceded or followed by a comparable rise in the other average. The Dow Theory is a technical theory that predicts an upward trend in the market if one of its averages advances above a previous significant high, accompanied or followed by a comparable gain in the other average.

- The theory is predicated on the notion that the market discounts everything in a way consistent with the efficient markets hypothesis.
- In such a paradigm, different market indices must confirm each other in terms of price action and volume patterns until trends reverse.

There are six main components to the Dow theory.

1. The Market Discounts Everything

The Dow theory operates on the efficient markets hypothesis (EMH), which states that asset prices incorporate all available information. In other words, this approach is the antithesis of behavioral economics.

Earnings potential, competitive advantage, management competence, all of these factors and more are priced into the market, even if not every individual knows all or any of these

details. In more strict readings of this theory, even future events are discounted in the form of risk.

2. There Are Three Primary Kinds of Market Trends

Markets experience **primary trends** which last a year or more, such as a bull or bear market. Within these broader trends, they experience **secondary trends**, often working against the primary trend, such as a pullback within a bull market or a rally within a bear market; these secondary trends last from three weeks to three months. Finally, there are **minor trends** lasting less than three weeks, which are largely noise.

3. Primary Trends Have Three Phases

A primary trend will pass through three phases, according to the Dow theory. In a bull market, these are the accumulation phase, the public participation (or big move) phase, and the excess phase. In a bear market, they are called the distribution phase, the public participation phase, and the panic (or despair) phase.

4. Indices Must Confirm Each Other

In order for a trend to be established, Dow postulated indices or market averages must confirm each other. This means that the signals that occur on one index must match or correspond with the signals on the other.

5. Volume Must Confirm the Trend

Volume should increase if the price is moving in the direction of the primary trend and decrease if it is moving against it. Low volume signals a weakness in the trend. For example, in a bull market, the volume should increase as the price is rising, and fall during secondary pullbacks. If in this example the volume

picks up during a pullback, it could be a sign that the trend is reversing as more market participants turn bearish.

6. Trends Persist Until a Clear Reversal Occurs

Reversals in primary trends can be confused with secondary trends. It is difficult to determine whether an upswing in a bear market is a reversal or a short-lived rally to be followed by still lower lows, and the Dow theory advocates caution, insisting that a possible reversal be confirmed.

Elliott Wave Theory

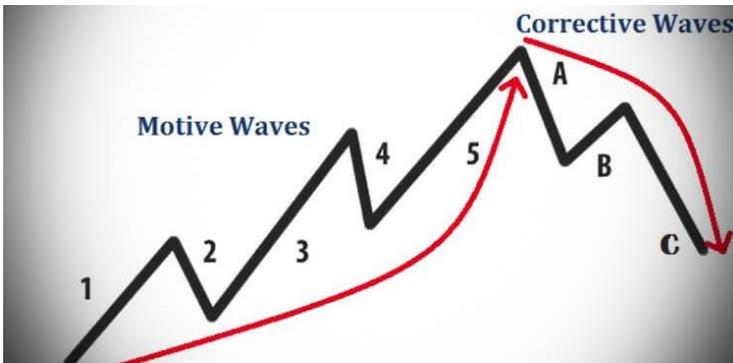
The Elliott Wave Theory is a technical analysis technique created in the 1930s by American accountant and author Ralph Nelson Elliott. Elliott researched several years of stock market data from several indices and was the first to forecast a stock market bottom in 1935. Since then, the theory has proven to be a reliable tool for a variety of portfolio managers all around the world. Elliott waves, in conjunction with other technical analysis approaches, are used to forecast market moves and trading opportunities. The Elliott Wave Theory is a form of technical analysis that looks for recurrent long-term price patterns related to persistent changes in investor sentiment and psychology.

A wave is a movement of market price from one change in the direction to the next change in the same direction. Waves are the results of buying and selling impulses arising due to demand and supply pressure in the market.

- The theory identifies impulse waves that set up a pattern and corrective waves that oppose the larger trend.

- Each set of waves is nested within a larger set of waves that adhere to the same impulse or corrective pattern, which is described as a fractal approach to investing.

According to the Elliott Wave Theory, stock price fluctuations may be reasonably predicted by analyzing price history, as markets move in wave-like patterns influenced by investor sentiment. The movements are repetitive, rhythmic, and timely, much like ocean waves. Furthermore, the wave patterns are not thought to be definite to occur in the markets; rather, they just present a possible scenario of stock price behaviour.



Elliott developed detailed stock market projections based on the wave patterns' reliable qualities. An impulse wave has five waves in its pattern because it net goes in the same direction as the larger trend. In contrast, a corrective wave net travels in the opposite direction of the main trend. On a smaller scale, five waves can be detected within each of the impulsive waves. Five waves move in the main trend's direction, followed by three waves in a correction (totaling a 5-3 move). This 5-3 move is then divided into two subdivisions of the following upper wave move. Though the duration span of each wave varies, the underlying 5-3 pattern remains consistent.

Module IV

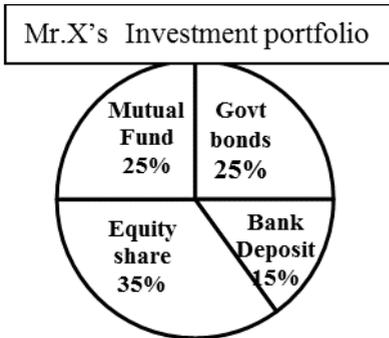
Portfolio Analysis

Introduction

Developing a successful investment strategy for the modern era may necessitate a fundamental shift in our approach to investing. Individual securities have their unique risk-return characteristics. The fluctuations in expected return are referred to as risk. Investors rarely put their entire savings into single security because most investors are likely to avoid taking risks. Hence, the investors hope that gains in others will offset the money invested in multiple securities simultaneously, losses in one. As a result, most investors prefer to invest in a portfolio of securities rather than a single security.

Investment portfolio

A portfolio is a collection of securities held together as an investment. It's a collection of financial investments such as shares, mutual funds, debt instruments, cash equivalents, and so on, depending on the investor's income or budget. For example, Mr.X wants to invest Rs. 100000 in a portfolio to diversify the risk of putting the money in a single avenue. The investor expects a moderate rate of return with a lower range of risk. Thus, the investor manager recommended Mr.X an investment portfolio as follows;



Portfolio management

Portfolio management is the art and science of deciding on an investment mix and policy, matching investments to objectives, allocating assets for individuals and institutions, and balancing risk and performance. Portfolio management is the art of establishing the best investment policy for an individual in terms of least risk and maximum return. It weighs the advantages, disadvantages, opportunities, and threats of various investment options to determine a risk-return trade-off.

Diversification is the crucial idea of portfolio management. It attempts to reduce risk by investing across various financial instruments, industries, and other categories. It seeks to maximize returns by investing in multiple areas that would make asymmetric reactions to the same event. The investor's risk tolerance, investment objectives, and time horizon are crucial considerations when setting together and revising an investment portfolio.

Objectives of Portfolio Management

Portfolio management aims to invest in securities to maximize profits with a minimum level of risks to meet investment goals. The main objectives are as follows;

1. Safety of Principal Investment:

The first and most crucial goal is to ensure that the investment is secure regardless of who owns it. Other factors, such as income and growth, are only considered after your investment's safety has been established.

2. Capital appreciation:

A healthy portfolio should increase in value over time to preserve the investor's purchasing power against inflation. Moreover, a well-balanced portfolio must include investments that tend to appreciate the real value after adjusting inflation.

3. Consistency in returns on investment:

Portfolio management also ensures that returns are stable by reinvesting generated profits in beneficial and reliable portfolios. The portfolio yields consistent returns on the investment. The actual returns should cover the opportunity cost of the invested funds.

4. Marketability:

An excellent portfolio made up of readily marketable investments. If your portfolio contains too many unlisted or inactive shares, it won't be easy to encase them and transition

from one investment to another. It is preferable to invest in companies that are actively traded on stock exchanges.

5. Liquidity:

The portfolio should ensure that sufficient funds are accessible on time to meet the investor's liquidity needs. It's a good idea to retain a bank line of credit on hand if you need to participate in the right issues or for any other personal reasons.

6. Diversification of portfolios:

Portfolio management reduces the risk by investing in various types of securities available in a wide range of industries. Investors must evaluate their risk tolerance level before setting the investment objectives and should select investment alternatives accordingly.

7. Tax planning

Taxation is essential in the overall planning. Hence, a good portfolio should provide its owner with a good tax shelter. The investor should consider income tax, capital gain tax, and gift tax while planning an investment portfolio.

Safety of the principal amount and risk reduction are the fundamental objectives of portfolio management. Various hazards come with investing in equities companies, including super stocks. Risk-free investment is impossible, as the future is uncertain. Furthermore, lower the risk level gives lesser returns. By creating a well-balanced and efficient portfolio, you can strive to reduce total risk or bring it down to a manageable level. A well-diversified portfolio of growth stocks can help you achieve all of the objectives listed above.

Phases of portfolio management

Portfolio management entails a variety of activities aimed at optimizing the investment of client funds. Portfolio management is divided into eight broad phases. The efficiency of implementing these phases determines the success of portfolio management.

1. Specification of investment objectives and constraints

The first step in the portfolio management process is to define the investment policy, which summarises the investor's objectives, constraints, and preferences. Income, growth, and stability are the most common objectives of investment. Among these, income and growth are two ways to generate a return, and stability implies risk containment. The more precise way of defining investment objective are in terms of risk and return. The investment objectives should state the investor preference for return relative to the investor's tolerance for risk. The investor might declare their investment objectives in one of two ways:

- Maximize the expected rate of return while keeping risk exposure within a certain range.
- Minimize risk while maintaining a certain expected rate of return.

The investor should keep in mind the constraints originating from or related to the following factors when pursuing your investing objectives;

- **Liquidity:** The speed with which an asset can be sold without suffering a discount to its fair market value is referred to as liquidity. The investor should determine the minimum level of cash they want in their investment portfolio based on cash requirements in the future.
- **Time Horizon:** The investment horizon is the period when the investment or a portion of it is expected to be liquidated to meet a specific need. The investment horizon has a significant impact on asset selection.
- **Taxes:** The post-tax return on investment is what matters in the end. As a result, tax considerations have a significant impact on investment decisions. So, carefully consider the tax shelters available to you and include them in the investment decisions.
- **Regulations:** Institutional investors must adhere to various regulations, whereas individual investors are not restricted by law.

2. Quantification of capital market expectation

The portfolio management method relies heavily on capital market expectations. Macro expectations (expectations about asset classes) and micro expectations (expectations about individual assets) are two types of capital market expectations. Micro expectations most directly influence individual security selection. They lead to strategic asset allocation when combined with the investor's objectives and constraints from the investment policy statement. Capital market expectations are the expected return, correlation, and standard deviation for each asset class.

3. Asset allocation

The term 'asset allocation' means different things to different people in different contexts. Asset allocation is an important component of developing and balancing your investment portfolio. There are several methods of asset allocation:

- Strategic asset allocation
- Tactical asset allocation
- Drifting asset allocation
- Balanced asset allocation
- Insured asset allocation

Strategic asset allocation is concerned with establishing the long-term asset mix. In contrast, the other types of asset allocation refer to what the portfolio manager does in response to evolving market conditions. Choosing the right asset mix for your portfolio, which includes stocks, bonds, cash, and real estate, is a dynamic process. As a result, your asset mix should always represent your objectives.

4. Formulating portfolio strategy

After selecting an appropriate asset mix, the investor has to create a suitable portfolio strategy. A portfolio strategy is a roadmap by which investors can use their assets to achieve their financial goals. Two broad choices are available in this respect; active portfolio strategy and passive portfolio strategy.

- **Active portfolio strategy**

An investment approach in which an investor uses various forecasting and techniques to determine which securities to purchase to achieve a high return. Under this strategy, it is more

likely to buy and sell securities with greater frequencies as the investor seeks to move available capital into more profitable stocks.

- **Passive portfolio strategy**

A passive portfolio strategy is an investment strategy that mimics the performance of a market-weighted index. The goal is to reduce investment costs while avoiding the adverse effects of incorrect future forecasting. It is based on the assumption that markets are efficient.

5. Selection of securities

The process of identifying particular securities within a specific asset class that will make up the portfolio is known as security selection. Capital market expectations are combined with a predetermined investment allocation strategy to select specific assets for the investor's portfolio.

Portfolio managers typically use the portfolio optimization technique when deciding on portfolio composition. The investor should carefully consider yield-to-maturity, default risk, tax shield, and liquidity in case of fixed income avenues. There are three broad approaches for analyzing stocks: technical analysis, fundamental analysis, and random selection.

6. Portfolio execution

After selecting the securities in a portfolio, the following portfolio management process is executing the portfolio plan. Portfolio execution refers to the buying and selling of specific securities in given amounts. The practical nature of this phase makes it a crucial step that impacts investment results.

7. Portfolio revision

Regardless of how effectively the investor built their portfolio, it will eventually become inefficient and need to be examined and altered regularly. Several things are likely to occur over time. The portfolio's asset allocation may have floated from its target, the risk and return characteristics of particular assets may have changed, or the objectives and preferences of investors may have shifted. Hence, the investor should constantly monitor and revise portfolios based on market conditions. Portfolio revision includes adding or removing securities, switching from one stock to another, switching from stocks to bonds, and vice versa.

8. Performance Evaluation

The investor has to evaluate the portfolio's performance over a period. The evaluation process revisits the strengths and shortcomings, risk-returns criteria, portfolio management's adherence to the stated investment objectives. A quantitative evaluation of the portfolio's actual return obtained and risk endured over the investment period is required when evaluating risk-return measures. Comparing the portfolio's actual performance with the expected relative to investment objectives gives more insight into the portfolio performance. Performance evaluation provides valuable feedback for continuously improving the quality of the portfolio management process.

Risk-return analysis of investment portfolio

Risk and return are highly correlated in investing. Increased potential returns on investment are usually accompanied by increased risk. Project-specific, industry-

specific, competitive, international, and market risk are all examples of risks. The term "return" refers to the profits and losses made from trading security. The return on investment is calculated in percentage and is regarded as a random variable that can take any value within a specific range. Several factors influence the kind of returns that investors can expect from market trading.

Diversification allows investors to lower their portfolio's overall risk. Making investments in only one market sector may generate superior returns if that sector significantly outperforms the overall market. Still, if the industry declines, you may experience lower returns than with a broadly diversified portfolio.

Measurement of portfolio returns and risk

Two or more stocks make up a portfolio. Each portfolio has its risk-return characteristics. The term "efficient portfolio" refers to a portfolio of securities that yield a maximum return for a given level of risk or a minimum risk for a given level of return. Portfolio managers diversified funds across securities of many companies from various industry groups to pursue a balanced mean between risk and return. Hence, while individual returns and risks are essential, what finally matters is the portfolio's return and risk.

Portfolio expected return

The expected return on a portfolio is simply the weighted average of the expected returns on the individual securities in the portfolio.

$$E(R_p) = \sum_{i=1}^n w_i E(R_i)$$

Where, $E(R_p)$ is the expected return on the portfolio w_i is the weight of security i in the portfolio, $E(R_i)$ is the expected return on security i , and n is the number of securities in the portfolio. The security weight represents the proportion of portfolio value invested in that security, and the combined portfolio weights equal 1. $\left[\sum_{i=1}^n w_i = 1 \right]$

Example : A portfolio consists of four securities A,B,C, and D, with expected returns of 12 %, 15%, 18%, and 20%, respectively. The proportions of portfolio value invested in these securities are 0.20,0.30,0.30, and 0.20, respectively. The expected rate of return on the portfolio is:

$$\begin{aligned} E(R_p) &= 0.20(12\%) + 0.30(15\%) + 0.30(18\%) + 0.20(20\%) \\ &= 16.3\% \end{aligned}$$

Example : A portfolio with 20 percent invested in Stock X, 45 percent in Stock Y, and 35 percent in Stock Z. The expected returns on these three stocks are 10 percent, 14 percent, and 16 percent, respectively. What is the expected return on the portfolio?

$$\begin{aligned} E(R_p) &= (0.20 \times 0.10) + (0.45 \times 0.14) + (0.35 \times 0.16) \\ &= 0.02 + 0.063 + 0.056 = 0.139 = 13.90\% \end{aligned}$$

Portfolio risk

The portfolio risk is measured by the variance (or standard deviation) of its return, just as the risk of an individual security is measured by its return variance (or standard deviation). Comovements between the returns of securities are measured by covariance (an absolute measure) and coefficient of correlation (a relative measure). The following are the necessary statistical measures to estimate the portfolio risk.

Covariance

Covariance reflects the degree to which the returns of the two securities vary or change together. Covariance is a statistical measure of a security's interaction risk concerning other securities in a portfolio. In other words, the way security returns vary with respect to one another affects the portfolio's overall risk.

A positive covariance means that the returns of the two securities move in the same direction. In contrast, a negative covariance implies that the returns of the two securities move in the opposite direction. If the movements of returns are independent of each other, covariance would be close to zero. The covariance between any two securities x and y is calculated as follows:

$$Cov_{xy} = \frac{\sum [R_x - \bar{R}_x] [R_y - \bar{R}_y]}{N}$$

Cov_{xy} = Covariance between x and y. R_x = Return of security x.

R_y = Return of security y \bar{R}_x = Expected or mean return of

security x. \bar{R}_y = Expected or mean return of security y. N = Number of observations

Example: Calculate Covariance

year	R_x	Deviation $[R_x - \bar{R}_x]$	R_y	$[R_y - \bar{R}_y]$	$[R_x - \bar{R}_x][R_y - \bar{R}_y]$
1	10	-4	17	5	-20
2	12	-2	13	1	-2
3	16	2	10	-2	-4
4	18	4	8	-4	-16

$$Cov_{xy} = \frac{\sum [R_x - \bar{R}_x] [R_y - \bar{R}_y]}{N}$$

$$= -42/4 = -10.5$$

Coefficient of Correlation

Covariance is an absolute measure of interactive risk between two securities. Covariance can be standardized to facilitate comparison. Dividing the covariance between two securities by product of the standard deviation of each security gives such a standardized measure. This measure is called the coefficient of correlation. This may be expressed as:

$$\rho_{xy} = \frac{Cov_{xy}}{\sigma_x \sigma_y}$$

where ρ_{xy} = Coefficient of correlation between x and y. Cov_{xy} = Covariance between x and y. σ_x = Standard deviation of x. σ_y = Standard deviation of y.

The correlation coefficients may range from - 1 to 1. A value of -1 indicates perfect negative correlation between security returns, while a value of +1 indicates a perfect positive correlation. A value close to zero would indicate that the returns are independent.

The above formula indicates that covariance can be expressed as the product of the correlation between the securities and the standard deviation of each security.

Thus,

$$Cov_{xy} = \rho_{xy} \sigma_x \sigma_y$$

Portfolio risk

The portfolio risk is not simply a weighted average of the variances of the individual securities in the portfolio. The portfolio risk is measured in terms of variances. The portfolio risk of a portfolio with only two securities can be calculated as follows:

$$\sigma_p^2 = X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2 + 2X_1 X_2 (\rho_{12} \sigma_1 \sigma_2)$$

Where

$$\sigma_p^2 = \text{Portfolio variance.}$$

X_1 = Proportion of funds invested in the first security.

X_2 = Proportion of funds invested in the second security.

σ_1^2 = Variance of first security.

σ_2^2 = Variance of second security.

σ_1 = Standard deviation of first security.

σ_2 = Standard deviation of second security.

ρ_{12} = Correlation coefficient between the returns of first and second security.

Portfolio standard deviation can be obtained by taking the square root of portfolio variance.

Example:

Two securities Z and Y generate the following sets of expected returns, standard deviations and correlation coefficient:

	Z	Y
R	15 %	20%
σ	50%	30%
ρ_{zy}	-0.60	

A portfolio is constructed with 40 per cent of funds invested in Z and the remaining 60 per cent of funds in Y.

The expected return of the portfolio is given by:

$$E(R) = (0.40 \times 15) + (0.60 \times 20) = 18 \text{ percent}$$

The variance of the portfolio is given by:

$$\begin{aligned}\sigma_p^2 &= X_1^2\sigma_1^2 + X_2^2\sigma_2^2 + 2X_1X_2(\rho_{12}\sigma_1\sigma_2) \\ &= (0.40)^2(50)^2 + (0.60)^2(30)^2 + 2(0.40)(0.60)(-0.60)(50)(30) = \\ &= 400 + 324 - 432 = 292\end{aligned}$$

The standard deviation of the portfolio is:

$$\sigma_p = \sqrt{292} = 17.09 \text{ per cent.}$$

Portfolio diversification

Diversification is the practice of spreading your investments around so that your exposure to any one type of asset is limited. This practice is designed to help reduce the volatility of your portfolio over time.

Reduction of Portfolio Risk Through Diversification

Diversification refers to the process of combining securities in a portfolio. Diversification strives to lower total risk while maintaining a positive portfolio return. It is essential to evaluate the impact of covariance or correlation on portfolio risk to understand the process and effectiveness of diversification. We'll look at three scenarios: (a) when security returns are perfectly positively correlated, (b) when security returns are perfectly negatively correlated, and (c) when security returns are not correlated.

Security Returns Perfectly Positively Correlated

When security returns are perfectly positively correlated the correlation coefficient between the two securities will be +1. The returns of the two securities then move up or down together.

The portfolio variance is calculated using the formula:

$$\sigma_p^2 = X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2 + 2X_1 X_2 (\rho_{12} \sigma_1 \sigma_2)$$

Since $\rho_{12} = 1$, this may be rewritten as:

$$\sigma_p^2 = X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2 + 2X_1 X_2 \sigma_1 \sigma_2$$

Hence, it may be reduced as

$$\sigma_p^2 = (X_1 \sigma_1 + X_2 \sigma_2)^2$$

The standard deviation then becomes

$$\sigma_p = X_1 \sigma_1 + X_2 \sigma_2$$

This is simply the weighted average of the standard deviations of the individual securities.

Example:

Standard deviation of security Z = 50
Standard deviation of security Y = 30
Proportion of investment in Z = 0.4
Proportion of investment in Y = 0.6
Correlation coefficient = +1.0
Portfolio standard deviation may be calculated as:

$$\begin{aligned} \sigma_p &= X_1 \sigma_1 + X_2 \sigma_2 \\ &= (0.4) (50) + (0.6) (30) = 38 \end{aligned}$$

The portfolio standard deviation will be between the standard deviations of the two individual stocks because it is the weighted average of their standard deviations. Diversification provides only risk averaging and no risk reduction when security returns are perfectly positively correlated because the portfolio risk cannot be reduced below the individual security

risk. As a result, diversification is ineffective when security returns are perfectly positively correlated.

Security Returns Perfectly Negatively Correlated

When security returns are perfectly negatively correlated, the correlation coefficient between them becomes -1. The two returns always move in exactly opposite directions. The portfolio variance may be calculated as:

$$\sigma_p^2 = X_1^2\sigma_1^2 + X_2^2\sigma_2^2 + 2X_1X_2(\rho_{12}\sigma_1\sigma_2)$$

Since $\rho_{12} = -1$, this may be rewritten as:

$$\sigma_p^2 = X_1^2\sigma_1^2 + X_2^2\sigma_2^2 - 2X_1X_2(\sigma_1\sigma_2)$$

It may be reduced as:

$$\sigma_p^2 = (X_1\sigma_1 - X_2\sigma_2)^2$$

The standard deviation then becomes:

$$\sigma_p = X_1\sigma_1 - X_2\sigma_2$$

For the illustrative portfolio considered above, we can calculate the portfolio standard deviation when the correlation coefficient is -1 .

$$\sigma_p = (0.4)(50) - (0.6)(30) = 2$$

The portfolio's risk is extremely low. It may even be reduced to zero. When security returns are perfectly negatively correlated, the portfolio may become completely risk-free. Diversification becomes a profitable activity when securities are perfectly negatively correlated since portfolio risk can be

significantly reduced. In reality, finding securities that are perfectly negatively correlated is rare.

Security Returns Uncorrelated

When the returns of two securities are entirely uncorrelated, the correlation coefficient would be zero. The formula for portfolio variance is:

$$\sigma_p^2 = X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2 + 2X_1 X_2 (\rho_{12} \sigma_1 \sigma_2)$$

Since $\rho_{12} = 0$, the last term in the equation becomes zero; the formula may be rewritten

$$\sigma_p^2 = X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2$$

The standard deviation then becomes:

$$\sigma_p = \sqrt{X_1^2 \sigma_1^2 + X_2^2 \sigma_2^2}$$

The standard deviation can be calculated when the correlation coefficient is zero for the illustrative portfolio considered above.

$$\sigma_p = \sqrt{(0.4)^2 (50)^2 + (.6)^2 (30)^2} = \sqrt{400+324} = 26.91$$

The portfolio standard deviation is lower than the standard deviations of the portfolio's individual stocks. Diversification decreases risk and is a profitable activity when security returns are uncorrelated.

Efficient portfolio

An efficient portfolio, also known as an 'optimal portfolio', is one that provides that best expected return on a given level of

risk, or alternatively, the minimum risk for a given expected return. A portfolio is a spread of investment products.

1. Markowitz model

There is no such thing as a perfect investment, but modern investors prioritize developing a strategy that provides high returns while being relatively low risk. While this distinguishing feature appears simple today, it did not exist until the second half of the twentieth century.

In 1952, an economist called Harry Markowitz submitted his dissertation on "Portfolio Selection," a study that contained insights that revolutionized portfolio management and earned him the Nobel Prize in Economics nearly four decades later. He initiated the concept of risk aversion of average investor's and their desire to maximize expected return with the given level of risk. Markowitz model is a portfolio optimization technique that aids in the selection of the most efficient portfolio by assessing several possible portfolios of given securities. The model shows the investors how to limit risk by selecting securities that do not move perfectly together. He calculated risk using statistical analysis and employed mathematical programming to choose assets in a portfolio efficiently. Markowitz model is also known the mean-variance model because it is based on expected returns (mean) and the standard deviation (variance) of the various portfolios. It is foundational to Modern portfolio theory.

Assumptions of Markowitz Theory:

The Portfolio Theory of Markowitz is based on the following assumptions:

1. Returns from the assets are distributed normally.

2. The investor is rational and will avoid all the unnecessary risks associated.
3. Investors will give their best to maximize returns for all the unique situations provided.
4. All investors are having access to the same information.
5. All the investors are having the same views on the rate of return expected.
6. The single investors alone are not sizeable and capable enough to influence the prices prevailing in the market.
7. Unlimited capital at the risk-free rate of return can be borrowed.

The Risk and Return of Securities: Markowitz's great insight was that three measures could summarize the relevant information about securities: the mean return (taken as the arithmetic mean), the returns' standard deviation, and the correlation with other assets' returns. The mean and the standard deviation can be used to plot the relative risk and return of any selection of securities.

To choose the best portfolio from a number of possible portfolios, each with different return and risk, two separate decisions are to be made as follows;

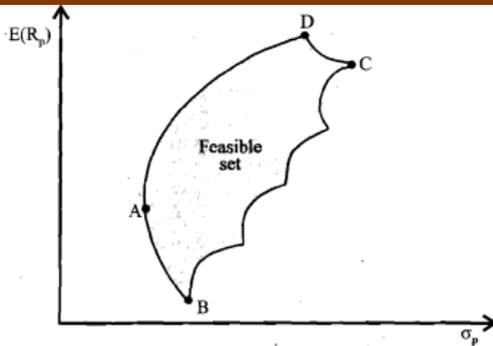
1. Determination of a set of efficient portfolios.
2. Selection of the best portfolio out of the efficient set.

Markowitz Efficient Frontier

The risk and return of all portfolios plotted in risk-return space would be dominated by efficient portfolios. Portfolio may be constructed from available securities. All the possible combination of expected return and risk compose the attainable set. The following example shows the expected return and risk of different portfolios.

1. Portfolios that offer maximum expected returns for varying level of risk.
2. Portfolios that offer maximum risk for varying levels of expected returns.

The set of portfolios meeting these two conditions is known as the efficient set or efficient frontier. As a next step in the modelling process, we now try to get new information about the problem being studied. From a large number of possible portfolios, we try to locate the efficient frontier. The efficient set can be located from the feasible set, also know as the opportunity set. Thus, The efficient frontier is the set of optimal portfolios that offer the highest expected return for a defined level of risk or the lowest risk for a given level of expected return. Portfolios that lie below the efficient frontier are sub-optimal because they do not provide enough return for the level of risk.



You know that the feasible set represents the set of all portfolios that could be formed from a group of n -securities. That is, all possible portfolios that could be formed from the n -securities lie either on or within the boundary of the feasible set. The points denoted by A, B, C and D in above figure are examples of such portfolios. In general this set will have an umbrella type shape similar to the one shown in the figure. The efficient set can then be located by applying the two conditions of the efficient set.

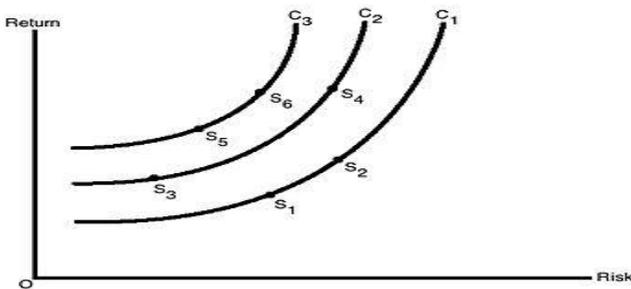
Selecting an Optimal Portfolio

To select an optimal portfolio of assets using the Markowitz analysis, investor should

1. Identify optimal risk-return combinations available from the set of risky i assets being considered by using the Markowitz efficient frontier analysis.
2. Choose the final portfolio from among those in the efficient set based on an investor's preferences.

To select the expected return-risk combination that satisfy an individual investor's personal preferences, indifference curves

are used. Investors are assumed to know their indifference curve. These curves representing an investor's preferences for risk and return can be drawn on a two-dimensional figure, where the horizontal axis indicates risk as measured by standard deviation and the vertical axis indicates reward as measured by expected return ($E(R)$).



Each curved line in above figure indicates one indifference curve for the investor and represents all combinations of portfolios that the investor would find equally desirable.

Random Walk Theory

The Random Walk Theory, often known as the Random Walk Hypothesis, is a stock market mathematical model. The theory advocates that the prices of securities in the stock market follow a random walk. According to the Random Walk Theory, the stock price in an efficient market is random since you can't forecast it because all information is already known to everyone and how they react relies on their financial requirements and preferences. An efficient market is one in which all existing information is transparent, and future earnings are reflected in the stock price. If a buyer buys a stock, he is doing so based on any information; that information is also available to the seller

who is selling the stock; this is an efficient market, where everyone has access to information but still does what is best for them based on their personal preferences.

Basic Assumptions of the Random Walk Theory

- According to the Random Walk Theory, the price of each securities in the stock market follows a random walk.
- The Random Walk Theory also assumes that the movement of one security's price is independent of the movement of another security's price.

Because the Random Walk Theory holds that predicting the movement of stock prices is impossible, it is also impossible for a stock market investor to outperform or "beat" the market in the long run. It suggests that an investor cannot outperform the market without taking on significant additional risk. As a result, the optimal plan for an investor is to invest in a market portfolio, which is a portfolio that closely resembles the complete stock market and whose price perfectly reflects the movement of the prices of all securities in the market.

Efficient Market Hypothesis

The capital market is efficient in processing information, according to this theory. An efficient capital market is one in which security prices are always equal to their inherent values, and most securities are priced accurately. Since the 1960s, one of the most prevalent themes in academic literature has been the concept of an efficient capital market. "When someone refers to efficient capital markets," Elton and Gruber write, "they mean that asset prices properly represent all available information." Prices in an efficient market, according to Eugene Fama, fully reflect all available information. The

prices of securities observed at any given time are based on a correct assessment of all available information at the time.

The speed with which information is absorbed into security pricing is what the efficient market model is all about. Because they believe that knowledge is progressively integrated into security prices, the experts believe that previous price sequences carry information about future price movements. This allows specialists to achieve higher profits by analysing price trends and trading in accordance with them. Investors may need several days or weeks to thoroughly consider the implications of new information, according to fundamentalists. As a result, the price may be fluctuating for several days before settling at a new level. This gives the analyst with greater analytical skills the potential to make higher rewards. The efficient market hypothesis (EMH) or theory states that share prices reflect all information.

Assumptions of the Efficient Market Hypothesis;

- Stocks are traded on exchanges at their fair market values.
- This theory assumes that the market value of stocks represents all the relevant information.
- It also assumes that investors are not capable of outperforming the market since they have to make decisions based on the same available information.

Forms of Efficient Market Hypothesis;

EMH has three variations which constitute different market efficiency levels. They are as follows;

- **Weak form efficient market hypothesis**

This is founded on the idea that all financial instrument market prices represent all publicly available information about the market. It doesn't include any information that hasn't been publicly disclosed yet. Furthermore, the efficient market hypothesis assumes that previous data such as price and returns have no bearing on a financial instrument's future price. This EMH variation also shows that diverse trading techniques cannot produce consistent returns. This is because it is assumed that prior price points cannot be used to forecast future market value. Despite the fact that this type of EMH dismisses the concept of technical analysis, it does allow for fundamental examination. This allows all market participants to learn more and get a higher-than-average return on investment.

- **Semi strong form efficient market hypothesis**

This version of EMH elaborates on the assumptions of the weak form and accepts that the market prices make quick adjustments in response to any new public information that is disclosed. Hence, there is no scope for both technical and fundamental analysis.

- **Strong form efficient market hypothesis**

This form of EMH states that the market prices of securities represent both historical and current information. This includes insider information as well as publicly disclosed information. It also suggests that the price reflects information available only to board members or the CEO of a company.

Module V

Investor Protection

A stock exchange or securities exchange is an exchange where stockbrokers and traders can buy and sell securities, such as shares of stock, bonds, and other financial instruments. Stock exchanges may also provide facilities for the issue and redemption of such securities and instruments and capital events including the payment of income and dividends. Securities traded on a stock exchange include stock issued by listed companies, unit trusts, derivatives, pooled investment products and bonds. Stock exchanges often function as "continuous auction" markets with buyers and sellers consummating transactions via open outcry at a central location such as the floor of the exchange or by using an electronic trading platform.

Stock exchange board of India(SEBI)

The Securities and Exchange Board of India (SEBI) is the regulatory body for securities and commodity market in India under the jurisdiction of Ministry of Finance, Government of India. It was established on 12 April 1988 and given Statutory Powers on 30 January 1992 through the SEBI Act, 1992.

Functions and responsibilities

SEBI stands for Securities and Exchange Board of India. It is a statutory regulatory body that was established by the

Government of India in 1992 for protecting the interests of investors investing in securities along with regulating the securities market. SEBI also regulates how the stock market and mutual funds function. The Preamble of the Securities and Exchange Board of India describes the basic functions of the Securities and Exchange Board of India as "to protect the interests of investors in securities and to promote the development of, and to regulate the securities market and for matters connected there with or incidental there to".

SEBI has to be responsive to the needs of three groups, which constitute the market:

- issuers of securities
- investors
- market intermediaries

SEBI has three powers rolled into one body: quasi-legislative, quasi-judicial and quasi-executive. It drafts regulations in its legislative capacity, it conducts investigation and enforcement action in its executive function and it passes rulings and orders in its judicial capacity. Though this makes it very powerful, there is an appeal process to create accountability. There is a Securities Appellate Tribunal which is a three-member tribunal. A second appeal lies directly to the Supreme Court. SEBI has taken a proactive approach to bringing disclosure rules in line with worldwide standards.

Functions of SEBI:

The main primary three functions are-

- Protective Function
- Regulatory Function
- Development Function

Protective function

The protective function refers to SEBI's role in safeguarding the interests of investors and other financial participants. The following activities are part of the protective function.

- **Prohibits insider trading:** Insider trading is defined as the act of purchasing or selling securities by company insiders, such as directors, employees, and promoters. SEBI has made it illegal for firms to buy their own shares on the secondary market in order to discourage such trading.
- **Monitor price rigging:** Price rigging is the act of generating abnormal changes in the price of securities by either boosting or decreasing the market price of the equities, resulting in unanticipated losses for investors. In order to prevent such misdeeds, SEBI keeps a close eye on them.
- **Promoting ethical business practises:** SEBI supports ethical business practises and seeks to prevent fraudulent activity involving securities trading.
- **Provider of financial education:** SEBI teaches investors through online and offline workshops that provide market insights as well as money management advice.

Regulatory Functions:

Regulatory functions entail the creation of rules and regulations for financial intermediaries as well as corporations, which aid in the efficient management of the market.

Some of the regulatory functions are listed below.

- SEBI has established rules and regulations, as well as guidelines and a code of conduct, for corporations and financial intermediaries to follow.
- Governing the procedure of a company's takeover.
- Investigating and auditing stock exchanges.
- Oversees the activities of stock brokers and merchant brokers.

Developmental Function:

SEBI's developmental function refers to the actions it takes to educate investors about the trading and market functions. The activities listed below are part of the developmental function.

- Intermediaries in the security market receive training.
- The use of registered stock brokers to introduce trading through electronic methods or the internet.
- By making underwriting an optional mechanism, the cost of issue can be reduced.

Structure of SEBI

SEBI board comprises nine members. The Board consists of the following members.

- One Chairman of the board who is appointed by the Central Government of India
- One Board member who is appointed by the Central Bank, that is, the RBI
- Two Board members who are hailing from the Union Ministry of Finance
- Five Board members who are elected by the Central Government of India

Powers of SEBI:

- To regulate and approve by-laws of stock exchanges
- Inspect the books of accounts of recognized stock exchanges and call for periodical returns
- Inspect the books of financial Intermediaries.
- Compel certain companies to get listed on one or more stock exchanges
- To handle the registration of brokers

Investor Protection Measures by SEBI

Investors are the pillar of the financial and securities Market. They determine the level of activity in the market. They put the money in funds, stocks, etc. to help grow the market and thus, the Economy. It thus very important to protect the interests of the investors. investor protection involves various measures

established to protect the interests of investors from malpractices. Securities and Exchange Board of India (SEBI) is responsible for regulations of the Mutual Funds and safeguard the interests of the investors. Investor protection measures by SEBI are in place to safeguard the investors from the malpractices in shares, the stock market, Mutual Fund, etc.

The Role of SEBI in Investor Protection

SEBI has given out various methods and measures to ensure the investor protection from time to time. It has published various directives, driven many investor awareness programmes, set up investor protection Fund (IPF) to compensate the investors. We will look into the investor protection measures by SEBI in detail:

- SEBI constructs the limit of financial backers through instruction and attention to empower a financial backer to take educated choices. SEBI tries to guarantee that the financial backer gets the hang of contributing. In simpler words, SEBI ensures that the investor gets and utilizes data needed for contributing and assesses different speculation alternatives to suit his particular objectives.
- It helps the investor find out his privileges and commitments in a specific venture, bargains through enlisted mediators, plays it safe, looks for help if there should be an occurrence of any complaint, and so on.
- SEBI has been putting together financial backer schooling and mindfulness workshops through financial backer affiliations and market members, and has been urging market members to sort out comparable projects.

- It distributes different sorts of alerts through media. It reacts to the questions of financial backers through phone, messages, letters, and face to face for the individuals who visit SEBI office.

Investor Awareness Measures Initiatives of SEBI

A. Financial education programs conducted by SEBI empanelled Resources Persons in cities/towns in their local languages for various target groups like retired persons, home makers, self-help groups, working executives etc.

B. Visit to SEBI programs

Investors awareness programs conducted in schools, colleges and universities and professional institutes who visit SEBI offices in these programs.

C. Regional seminars

D. Investors awareness programs through Investors Associations(IAs)

E. Investors Awareness Programmes through Commodities Derivative Trainers (CoTs) in towns/cities.

F. Investors Awareness programs through Securities Market Trainers(SMATs)

Investors education programs through conducted by SEBI recognised securities Market Trainers(SMARTs) in tier II/tier III/cities/towns

INVESTORS PROTECTION: GRIEVANCES AND THEIR REMOVAL

In India investment risks are very high due to **dishonest practices, frauds and unethical investment culture**. Investors experience a sense of **helplessness and insecurity**, they have hardly any confidence in financial markets. Investors are cheated by companies, by lead managers, by brokers and by everybody, who is capable of cheating them. The Government, the Company Law Board and the SEBI, in recent years have made efforts to protect the investors. **“Investors protection** is a wide term, it encompasses all the measures designed to protect investors from malpractices of brokers, companiesmanagers to issue, merchant bankers, registrar to issues etc. The main complaints are against brokers of stock exchanges, against listed companies and mutual funds.

USUAL GRIEVANCES OF INVESTORS

- **Against Companies.**
- **Against Brokers.**
- **Against depositories.**

USUAL GRIEVANCES AGAINST COMPANIES

1. **Delay in registering transfer of securities.** Registration of transfers should be done by the companies within 30 days of receipt of share transfer instrument but usually it takes many months.
2. **Non-payment or delay in payment of dividend.** Dividends should be distributed within 30 days from the date of declaration but by manipulation of procedures dividends may not be received for months.

3. **Non-repayment or delayed repayment of public deposits.** Thousands of depositors are involved in litigation to get back their deposits from companies.
4. **Non-receipt of rights issue offer.** The letter of offer of rights shares should be sent to all eligible shareholders by registered post and this fact should be prominently advertised in at least two all India newspapers. Shareholders quite often are not informed of rights issue.
5. **Non-receipt of duplicate share certificate.** A company is bound to issue duplicate share certificates if the shares are lost or misplaced by the shareholder, after receiving a request along with the requisite fee and on completion of formalities.
6. **Transmission of shares.** After the death of a shareholder the ownership of shares passes to his legal heirs which is called transmission of shares. The company is bound to transfer the shares in the name of legal heir of the deceased.
7. **Non-receipt of notice of meeting.** Every shareholder whose name appears in the register of members is entitled to receive 21 days advance notice of meeting of shareholders. Non-dispatch of notice of meeting to shareholder is common but serious lapse.

USUAL GRIEVANCES AGAINST BROKERS

1. **Delay or default in payment of securities sold.** A broker has to make payment to client who has sold securities through him within in 48 hours of payout of funds by clearing house of stock exchange or the Clearing Corporation. but brokers, as a rule, retain the sale proceed as long as they can.

2. **Delay or default in delivery of purchased security to the client.** A broker has to deliver the purchased securities to his client within 48 hours of payout of securities by the stock exchange. It never happens so, in practice.
3. **Non-Issue of contract note.** Brokers have to issue a contract note in in prescribed form to all their clients within 24 hours of the transaction but they avoid doing so to earn secret profits.
4. **Charging excess brokerage from clients.**
5. **Non-passing of corporate benefits.** A broker is duty bound to pass all the corporate benefits like rights shares, bonus shares, dividends etc. to the client he is dealing with but, many a times brokers play tricks in this regard.
6. **Overcharging.** the broker should charge or pay only that amount for of sale or purchase of securities at He should not overcharge for purchases or pay less for the sales. In practice, most brokers play tricks about it.

GRIEVANCES AGAINST DEPOSITORY PARTICIPANT

Depository Participant is an institution which holds securities either in certificated or uncertificated form, help in dematerialization of securities etc. of the holder. Various banks and other institutions are doing this work. Every depository participant must forward all the dematerialization or materialization requests of his clients to the concerned company within 7 days of the receipt of the request but delays are quite common.

Main Depositories are:

- NSDL: National Securities Depositories Limited (1996)
- CDSL: Central Depositories Services Limited (1999)

METHODS OF REDRESSAL OF INVESTORS GRIEVANCES

An investor can seek redressal of his grievances from, the following agencies:

1. Grievance cells in stock exchanges
2. SEBI
3. Company Law Board
4. Courts
5. Press

1. GRIEVANCE CELL/ INVESTOR SERVICE CELL IN STOCK EXCHANGES

All the recognised stock exchanges have established Investors services cells to redress the grievances of investors. These cells have played an important role in settlement of grievances and have infused confidence among investor. Investors approach these investors grievance cells to lodge complaints against companies and members of the stock exchange acting as brokers. Both BSE and NSE too have their grievance cells.

METHOD OF REDRESSAL OF GRIEVANCE AGAINST COMPANIES IN INVESTOR SERVICE CELL

1. After receiving the complaint from investors, these are forwarded to the concerned company which is directed to solve the matter within 15 days, progress is monitored.

2. If, in spite of reminder, the company fails to resolve the complaints and the total number of pending complaints against the company exceeds 25 lakh and if these complaints are pending for more than 45 days, the cell issues a show cause notice of 7 days to the company.
3. If the company still fails to resolve the complaint within 7 days of issue of show cause notice the scrip of the company is suspended from trading.
4. Investors grievance cell can also transfer scrips of defaulting company to Z category for non-resolution of investors complaints
5. Companies which have a long history of not resolving investors grievances and have a large number of pending complaints are instructed to employ special personnel to clear pending complaints on a priority basis.

METHOD OF REDRESSAL INVESTORS GRIEVANCES AGAINST STOCK BROKER BY INVESTOR SERVICE CELL

1. When a complaint is lodged with the stock exchange authorities, they forward it to the investor service cell which refers the complaint to the concerned broker and asks him to settle the complaint and send a reply within specific days.
2. If no reply is received or the received reply is not satisfactory the matter is placed before the Investors_Grievance Redressal Committee (IGRC) of the stock exchange.
3. This committee hears both, the complainant, the broker, and efforts are made the solve the matter failing which, it is referred for arbitration which is a quasi-judicial process.

4. A sole arbitrator is appointed if the sum is for less than 25 lakhs, for claims above Rs. 25 lakhs, a panel of 3 arbitrators is appointed.

5. An aggrieved party can file an appeal against the award given by the arbitrator in appropriate court.

OTHER MEASURES TAKEN BY INVESTOR SERVICE CELL

Other measures taken for Investor protection by stock exchanges and resolve the grievances of the investors and members of the exchange are

1. Calling company representatives to the stock exchange to interaction.

2. Calling registrars and transfer agents to the stock exchange to interact.

3. Issuing monthly press releases,

4. listing top 25 companies against whom maximum complaints are pending for resolution, this is also released on the website of the exchange.

5. In the case of Bombay Stock Exchange, it can pursue Mumbai based companies to depute their representatives to the exchange to take up the pending list of complaints and resolve them without delay.

2. REDRESSAL OF GRIEVANCES THROUGH SEBI

- Complaints arising out of activities that are covered under SEBI Act, 1992; Securities Contract Regulation Act, 1956; Depositories Act, 1996 and Rules and Regulations made

thereunder and provisions that are covered under Section 55A of Companies Act, 1956 are handled by SEBI.

- SEBI has a dedicated department viz., Office of Investor Assistance and Education (OIAE) to receive investor grievances and to provide assistance to investors by way of education.
- Grievances pertaining to stock brokers and depository participants are taken up with respective stock exchange and depository for redressal and monitored by SEBI through periodic reports obtained from them.
- Grievances pertaining to other intermediaries are taken up with them directly for redressal and are continuously monitored by SEBI.
- Grievances against listed company are taken up with the respective listed company and are continuously monitored. The company is required to respond in prescribed format in the form of Action Taken Report (ATR). Upon the receipt of ATR, the status of grievances is updated.

GUIDELINES RELATED TO INVESTORS PROTECTION

- SEBI (Disclosure and Investor Protection) Guidelines, 2000.
- SEBI (Investor Protection and Education Fund) Regulations 2009

3. REDRESSAL BY COMPANY LAW BOARD

- Company law Board which was constituted in May 1991 has been entrusted with many powers which were previously exercised by high courts. Every bench of company Law Board is deemed to be a civil court and every proceeding before it is deemed as judicial proceeding.
- To protect the interests of investors it has the power of inspection of records and documents and enforcing attendance of witnesses.
- An aggrieved investor can apply to the Company Law Board

(i) To investigate the affairs of the company

(ii) For relief in case of oppression of management and/or mismanagement

investors can also lodge complaints about delay and non-payment of fixed deposits and interest thereon with the Company Law Board.

Representations about desired changes in the Companies Act for investors protection can also be made to the Company Law Board

REDRESSAL OF INVESTORS GRIEVANCES THROUGH COURTS

When an investor has tried all other ways of getting his grievance settled there is no other way left with him except to proceed against the company or the intermediary by way of civil and criminal proceedings. Suits against companies can be filed in the high courts of the states. Every high court has special

designated benches about company affairs and all complaints against companies in breach of Companies Act are heard there.

An aggrieved party can file cases in high courts against the companies to get justice but the process of law is quite time-consuming and costly and hence beyond the reach of small investors.

SCORES (SEBI online complaint redressal system)

SEBI launched a centralized web based complaints redress system 'SCORES' in June 2011. The purpose of SCORES is to provide a platform for aggrieved investors, whose grievances, pertaining to securities market, remain unresolved by the concerned listed company or registered intermediary after a direct approach. SCORES is web-enabled and provides online access 24 x 7.

Complaints and reminders thereon can be lodged online at the website at anytime from anywhere. An email is generated instantaneously acknowledging the receipt of complaint and allotting a unique complaint registration number to the complainant for future reference and tracking. The complaint forwarded online to the entity concerned for its redressal. The entity concerned uploads an Action Taken Report (ATR) on the complaint. SEBI peruses the ATR and closes the complaint if it is satisfied that the complaint has been redressed adequately. The concerned investor can view the status of the complaint online from the above website by logging in the unique complaint registration number.

SCORES also provides a platform, overseen by SEBI through which the investors can approach the concerned listed company or SEBI registered intermediary in an endeavour towards speedy redressal of grievances of investors in the securities market. It

would, however, be advisable that investors may initially take up their grievances for redressal with the concerned listed company or registered intermediary, who are required to have designated persons/officials for handling issues relating to compliance and redressal of investor grievances.

Insider trading

Insider Trading is a practice of using confidential information (unpublished price-sensitive information) of a company to trade in the company's securities. The unpublished price-sensitive information is not known to the general public as it is not published and is related to the decisions taken by the Board of Directors of the company. The use of such information to cause wrongful gain or loss is termed as insider trading. The information is referred to as 'price-sensitive' as it is capable of influencing a company's securities' price in the market.

“Insider trading is an act of buying, selling, subscribing or agreeing to subscribe in the securities of a company, directly or indirectly, by the key management personnel or the director of the company who is anticipated to have access to Unpublished Price Sensitive Information with reference to securities of the company and it is deemed to be insider trading.”

"Insiders" are people who have access to confidential, price-sensitive information about the company. They utilise this information against uneducated investors to make enormous profits before the public is aware of it. Partners, directors, officers, and employees of a company and related companies, persons with some kind of official relationship with a company, professional or business (e.g., auditors, consultants, bankers, and brokers), stockholders, government officials, and stock exchange employees, among others, are all considered

"insiders." It should be highlighted that the board of directors and staff have direct access to price-sensitive information and are thus free to use it anyway they see fit. There may be times when an insider can provide knowledge to an outsider and thereby deal with the outsider without taking responsibility. Insiders can participate in a variety of other illegal activities while going unreported. As a result, it is critical to call attention to such flaws in the system.

Unpublished Price Sensitive Information or UPSI

Reg. 2(1)(n) the SEBI (Prohibition of Insider Trading) Regulations, 2015 ("PIT Regulations") defines UPSI which is an inclusive definition and includes certain information as financial results, dividends, change in capital structure, mergers, de-mergers, acquisitions, delisting, disposals and expansion of business and such other transactions, changes in Key Managerial Personnel (KMP). As per this definition, UPSI means any information, relating to a company or its securities, directly or indirectly, that is not generally available which upon becoming generally available, is likely to materially affect the price of the securities. Here, meaning of generally available information means information that is accessible to the public on a non-discriminatory basis.

Regulation 3 of SEBI (PIT) Regulation 2015 deals with communication or procurement of unpublished price sensitive information (UPSI). As per Regulation 3(1) of the SEBI (Prohibition of Insider Trading) Regulations, 2015, no insider shall communicate, provide, or allow access to any unpublished price sensitive information, relating to a company or securities listed or proposed to be listed, to any person including other insiders except where such communication is in furtherance of legitimate purposes, performance of duties or

discharge of legal obligations. According to Regulation 3(2A) of the Regulations, the Board of Directors of a listed company shall create a policy for determination of ‘legitimate purposes’ as a part of ‘Codes of Fair Disclosure and Conduct’ formulated under regulation 8. Regulation 3(5) of the Regulation provides the Board of Directors of the company is required to ensure that a Structured Digital Database is maintained. The Compliance Officer may be designated to maintain the database and he shall enter the names of all the DPs and persons bought inside in the structured digital database, on the basis of information received by him for other departments.

Every listed company has to disclose events or information which is material in nature. Companies prepare a materiality policy to determine such events or information. However, Regulation 30 of SEBI (Listing Obligations and disclosure Requirement) Regulations 2015 also talks about disclosure of material events and information. Since all such material events may not be UPSI, companies would have to exercise caution and their own prudence to determine which of these deemed material events and other material events as determined by the materiality policy of the company would be UPSI as they are likely to affect the price of securities of the company.

Prohibition of Insider trading practices

Insider trading in India is prohibited by the Companies Act, 2013 and the SEBI Act, 1992. SEBI has formed the SEBI (Prohibition of Insider Trading) Regulations, 2015 which prescribe the rules of prohibition and restriction of Insider Trading in India. The Regulations passed by the Securities Exchange Board of India i.e., SEBI (Prohibition of Insider Trading) (Amendments) Regulations, 2018, are applicable mainly to “dealing in securities” which involves “buying, selling

or agreeing to buy, sell or deal in any securities by any person either as principal or agent, by insiders on the basis of any private confidential information.” The Regulations are only applicable to the exchange of listed securities.

The Regulations provide that the communication or dissemination of any confidential information, by an insider, is prohibited. The information communicated or disseminated must be unauthorized. The information can be used by the person himself or any other person on his behalf. If any person contravenes with any provision of the SEBI Regulations, it amounts to an offence under the Act and is punishable with imprisonment up to 10 years or a fine up to 25 crores, whichever is higher. Under the SEBI Regulations, the adjudicating officer may impose a penalty on any person who contravenes with the provisions of the regulations except for the offence committed under section 24 of the Act. SEBI also has the power to investigate the case of Insider Trading and related matters. The powers of Investigation may be exercised by SEBI for two main reasons:

- To investigate into the complaints received from investors, intermediaries or any other person on any matter having a bearing on the allegations of insider trading; and,
- To investigate upon its own knowledge or information in its possession to protect the interest of investors in securities against breach of these regulations.

Under the Regulations, promoters of the company will be held liable irrespective of their shareholding status if they are found violating insider trading norms using unpublished price-sensitive information of the company in absence of any legitimate purpose.

There are certain exceptions to these prohibitions by SEBI such as,

- Disclosure is allowed for legitimate purposes, performance of duties or discharge of legal obligations.
- Disclosure is allowed when there is an obligation to make an open offer; and where disclosure is required in the best interest of the company.

Investor's Rights

Right to:

- Get Unique Client Code (UCC) allotted.
- Get a copy of KYC and other documents executed.
- Get order of trading of shares executed in his/her Unique Client Code only.
- Get order of trading of shares placed as per terms and conditions agreed to between broker and investor.
- Get best price.
- Get contract note for trades executed.
- Get the details of charges levied.
- Receive funds and securities on time.
- Get shares through auction where delivery is not received.
- Receive statement of accounts from trading member.
- Ask for settlement of accounts.

Investor's Obligations

Obligation to

- Possess a valid contract or purchase/sale note.
- Deliver securities with valid documents and proper signatures.
- Execute Know Your Client (KYC) documents and provide supporting documents.
- Understand the voluntary conditions being agreed with the member.
- Understand the rights given to the Members.
- Read Risk Disclosure Document.
- Understand the product and operational framework and deadlines.
- Pay margins.
- Pay funds and securities for settlement on time.
- Verify details of trades.
- Verify bank account and Depository Participant (DP) account for funds and securities movement.
- Review contract notes and statement of account.

Right for redressal against:

- Fraudulent price
- Unfair brokerage
- Delays in receipt of money or shares
- Investor unfriendly companies

The obligation to ensure

- Payment on time
- Delivery of shares on time

- Despatch of securities for transfer to the company on time
- Securities purchased are received on the Client's beneficiary account.
- Dealing only with SEBI registered trading members and sub-brokers

Rights to Remedies

- To take up complaint against a member with the Exchange
- To take up complaint against a listed company
- To file arbitration against a member, if there is dispute
- To challenge the arbitration award before a court of law
- To file class action suit against the company.

Obligation Towards Remedies

- Take up complaints within a reasonable time
- Complaint to be supported by appropriate documents
- Provide additional information when called for
- To participate in dispute resolution meetings

Investor Activism

An activist investor is an individual or institutional investor that seeks to acquire a controlling interest in a target company by gaining seats on the company's board of directors. Activist investors are looking to make significant changes to the target company and unlock perceived hidden value within the target company.

Types of Activist Investors

Activist investors come in many different forms, including:

1. Individual Activist Investors

Activist investors who are individuals are usually very wealthy and influential. They can leverage their capital to purchase a large number of a company's shares to gain enough voting rights on the board of directors. They aim to influence the strategic direction of the target company. The individuals are usually well known within the finance industry and use their influence to make structural changes to a company's strategy. For example, if an individual activist does not believe management is allocating capital properly, they can use their influence over the board of directors to push for different capital allocation.

Some examples of well-known activist shareholders are:

- Bill Ackman – Founder and chief executive officer (CEO) of Pershing Capital
- Carl Icahn – Founder of Icahn Enterprises
- David Einhorn – Founder and president of Greenlight Capital
- Dan Loeb – Founder of Third Point Partners

2. Private Equity Firms

Activist investors in the form of private equity firms employ many different strategies but usually will take control of a public company with the intention of taking it private. The structure of a private equity firm includes limited partners who own a significant amount of the fund and enjoy limited liability and a

general partner who assumes unlimited liability. Private equity firms use capital from various investors who are willing to invest large amounts of capital for an extended period of time.

3. Hedge Funds

Activist investors in the form of hedge funds can take control of a public company in a variety of ways. Hedge funds can take the approach of an individual activist investor or can act like private equity firms. The underlying goal of a hedge fund is to generate a return for investors no matter what, and the funds are not subject to constraints on the strategies that they can employ to do so. Many individual activist investors act through opening hedge funds, and similarly to private equity firms, they are established with investments from several limited partners and a general partner. The investments are illiquid since they are usually locked up for at least one year to provide hedge fund managers with flexibility.